PROPRIETARY SOFTWARE

Remarks of
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It is very apparent to those concerned with Government procurement activities and those of us concerned with research and development, that private enterprise is becoming increasingly reluctant to commit its resources to Government business. This reluctance effectively reduces the base of industrial creativity which has attained and maintained our nation's leadership in technology, and is certainly a matter of growing concern.

Federal statutes and federal policies relating to proprietary data and the manner in which they are implemented have no doubt contributed significantly to this situation. Another contributor to this state of affairs is the fact that although we live in the age of the computer, we are still governed by laws of the horse and buggy era with regard to copyright and patent law. Our present copyright act became effective law on July 1, 1909. This law, subject to a few minor amendments, is still the law enforced today. The patent law was originally passed in 1790, and its last major overhaul was in the year 1836. The general character of that law has gone unchanged for the last 130 years.

It is generally agreed that we are now only in the first stages of an industrial revolution based on the expanding capabilities and applications of computers. Indeed, the use of computers as information storage and retrieval systems and as accounting and decision making apparatus appears to be without limit, and the computer programs for effecting these uses have become very important assets representing very substantial expenditures and investments of time, skill, and funds. While legal protection of computer hardware has generally not been a problem because of the availability of patent protection for hardware, the means for achieving legal protection for computer software has spawned many

problems in the fields of intellectual property law. The continuing evolution of law as it bears on the patentability of computer programs and the implementation of procurement regulations for the various federal agencies, inasmuch as these regulations relate to computer software, are areas of great concern. Another specific example and troublesome area of concern involves the storage of copyrighted material in a computer memory bank without the express permission of the copyright owner or without royalty payments to the owner.

With these problems of legal protection for computer software, the Federal Government is much involved. The Government has long been in the fore in advancing computer science and technology, having participated significantly in the very early stages of computer development and now being by far the largest single procurer of computers. It is estimated that the Government now leases or buys outright about 10 percent of all computers produced in the United States. There is also little doubt that more and more of the items to be procured by the Government will be described in computer language or be produced by numerically controlled machine tools.

The protection of intellectual property is generally accomplished by the statutory means of obtaining a patent, by the use of copyright, or through the common law concept associated with trade secrets. The law, as it affects all the traditional areas of rights in intellectual property, is currently in a state of rapid flux and turmoil. The selection of a particular legal means for protection of intellectual property is therefore not altogether without risk.

Heretofore, the type of protection for computer software which has been the most popular and has proven the most practical has been the use of contractual agreements such as the sale and lease of computer programs and software services. The popularity of contractual agreements is no doubt attributed to the fact that, generally speaking, the computer has not caused any change in basic contract law, and that the property represented by the program may be more

easily controlled by use of provisions which can be very specific regarding non-disclosure, restrictions as to use, dissemination, etc. as applicable to the particular program.

The copyright has also been widely used with computer software. The constitutional basis for our copyright laws, as well as patent laws, resides in Article I, Section 8 of the Constitution, "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." The copyright statute enacted by Congress in furtherance of this Constitutional directive lists the rights of a copyright owner as the exclusive right to print, reprint, publish, copy, and vend the copyrighted work, and to translate, dramatize, arrange or adapt it. The copyright is valid for a period of 28 years and is renewable for an additional 28 years. The Register of Copyrights granted the first copyright registration for a computer program in 1964. The copyright registration operates to protect against unauthorized copying of the computer program. It does not protect the concepts embodied therein. It does not protect the idea or central theme of the computer program, and does not prevent another from independently arriving at the same program.

There was initially in the Copyright Office considerable deliberation as to whether a computer program constituted the "writing of an author" as specified in the Constitution, and whether or not a reproduction of the program in a form to be "read" by a machine could be considered a "copy" for purposes of copyright registration. However, the Copyright Office settled the matter by announcing that in accordance with its policy of resolving doubtful issues in favor of registration wherever possible, the Copyright Office would process computer programs for registration.

To date, there has been no judicial determination on either the validity of copyright for a computer program or scope of protection of a copyrighted computer program. While a

printed version of a computer program would clearly appear to be a "writing" and therefore copyrightable, there is doubt as to whether or not the same program on a magnetic tape would be considered to be a "writing," particularly since the notations on the tape cannot be directly perceived by human beings. Although programs on magnetic tapes may prove to be uncopyrightable, they may still be protected against copying in that form if a reproduction on magnetic tape is found to constitute an infringement of a valid copyright on a printed program. Doubt as to copyright protection of a tape results from the decision in White-Smith Music Publishing Company v. Apollo Company, 209 U.S. 1 (1908), wherein the Court held that a punched paper tape, a piano roll, was not a copy of printed musical composition. With respect to programs represented by punch cards, however, these appear to be in an intermediate category since they can be visually read.

In addition to the lack of resolution by the Courts as to which, if any, of the various media for computer programs constitute "copies," there are possible difficulties relating to the usage of the program by the computer, particularly as to the means and methods of manipulating information within the computer to produce the output and the programming of the computer.

Accordingly because of the ease of obtaining the copyright registration and the lack of judicial precedent, some have sought copyright protection for all computer program documentation, including source and object programs in all forms, flow charts, printouts, operator's and user's manuals, test problems, and the like. However, rather than attempting to copyright program tapes or cards, the focus now appears to be on the "listing" of the computer program, the printed text of which is used as the published copy for copyright. IBM, among others, has adopted copyright as its method of protecting its program "listings."

By putting the copyright on the printed text, rather than on tape, many of the doubts about the legitimacy of copyright on a published program tape can be sidestepped. The mere fact

that the printed text happens to be a computer program cannot negate copyright since such a text is a kind of writing which is widely read by computer professionals in their work, quite apart from its application after transformation to the control of a computer.

Taking the text of a program as the basis of copyright, the various kinds of exclusive rights stated in the law and derived from copyright can be relied upon. These rights would include making translations "into other languages and dialects" and the "making of any other version" of the protected text.

Such protected derivative works would include not only text copies, but should also include tapes and cards for making infringing copies, various compiled versions of the program and object binary code programs, and flow diagrams of the program.

Copying such original or derived versions from one place to another within a computer installation, or into other media, would also be protected as well as any translation from a program listing in one computer language, such as Fortran, into another computer language. Perhaps of most importance, the high inherent value in a completely debugged program, residing in the correctness of a multitude of details, is also protected from copying.

It should be kept in mind, however, that all such prohibitions against copying are subject to the doctrine of "fair use." This doctrine is an exception to the copyright law in that it allows limited use of copyrighted materials for educational purposes or private study, and provided the use has no potential effect on the market for, or value of, the work to the copyright owner.

In a recent case decided by the Supreme Court of Canada in Cuisenaire v. Southwest Imports Limited, 1969 SCR 208, the author had copyright in a book for teaching arithmetic which described a method of instruction using rods of varying

lengths and colors. The author also distributed these colored rods and claimed copyright in them. The Canadian court rejected that proposition since the rods were "merely devices which afford a practical means of employing and presenting the method." It is perhaps significant that even though the colors of the rods were purely arbitrary to interest the children, the court refused to find those color arrangements copyrightable when used in a practical method of carrying out the idea.

From application of the Cuisenaire decision to the program "listing" situation, it is difficult to believe that any U. S. court would have held much differently. Nor can it be well argued that a written program listing and a magnetic disc version of it are too strained an analogy to the book and rods of Cuisenaire to expect a much different result in a computer program case either in Canada or the United States. Hence, while copyright is a popular means of seeking protection for computer software, the question remains whether any Federal court would enjoin the use of a copyrighted "listing" to run a digital computer. To do so would in effect provide a 56 year "monopoly" over use, something hitherto limited to only 17 years by patent which some courts no doubt consider too long in view of the inordinately high statistical holdings of patent invalidity in some of the Federal District Courts.

Under its Procurement Regulations, NASA permits its contractors to copyright technical data first generated under a NASA contract, reserving unto itself a royalty-free license under the copyright which thus permits NASA to publish and disseminate the copyrighted data to the public. This privilege of copyright however, is not included in those contracts wherein the primary object of the contract is the first production of data. In all other contracts where the contractor is permitted to copyright the data generated, exception is made in that the contractor agrees not to assert any claim to copyright in any computer program, computer data base, or documentation thereof first produced in performance of the contract. The theory is that by permitting contractors to copyright computer programs devloped under NASA contract

could substantially reduce the value of computer programs made available under the dissemination program. It might also be that while one may read a copyrighted book without infringement, the same may not be held true as regards machine "reading" of a computer program.

The policy, therefore, to not permit the copyrighting of computer programs first produced under a NASA contract, is largely based on the consideration that such copyrights would hamper NASA's efforts to obtain for the public the widest possible dissemination and benefits. Nevertheless, a deviation to this general policy would be considered by NASA should the contractor establish that a private copyright would enhance the dissemination and utilization of the computer program. Indeed, the public interest may best be served in certain instances by permitting the contractor to seek copyright protection. Contractors who feel that their exploitation of copyrights would best achieve these goals should present their request to the Contracting Officer for a deviation to the NASA policy. Where the computer program is considered patentable, the program can be considered by NASA, as are other inventions, under its Patent Waiver Regulations, by which title may be waived to the contractor with the reservation of a license to the Government.

The subject of patentability of computer software has been a very popular one in recent years and an increasing number of patent applications are being filed to seek legal protection for computer programs. A United States patent may be defined as a grant issued by the Government which gives an inventor the right to exclude all others from making, using, or selling his invention within the United States, its territories and possessions. A foreign patent is usually a similar grant issued by a foreign government which generally gives the inventor the same rights of exclusion in the foreign country. The term of a United States patent is 17 years from the date of issue and the patent is not renewable. When the patent issues there is a publication of the invention.

The only United States court which has spoken on the subject of whether or not computer programs are patentable subject matter is the United States Court of Customs and Patent Appeals. This it has done as part of its job of reviewing rejections by the Patent Office of patent application claims. The Court has spoken several times since its first utterance on the subject and case by case it has logically built up the law in this area.

In the much celebrated case of In re Prater (II), 162 USPQ 541 (CCPA 1969), the Court asserted the theory that once a program has been introduced, the general purpose digital computer becomes a special purpose computer. In a later case decided by the Court on November 29, 1969, In re Bernhart and Fetter, 163 USPQ 611 (CCPA 1969), the Court concluded that claims which include steps not carried out by machines are permissible if the overall claim is directed to a process which requires machine implementation. It thus became very clear that computer programs are patentable if in the proper form, and this was the form usually associated with a "flow chart" and not the long, detailed, step-by-step program.

The U. S. Patent Office has always been very reluctant to grant patents for computer programs. Many applications have been rejected in the Patent Office by the long standing "mental steps" doctrine which maintains that if all the steps of a method claim are purely mental in character, or if the novelty resides in the mental steps, the subject matter thereof is not patentable within the meaning of the patent statutes, it being "self-evident" that thought is not patentable.

This doctrine has now been knocked into a "cocked hat" by the decision of the CCPA in the case In re Musgrave, 169 USPQ 280 (CCPA 1970), decided October 8, 1970. The patent claim in this instance related to a method of seismic exploration, and the novelty resided in such mental steps as "applying corrections," "detecting," and the like.

In a more recent case, In re Benson and Tabbot, 169 USPQ 548 (CCPA 1971), U. S. Court of Customs and Patent Appeals held that computers are in the "useful" arts, and that a computer implemented process is statutory subject matter, as is any process, even one carried out by pencil and paper manipulation, if there is no "exercise of judgment required." The Court theorized that even though a claimed process may be viewed as theoretically being capable of covering a non-machine implementation, it is permissible if from a practical point of view it would necessarily be carried out by a computer.

The Patent Office has asked on its behalf that the Supreme Court review this decision in In re Benson and Tabbot which holds computer programs to be patentable. According to the Patent Office, holding computer programs patentable constitutes a threat that general use of mathematical procedures involved in computer programming may become foreclosed by patent monopolies.

Apart from the strictly legal considerations affecting patentability, the Patent Office asserts the decision could also create enormous problems in the administration of the patent program. Its petition states, "No adequate classification technique or research files exist, and, even if these were available, reliable searches would not be feasible because of the tremendous volume of prior art. For this reason, it is doubtful that the criteria for the examination of patent applications ... can be effectively applied to applications for patents on computer programs. Rather, under the instant decision, patents issued on such applications may be little more in fact than registration, which must await the test of infringement litigation. As [the Supreme Court] stated in Graham v. John Deere, 148 USPQ 459 (1966), ... to await litigation is - for all practical purposes - to debilitate the patent system."

Further reluctance on the part of the Patent Office is now being shown by its use of novel rejections which are starting to flow from the Patent Office relative to the nature of the disclosure required for a program application. In a case

recently before the CCPA, In re Boon, 169 USPQ 231 (CCPA 1971), the Patent Office is asserting that the application requires the disclosure of a "listing" to meet the statutory requirements relating to disclosure needed in a patent application. The Court has remanded the case for other proceedings and has not decided this issue.

The heart of the problem lies in the fact that the program process, the idea, is the subject of the application and is valuable independently of any particular "listing" which may implement it but which may also be independently valuable and protectible as a trade secret. Many different "listings" may be possible for implementing the process. The disclosure of a "listing" in an application is certainly not desirable because it invites instant and cost-free infringement of the obvious-to-implement, nonobvious process, and provides a free ride for the infringer on the expense of developing an obvious but lengthy "listing."

Needless to say, however, no one would want to patent a "listing"; rather some scope of the program process, whether in method or "means for" form, is the protection reasonably to be sought. Even though the "listing" itself is theoretically protectible by a patent claim under the law as thus far developed, such an excruciatingly detailed patent claim may be so easily designed around by an infringer as not to be seriously viewed as property of any value.

One of the primary objectives of the NASA's Procurement Regulations is to assure that NASA and the Government obtain those rights to computer programs which are necessary to meet the needs of NASA. Under its enabling statute, NASA has a mandate to provide for the widest practicable dissemination of information concerning its activities and the results thereof. In order to meet this requirement, NASA has established a publication dissemination program under which its generated technology is made available to the public and the industrial sector. As part of this program, NASA has established a computer software management information center, code name COSMIC, at the University of Georgia, and also

maintains a sharing library, both of which are keyed to making computer programs generated by NASA, both in-house and under contract, available to the public and government contractors.

In its research and development contracts, NASA uses a "New Technology" clause which requires the reporting of new technology. This clause defines a "reportable item" as "any invention, discovery, improvement, or innovation, whether or not the same is susceptible to protection under the U. S. patent laws, which is made under performance of work under this contract." Computer programs obviously fall within this definition and thus must be reported if generated as new technology under the contract.

The "New Technology" clause also provides that the report shall include such technical detail as is necessary to identify and describe fully the nature, purpose, operation, and physical characteristics of the reportable item. Upon written request by the Contracting Officer, the contractor must also furnish full and complete technical and other information as is available and as is necessary for the preparation of a patent application if the Government should decide to seek patent protection thereon. In view of the court decisions regarding patentability of computer programs, this would require at least a disclosure of the "flow chart." As yet the "listing" would not be required unless the Patent Office should eventually win its argument that the "listing" is necessary for patentability.

Aside from copyright or patent protection, some owners of computer programs have elected to safeguard their program by maintaining it as a trade secret. The common law of trade secrets would hold one liable who wrongfully disclosed or used the trade secret. Wrongful disclosure amy result from the breach of a confidential relationship or from use of improper means to discover the trade secret. The "Restatement of Torts" defines a trade secrct as follows:

> "A trade secret may consist of any formula, pattern, device, or compilation of information which is used in one's business and which gives him an opportunity to obtain an advantage over contractors who do not know or use it. It may be a formula or a mechanical device, a process of manufacture, treating or preserving materials, a pattern for a machine or other device, or a list of customers."

A computer program obviously falls within this definition.

A NASA contractor may elect to safeguard his program by use restrictions or disclosure restrictions in his agreement with NASA. In research and development contracts, however, he may desire to have NASA recognize his proprietary interest in his computer program in the same manner as NASA presently protects proprietary data and trade secrets. Under NASA Procurement Regulations pertinent to R&D contracts, proprietary data is protected by permitting the contractor to withhold such data from delivery to NASA. In fact, the delivery of proprietary data in such contracts, even though it be marked as proprietary, would likely result in loss of its proprietary "trade secret" character.

The protection of a trade secret by withholding the information from NASA as permitted by NASA's regulation would obviously not be workable in contracts where a contractor would most likely be concerned about his proprietary computer program; that is, in contracts for the purchase of or a modification to his proprietary program. The purpose of these contracts is to obtain the delivery of the computer program for use by the Government, and there obviously could be no withholding. If the contractor wishes to treat his program as a trade secret, there should be imposed a requirement not to divulge the program contrary to the agreed upon restrictions as to use, duplication, and the like. Such a procedure would still permit the program innovator to retain his common law copyright in those portions of the computer program susceptible to this type of protection.

For those contractors who rely on contractual restrictions on the use of disclosure of their privately developed computer programs, the NASA standard data clause would not suffice, and therefore would be adjusted or replaced by agreed upon use of disclosure conditions. Since the terms and conditions of each such provision will probably vary, NASA does not see the feasibility of attempting to draft boilerplate clauses to accommodate provisions of this type, but instead considers tailoring clauses on a case-by-case basis.

The General Services Administration has overall cognizance of government procurement of computer software and has negotiated a few agreements wherein companies have placed software on the federal supply schedule. Proprietary computer software packages, however, are generally not on the federal supply schedule and government agencies are free to independently acquire such software. Nasa Procurement Regulation 9.205-3, which deals with purchases of existing computer programs or computer program data bases, specifies that when purchasing an existing computer program directly, rather than from the federal supply schedule contract, it is important that the contract adequately describe the computer program or the computer program data base, the form (tape, punch card, disc packs) of the program to be delivered and all the necessary documentation pertaining thereto. The contract should also specify any limitations on the right of the Government to use or copy the computer program, data base, or documentation, such as the physical location, number of uses, and other conditions under which the purchased material may be utilized. Legal counsel should be consulted.

Some things are to be kept in mind in drafting such provisions. For instance, the Contracting Officer may not agree that copyrighted software material will not be copied by the Government. This is because 28 USC 1498(b) is considered an eminent domain statute which provides that the exclusive remedy for government infringement of a copyright is a suit against the Government in the Court of Claims. Also, it is quite common for contractors to seek non-disclosure agreements for a specific software package on which copyright

is asserted. Since copyright requires disclosure, the inconsistency should be apparent.

The United States Congress, recognizing the economic value of proprietary data to its owner, has provided for compensation to the owner of proprietary data that has been used by the Government other than as authorized. The usual judicial remedy for trade secret violation by the Government is a suit in the Court of Claims under the Tucker Act, by which Act the Government has consented to be sued on any express or implied contract not sounding in tort. Congress has also provided that privileged or confidential trade secrets and commercial or financial information obtained from an individual person are specifically exempted from disclosure by the Government under the Freedom of Information Act. Additionally, a statute, 18 USC 1905, imposes severe penalties upon government employees for the unauthorized disclosure of information relating to trade secrets, processes, operations, style of work, or apparatus. NASA has attempted to safeguard proprietary data from unauthorized use by means of publishing instructions and regulations but, recognizing deficiencies therein, new procedures for safeguarding proprietary data from unauthorized use and disclosure are presently under consideration.

From the foregoing, it is obvious that the problems in treating proprietary computer software are numerous and proliferating. The protection attained by the various legal means of protecting intellectual property is no longer so certain. If computer programs are sustained as statutory subject matter under the view of the Court of Customs and Patent Appeals, then patents appear to be a very excellent way to protect the program process, the idea, but not so good if the Patent Office should succeed in forcing the applicant to dedicate his expensive "listing" to the public in order to gain protection for the unobvious process. Trade secrets, of course, suffer from the socially undesirable consequences of secrecy and trade secret protection has also been severely buffeted by the courts. However, trade secrets appear to be very susceptible of protecting both the program process and the program "listing."

Another legal remedy should be mentioned, which, like copyright, also goes to the protection of form and the program "listing" and now appears to be in the process of rejuvenation. In two musical tape piracy cases in the State of Illinois, it was held that there had been a wrongful appropriation. This development bodes well for protecting works from "misappropriation" as distinguished from "copying." To be sure, the significant question yet to be faced is whether this development is compatible with the Supreme Court decision in Sears, Roebuck & Co. v. Stiffel, 140 USPQ 524 (1969), wherein there was federal preemption rejection of state law attempting to place a proprietary cloak about anything which has already found its way into the public domain.

Since computer programs are typically captured on magnetic tape and discs not unlike those of the entertainment industry, the resurgence of a claim for relief based on "misappropriation" in the musical tape area is important, particularly should "copyright" protection prove more ethereal than real. The problems confronting some software property owners may therefore be in the process of resolution because of the judicial treatment of records and tapes in the music and entertainment industry. If so, the common law, as a social process, will have established a new vitality and effectiveness in our modern society.