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WORLD-WIDE PROTECTION OF COMPUTER SOFTWARE: AN ANALYSIS OF THE WIPO DRAFT PROPOSAL*

Introduction

Computers have had an immense effect on the character of life in the United States¹ and in the world.² It is rare to find a person or business which does not use a computer in some form, be it the smallest hand-held model³ or one requiring a special envi-

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1. Prasinos, *Worldwide Protection of Computer Programs by Copyright*, 4 Rutgers J. Computers & the Law 42 (1974) [hereinafter cited as Prasinos]. "The impact of the computer explosion has been felt in every sector of business and everyday life." *Id.* See also Grotzen, *Copyright and the Computer*, Copyright, March, 1977, at 15: "More and more use is being made of computers in almost all areas of human activity." *Id.*

2. International Bureau of the World Intellectual Property Organization & Advisory Group of Governmental Experts on the Protection of Computer Programs, *Model Provisions on the Protection of Computer Software*, Copyright, January, 1978, at 6 [hereinafter cited as WIPO(1978)]. The original study was taken partly to determine the best way of facilitating access to computer software by developing countries. *Id.* This suggests that impact is perceived by "first world" organizations as a world-wide phenomenon. See also, T. Franklin, *Computer Abuse 1976*, 43-77 (1977), for the 1976 model provisions [hereinafter cited as WIPO(1976)]. The text of the WIPO(1978) proposals is found in Appendix I.

3. Some hand-held calculators are programmable; other small computers are designed to be used in the home or office. See, e.g., Nat'l L.J., November 17, 1980, at 17. The growth of companies offering the hardware and soft-

ronment.⁴ As a result of this growth, the demand for computers,⁵ programmers⁶ and programs⁷ has given rise to a multi-billion-dollar industry.⁸

ware for these smaller models is rapidly increasing, *see, e.g., 4.5 Million-Share Stock Offering is Planned by Apple Computer*, N.Y. Times, November 7, 1980, at D3, col. 1. "[T]he market for inexpensive, personal computer systems . . . will be among the fastest growing in the computer industry." *Id.*

4. "There is hardly a major industry today which does not utilize computers in some form or another." Prasinis, *supra* note 1, at 42. Though "the typical early computer required an environment in which temperature and humidity were carefully monitored," this is not true to such a large extent today. *See* National Commission on New Technological Uses of Copyrighted Works, Final Report, July 31, 1978, at 22 [hereinafter cited as CONTU].

5. Prasinis, *supra* note 1, at 42. "From a handful of computers in 1950, the numbers have grown to over 100,000 in 1973." *Id.* (citing internal Honeywell figures). More recent market demand is suggested by *4.5 Million-Share Stock Offering is Planned by Apple Computer*, N.Y. Times, November 7, 1980, at D3, col. 1-3. Apple manufactures small computers designed for home and business uses, *id.* at col. 1, and reported "profits of \$11.7 million on revenues of \$118 million" for its most recent year. *Id.*

6. Prasinis, *supra* note 1 at 42, notes that "the sophistication of computer hardware has far outpaced its possible uses." *Id.* This implies a need for sophisticated programmers who can make use of this sophistication through their ability to manipulate the hardware. Bender, note 7 *infra*, at 13, suggests that "[T]he scarcity of programmers requires that the industry use such resources more economically." He cites *Computers and Automation*, October, 1968, at 10, for a 1968 prediction of a need for 500,000 programmers by 1970.

7. Bender, *Post-Adkins Trade Secret Protection of Software*, 1 Rutgers J. Computers & the Law 5 (1970) [hereinafter cited as Bender], notes that "the software segment of the [computer] industry is considered one of its most actively growing segments," *id.* at 8, n. 16, *citing generally*, 1969 Law of Software Proceedings, at Secs. Q, R, and S (Geo. Wash. Univ. 1969). This is also supported by the CONTU Report: "[a]s the number of computers has increased dramatically, so has the number of programs with which they may be used. . . . If present industry trends continue, it is all but certain that programs written by non-machine manufacturers will gain an increasing share of the market. . . ." CONTU *supra* note 4, at 25-26. Additionally, "large sums of money are at stake for the acquisition of hardware (the physical equipment) and software (the instructions, or programs, that tell hardware what to do)." *Of Computers and the Law*, N.Y. Times, September 14, 1980, at F 18, col. 3. All of these statements point up a large demand for a scarce commodity, thus justifying huge prices. *See* note 8 *infra*.

8. *E.g., WIPO(1978)*, *supra* note 2, at 7, estimates that "it is possible

Concurrent with this tremendous growth in industry usage has come an increased interest in the legal problems which are generated by the use of computers,⁹ as evidenced by the number of articles written on the subject,¹⁰ Supreme Court decisions,¹¹ the

that a sum on the order of 13 billion U.S. dollars is spent annually on the creation and maintenance of software systems." *Id.* (footnote omitted). CONTU, *supra* note 4, at 87 claims that "the combined revenues of the 42 members of the Computer and Business Manufacturer's Association rose in 1976 to 32.7 billion dollars; as to software, [the Association] had at one point an estimate of 17 billion dollars of production in the next three years." *Id.* (dissent of Commissioner Hersey) (footnote omitted). Bender, *supra* note 7, suggests that "[i]nvestment on software is currently on the order of \$8 billion per year." *Id.* at 8, n.16, citing Bender, *Business and Research Data on Software Development*, 1968 *Law of Software Proceedings*, 37 *Geo. Wash. L. Rev.* at §§ A-15, A-40-41 (1968). An interesting interpretation given to this rapid development is that of a "third industrial revolution" which will have effects on human life similar to those of the first two. See, e.g., Soltysinski, *Computer Programs and Patent Law: A Comparative Study*, 3 *Rutgers J. Computers & the Law* 1 (1972) [hereinafter cited as Soltysinski]. Prices for software have not remained stable: "[i]t is not uncommon these days for a company to spend hundreds of thousands and even millions of dollars for the acquisition of a single software system from an outside vendor," *Of Computers and the Law*, *N.Y. Times*, September 14, 1980, at F18, col. 3.

9. This interest is worldwide and of long standing. See Kolle, *Computer Software Protection—Present Situation and Future Prospects*, Copyright, March 1977 [hereinafter cited as Kolle], at 70:

The debate on both the possibilities and appropriate form for protection of software has now been continuing for nigh on fifteen years. The debate was initiated, logically, in the country in which automatic data processing was born, the United States, and has rapidly spread to almost all industrialized countries in both East and West [W]e are still faced with a whole gamut of divergent solutions ranging from the full recognition of the patentability of software and its protection under copyright, through various intermediary solutions, to a radical refusal of any protection under intangible property law.

Id. (footnote omitted). See also *Of Computers and the Law*, *N.Y. Times*, September 14, 1980, at F 18, col. 3, which notes an American solution: "[w]ith the growth of the computer industry during the past decade, the field of computer law has necessarily evolved as a new legal specialty." *Id.*

10. E.g., Lorr, *Copyright, Computers and Compulsory Licensing*, 5 *Rutgers J. of Computers and L.* 149 n.1 (1975) [hereinafter cited as Lorr],

CONTU report,¹² and the development of legal mechanisms used in foreign countries.¹³ These efforts revolve predominantly around the policy issue of legal protection for social and economic interests¹⁴ created by the manufacturer of computer software.¹⁵

The dichotomy expressed in these two predominant interests is between the needs of society, which desires full dissemination of new and useful ideas in order to assure sufficient management

noting 15 articles; Gemignani, *Legal Protection for Computer Software: The View from '79*, 7 Rutgers J. Computers & the L. 269 n. 1 (1980) [hereinafter cited as Gemignani], noting 9 articles; Soltysinski, *supra* note 8, noting 7 articles; and especially Nimtz, *Development of the Law of Computer Software Protection*, 61 J. of the Pat. Off. Soc'y 3, 26-43 (1979) which includes an exhaustive bibliography of material from 1958 to the present.

11. Parker v. Flook, 437 U.S. 584 (1978); Dann v. Johnston, 425 U.S. 219 (1976); Gottschalk v. Benson, 409 U.S. 63 (1972). The issue has not stopped here: *see, e.g.*, In re Toma, 575 F.2d 872 (C.C.P.A. 1978); In re Richman, 563 F.2d 1026 (C.C.P.A. 1977); In re DeCastalet, 562 F.2d 1236 (C.C.P.A. 1976); In re Deutsch, 553 F.2d 689 (C.C.P.A. 1977); In re Chatfield, 545 F.2d 152 (C.C.P.A. 1976), *cert. denied sub nom.* Dann v. Chatfield 434 U.S. 875 (1977); In re Noll, 545 F.2d 141 (C.C.P.A. 1976), *cert. denied sub nom.* Dann v. Noll, 434 U.S. 875 (1977).

12. *See* note 4 *supra*.

13. Soltysinski, *supra* note 8, notes the availability of patent protection in West Germany, France, Switzerland, Austria, the Netherlands, Poland, Sweden, Denmark, the United Kingdom, Canada, Australia, and South Africa. *Id.* at 4-24. He eventually concludes that "[t]he principle that one cannot patent 'a method of doing business,' 'abstract principle,' or 'a discovery' is universally accepted throughout the world." *Id.* at 78. Kolle, *supra* note 9, notes that, as far as other protective devices are concerned, "[t]he profound differences revealed by case law and legal writings in the different countries as regards the protection of software under current national legislation [is astonishing]." *Id.* at 20. Kolle's conclusion is that computer software is of such a character as to appear incapable of protection by current theories. *Id.*

14. *E.g.*, CONTU, *supra* note 4, at 14. An attempt was made "to define the impact on both users and producers of proprietary protection for computer produced works, software and data bases." *Id.* This is true for the United States; abroad, it has been noted that "intellectual creations in the field of software in principle [deserve and require] protection by way of exclusive rights or inventors' certificates to encourage the production and foster the exploitation of software and to promote the dissemination of knowledge related to software . . ." Kolle, *supra* note 9, at 70.

15. "Computer software" herein refers to the definition supplied by WIPO(1978), *supra* note 2. *See* § 1(iv) of the model provisions at Appendix I.

of its resources,¹⁶ and the proprietor¹⁷ of computer software, who seeks protection of his investment of time, thought and money.¹⁸ The achievement of a balance is the basic rationale for the systems of copyright,¹⁹ patent,²⁰ and trade secret²¹ laws

16. Efficient management presupposes a balance between those who wish to profit from their intellectual creations and those who wish a free flow of information. See Lorr, *supra* note 10, at 150. Creators must be given an incentive to produce, but not such a strong barrier should be raised as to block the use of computer software for education, research or technological experimentation. *Id.*

17. "Proprietor," as used herein, refers to the definition supplied by WIPO(1978), *supra* note 2. See, § 1(v) of the Model Provisions contained in Appendix I.

18. *Of Computers and the Law*, N.Y. Times, (Sunday), September 14, 1980, at F18 col. 5:

Data processing concerns spend enormous sums to develop specialized software packages for specific industry applications such as payroll, inventory, or billing functions. These packages are generally licensed to companies that prefer not to write their own programs. Of course, the supplier of the software has a strong economic interest in protecting the software from misappropriation by a third party. For example, there is at least one software package that has grossed more than \$100 million in license fees since its introduction.

Id. What is therefore of basic importance is the reproduction rights of the proprietor. *E.g.*, Kolle, *supra* note 9, at 74. Society's goals of freer dissemination of information may thus be advanced by protection of an individual's rights.

19. CONTU, *supra* note 4, at 27:

The conclusion of the Commission is that the continued availability of copyright protection for computer programs is desirable. This availability is in keeping with nearly two centuries' development of American copyright doctrine during which the universe of works protectible by statutory copyright has expanded along with the imagination, communications media, and technical capabilities of society.

Id. (footnote omitted).

20. Soltysinski, *supra* note 8, at 1-4, notes that because the present systems of patent protection were developed as a result of social and economic pressures throughout the first and second industrial revolutions, the advent of computer programs, the primary technological advance of the third

present in most of the world. These notions are further complicated by more extreme statements which claim that computer software is either not eligible for any form of protection whatsoever,²² or deserving of a greater amount of protection than is currently available.²³ These latter positions notwithstanding, it

such revolution, should cause the re-evaluation of

whether basic concepts of the patent law are flexible enough to be applied to these new categories of intangibles, and whether their application to computer programs leads to socially desirable effects. It is also [necessary] to try to identify the conflicting interests involved, and to point out relevant problems for investigation

Id. at 3-4.

21. Bender, *supra* note 7, at 6-11, claims that "[i]t is inherent in the law of unfair competition that the interests of various groups be balanced against one another," *id.* at 7, and that in particular, "[t]he value of disclosure [of a secret] must be balanced against the need for a system of protection which introduces new matter into the public domain." *Id.* at 9.

22. CONTU, *supra* note 4, at 69-93 (dissent of Commissioner Hersey). Commissioner Hersey's recommendation is that "copyright is an inappropriate, as well as unnecessary, way of protecting the usable forms of computer programs." *Id.* at 69. The essence of this dissent is that computer programs are a form of communication between person and machine, rather than between persons, and thus fall outside the scope of the constitutional protection afforded other works of communication. *Id.* at 69-70. He notes, in a well-reasoned analysis, that since the primary beneficiaries of any change in the laws would be the large computer companies, that present forms of protection are adequate. He ignores, however, the possibility of adopting a more specialized form of protection similar to that advocated by WIPO so as to reduce the lifetime of the monopoly, and draws conclusions based on little data in that no small software manufacturers ever testified at the CONTU hearings, though a study was compiled regarding their needs. *Id.* at 88. Also ignored is the possibility of a computer's use as a conduit to its programmers' works: in Commissioner Hersey's view, since "a program, when keyed or run into a computer, is transformed by a compiler program into a purely machine state" ineligible for copyright, *id.* at 80, a copy is not made when a tape of the machine's instructions is reproduced by one not authorized to do so, and hence, any copyrights are not violated. In view of the fact that trade secret protection may be vanishing, Bender, *supra* note 7, at 36, this attitude would leave all proprietors susceptible to thefts. Further problems are of course suggested by the Supreme Court decisions in *Gottschalk v. Benson*, 409 U.S. 63 (1972) and others, *see* note 11 *supra*, which render patent protection unreliable.

23. The WIPO(1976) proposals allowed copyright protection for algo-

appears likely that computer software will of necessity be regarded as eligible for some form of protection,²⁴ if only that of a well-kept secret.²⁵ The scope of this article is concerned mainly with the suggestions of the World Intellectual Property Organization Model Provisions on the Protection of Computer Software.²⁶ The WIPO proposals were created to provide a system of minimal protection for computer software.²⁷

rihtms. See note 122, *infra*, and accompanying text.

24. Though the CONTU report, *supra* note 4, has recommended that the United States copyright laws and regulations, be changed to clearly allow protection of computer programs, Congress has not yet moved to do so. *Id.* at 29-34. Internationally, all of the twenty members of the Expert Group on the Legal Protection of Computer Software consider the status of computer software protection to be uncertain, except in Bulgaria. *Expert Group on The Legal Protection of Computer Software*, First Session, Copyright, January 1980, at 36. Additionally, the Group noted that since the existing international conventions, especially the Berne and Paris Conventions, did not adequately protect computer software, that a special treaty for this purpose should be developed. *Id.*

25. Bender, *supra* note 7, suggests that secrecy is a primary advantage of unfair competition and trade secret laws in that a statutory monopoly may not provide the desired protection. *Id.* at 11. He notes that "the classic example here is the process for manufacturing (and the composition of) Coca Cola [which] would have fallen into the public domain long ago if they had been protected by patents; having been kept secret however, [the two processes] are still at the exclusive disposal of their owner." *Id.* However, a computer program is not a commodity which is of such long-term use. Computers and computer software become outdated very quickly; "if the automobile industry had progressed on the same curve as computers in the last 15 years, we would now be able to buy for \$20 a self-steering car that would attain speeds up to 400 m.p.h. and be able to drive the length of California on one gallon of gasoline." CONTU, *supra* note 4, at 88 (dissent of Commissioner Hersey).

26. See note 2 *supra*.

27. WIPO(1978), *supra* note 2, at 6. The provisions were to result from a study on the appropriate form of legal protection for computer programs, including international arrangements which would be affected and the possibility of facilitating improved access by developing countries to software. *Id.* The WIPO system is grounded in copyright ideas. Thus, though it is designed to protect certain levels of expression, ideas from other systems of intellectual property—notably patent and trade secret law—are either ignored or incorporated only by implication. This paper explores these alternatives, as well as the implications and changes presented by the two WIPO drafts.

Basic Concepts of Computers

The first computers were the mechanical ones created by Babbage in 1835.²⁸ Modern computers, however, are generally thought to have begun with the ENIAC,²⁹ which was first used in 1946. ENIAC, which used vacuum tubes,³⁰ was programmed by manual wiring and rewiring of its circuitry;³¹ as a result, it was an extremely slow process to use for solving problems.³² That computer was soon supplanted by EDVAC,³³ which used stored programming.³⁴ The difference between EDVAC and its more modern counterparts is one of degree only, not one of kind.³⁵

The purpose of the computer is to manipulate large quantities of information. In order to do this, a computer must be able to accept data, move it from point to point as it does its calculations, and "remember" it. Occasionally, it must report the results of its calculations. The only way of telling a computer what to do with data is through a program. This procedure was accomplished by rewiring the machine in the ENIAC, by simple stored programs in the EDVAC, and today is done by the interactions of an "operating systems program" with a "source program."³⁶

28. Nimtz, *Development of the Law of Computer Software Protection*, 61 J. Pat. Off. Soc'y 3, 4 (1979) [hereinafter cited as Nimtz].

29. Gemignani, *supra* note 10, at 270; Nimtz, *supra* note 28, at 4-5. ENIAC is a shorthand form for Electronic Numerical Integrator and Calculator. Gemignani, *supra* note 10, at 270, n.7. Computers were used for research purposes alone until the UNIVAC was introduced for commercial use in 1951. Nimtz, *supra* note 28, at 4-5.

30. Nimtz, *supra* note 28, at 4.

31. Gemignani, *supra* note 10, at 270.

32. A modern computer's usefulness derives from its speed in doing calculations. W. Miags & R. Miags, *Financial Accounting* 245 (3d ed. 1979) [hereinafter cited as *Financial Accounting*]. See also, Gemignani, *supra* note 10, at 275 n.31 citing *Scientific American*, June, 1978, at 104, for a new computer which would be the size of a grapefruit, and thus much faster than any now in existence due to the limitations of the speed of light.

33. Electronic Discrete Variable Automatic Computer. Gemignani, *supra* note 10, at 270, n.10.

34. *Id.* at 270.

35. *Id.* A more detailed history of computer development may be found at Nimtz, *supra* note 28, at 4-9.

36. See generally Gemignani, *supra* note 10, at 271. Describing a computer as an array of on-off switches is a simplistic view: however, this type of

Computer programs are the instructions which tell a computer what to do, how to do it, and where to store it. In general, they provide the means to "release human beings from such diverse mundane tasks as preparing payrolls, monitoring aircraft insurance, taking data readings and making calculations for research, setting type, operating assembly lines, and taking inventory."³⁷ A human being can understand, and even carry out programs,³⁸ though in some cases he would be unable to finish them.³⁹ Additionally, a person would have to be well versed in computer technology in order to understand some of the more machine-oriented programs.⁴⁰ Thus the term "program" does not refer to the information to be manipulated, but only to the set of instructions regarding the computation to take place.⁴¹

The chief manufacturer of programs is the computer industry.⁴² This includes both manufacturers of "hardware," or the machinery which makes up the computer, and "software," which are the various types of programs.⁴³ Originally, a hardware firm such as IBM would supply the program to be run on its own equipment, but lately, as a result of governmental pressure on IBM and

description is all that is needed to determine the legal issues which flow from the technology. *Id.* at 271, n.4. For a more detailed description of the workings of a computer, see Prasinis, *supra* note 1, at 43-46, and Financial Accounting, *supra* note 32, at 245-253.

37. CONTU, *supra* note 4, at 23.

38. *Id.*

39. Gemignani, *supra* note 10, at 276 n.36, states that "[t]he SABRE program used by American Airlines in making flight reservations contains more than one million instructions . . ." quoting Burck, "On Line" in "Real Time," *Fortune*, April 1964 at 145. Thus, if printed out, the program would be about two miles long. Gemignani, *supra* note 10, at 276 n.36.

40. Programs vary from those expressed in a user-oriented language such as BASIC (Beginners All-purpose Symbolic Instruction Code) which resembles a series of numbers and words, D. Spencer, *A Guide to BASIC Programming: A Time-Sharing Language II* (1970), to machine language programs which are a series of on-off instructions recorded on magnetic tape or disc and invisible to the human eye. Gemignani, *supra* note 10, at 272-73.

41. Gemignani, *supra* note 10, at 271.

42. The computer industry includes giant corporations such as IBM and Honeywell as well as smaller companies which produce only software. Gemignani, *supra* note 10, at 274, nn. 21 & 23. IBM has been the leading force in the industry since the 1950's largely through its marketing techniques. Nimitz, *supra* note 28, at 7-8.

43. Gemignani, *supra* note 10, at 274-75.

others, several firms have been established which supply solely computer software.⁴⁴ Software companies are growing more rapidly than hardware firms; but the latter firms have the greater economic power.⁴⁵

Thus, an industry has come into being which desires legal protection for its product. Protection is attractive for a number of reasons. First, programs require a substantial investment of time and money.⁴⁶ A reduction in costs could be achieved if greater incentives existed for disclosure of software techniques without the danger of illegal reproduction.⁴⁷ This would be true even

44. IBM's marketing approach to software was to tie it to the sale of the computer machinery, so that it appeared to sell only its main form of equipment while giving its programs away. Accounts differ as to whether these techniques were used to increase hardware sales, Gemignani, *supra* note 10, at 274, n.21, or were merely an industry response to "the belief that software was not invested with property rights," Nimtz, *supra* note 28, at 8. Nonetheless, whether or not this behavior was harmless, the Justice Department filed suit against IBM in 1969 (Gemignani reports this as taking place in 1970) and IBM shortly thereafter stopped tying its software sales to hardware purchases. CONTU, *supra* note 4, at 60.

45. Gemignani, *supra* note 10, at 274-75, nn. 22-30. In 1976 the combined revenues of one association of computer manufacturers was 32.7 billion dollars. Seventeen billion dollars was expected to be spent on software from 1976-1979. CONTU, *supra* note 4, at 87 (dissent of Commissioner Hersey).

46. One estimate places the amount at \$13 billion annually. WIPO(1978), *supra* note 2, at 7, citing the U.D. Report of the Whitford Committee on Copyright and Designs Law (1977, London, Her Majesty's Stationery Office, Cmnd 6732) paragraph 477. CONTU, *supra* note 4, at 26, notes only that "[t]he cost of developing computer programs is far greater than the cost of their duplication," but notes no monetary amount for costs.

47. CONTU, *supra* note 4, at 26-27 suggests four possibilities for dissemination of software techniques:

(1) The creator can recover all of its costs plus a fair profit on the first sale of the work, thus leaving it unconcerned about the later publication of the work; or

(2) The creator can spread its costs over multiple copies of the work with some form of protection against unauthorized duplication of the work; or

(3) The creator's costs are borne by another, as, for example, when the government or a foundation offers prizes or awards; or

(4) The creator is indifferent to cost and donates the work to the public.

if only independent creations of similar programs were avoided,⁴⁸ rather than an impetus to create new works gained. Second, since software costs are the greater part of the total expenditure involved in a computer system,⁴⁹ and since this outlay can be decreased by the use of standardized programs,⁵⁰ disclosure would aid in reducing user expenses. This is particularly important in view of trends toward multi-national computer networks⁵¹ which would require one program to serve the needs of several countries.⁵² Third, as mentioned above, disclosure incentives would lead to less duplication of effort. Protection of programming knowledge would provide some stimulus in this regard, since effective legal protection could be relied on by proprietors; this would enable them to disclose their software (perhaps through a licensing agreement) in reliance on that protection.⁵³ Fourth, protection of software

Id. Any reduction in these costs which could be afforded would thus "encourage the creation and broad distribution of computer programs in a competitive market. *Id.* at 27.

48. WIPO(1978), *supra* note 2, at 7. One of the social drawbacks to secrecy as a form of protection is that instead of investing time, money and energy in the creation of new products, software manufacturers must continually "re-invent the wheel," and attempt to solve individually problems which would be better dealt with as a group. This type of group effort wastes resources. "Without . . . dissemination, numerous programmers may spend considerable time and effort in order to accomplish, in parallel work the same objective." *Id.*

49. *Id.* WIPO(1978) claims that the proportions are 70 percent expenditure for software and 30 percent for hardware. *Id.*

50. *Id.* Though software user expenses currently result from custom development (which lessens the incentive for theft of programs), there is a current trend toward standardization of programs due to the creation of international computer networks and interconnection systems. *Id.* Clearly, if a program is sent via satellite, the creator would be concerned with protection in the country of development, in the country receiving the program, and protection from "pirating" by unauthorized receivers. This scenario highlights the need for at least minimal international protection.

Even though "pirating" can probably be regulated independently of copyright in the United States, see *Chartwell Communications Group v. Westbrook*, No. 80-1566 (6th Cir., decided and filed Dec. 29, 1980), including the "pirating" of foreign communications, see 47 U.S.C. § 605 (1976), there is nonetheless a clear need for stronger international protection. See *Samuels*, Copyright and the New Communications Technologies, 25 N.Y.L.S.L. Rev. 905, 918 (1980).

51. *Id.* See note 50 *supra*.

52. For example, a software company could license the use of its program in several countries with only minor changes (*e.g.*, different language outputs) to enable a user in one country to work with a foreign package. These types of business transactions would be facilitated by a consistent international law.

53. WIPO(1978), *supra* note 2, at 7. Protection furnishes investment

is needed to encourage business transactions and programs.⁵⁴ When software is sold, both buyer and seller would favor protection inasmuch as it "increases the legal security of that relationship."⁵⁵ This would decrease the problems involved in enforcing a confidential disclosure contract, and provide simpler bargaining terms.⁵⁶ A fifth reason for protection is the very ease with which these types of materials can be duplicated; "if the cost of duplicating information is small, then it is easy for a less than scrupulous person to duplicate it. This means that legal as well as physical protection for the information is a necessary incentive if such information is to be created and disseminated."⁵⁷

Current Theories of Protection

Once it is decided that protection is needed for computer software, the question arises as to the legal device most effective in accomplishing this result. Three forms of protection are typically used: patent, trade secret and copyright law. All of these have both good and bad points; none of them is as efficient as the computer software industry desires or the public requires.

Patent law seems to be an obvious way of protecting a program. However, a patent must meet a very high standard of non-obviousness.⁵⁸ A high standard is needed because of the scope

incentives and allows wider use of the protected information. Comment, *Industrial Espionage: Piracy of Secret Scientific and Technological Information*, 14 U.C.L.A.L. Rev. 911, 913-14 (1967).

54. WIPO(1978), *supra* note 2, at 7.

55. *Id.*

56. *Id.*

57. CONTU, *supra* note 4, at 24. See generally notes 58-78 *infra* and accompanying text. Additionally, inasmuch as the United States is a net exporter of computer technology, it is in our long-range interests to encourage international respect for proprietor's rights in their programs. Failing this, if other countries protect and disseminate and the United States relies on secrecy, there will be greater development in those countries through the economies of cooperation. Further, the national antitrust policy rationales of "sharing the wealth" argue that secrecy results in the large companies' obtaining a monopoly on software which would be better broken up through dissemination.

58. 35 U.S.C. §§ 101-103 (1976). These sections require a patentable invention to be "new and useful," § 101, novel, § 102, and non-obvious, § 103. For a discussion of the various requirements for United States patentability, see *Graham v. John Deere Co.*, 383 U.S. 1, 5-19 (1966). Many of these

of patent protection: patent holders are granted a short-term monopoly to "license and control the use of their patented devices or processes [and also] to prevent the use of such devices or processes when they are independently developed by third parties."⁵⁹ In general, most computer programs will not meet this standard.⁶⁰ Courts in various western countries have agreed with this, denying patent status to most computer software.⁶¹ However, software patentability is occasionally allowed if the computer is programmed in a new way or operated differently.⁶² A further consideration to note is that a patent will not allow dissemination of ideas to the same extent as a copyright; by its very nature, a patented idea (or algorithm) is a limited quantity, and hence can command a greater premium for use by others. Thus, those individuals who can afford to lease patent rights will do so, leading to a situation in which wealthier software companies will have an undue competitive advantage.⁶³ Nonetheless, patent protection,

standards are accepted through the industrialized world. Soltysinski, *supra* note 8, at 78.

59. CONTU, *supra* note 4, at 41.

60. Bender, *supra* note 7, at 12. Additionally, a program would have to be deemed to be within the proper subject matter of the patent law. *Id.* WIPO(1978), *supra* note 2, at 8, notes that only 1 percent of all programs would qualify for such protection. *Id.* "It is still unclear whether a patent may ever be obtained for a computer program." CONTU, *supra* note 4, at 42.

61. Kolle, *supra* note 9, at 72, notes that certain countries bar computer programs from patentability (France, Poland and Mexico). Further, the 1973 Munich Patent Convention also excludes software as a patentable invention. Other countries (Australia, The Netherlands, Austria, Sweden, Switzerland and the socialist countries) bar software from patentability by other than legislative means. The Federal Republic of Germany is considering national legislation to exclude computer software from patentability. *Id.* Of the European countries, only Sweden appears to favor patentability for computer programs. Soltysinski, *supra* note 8, at 12. A similar patent to the one in *Gottschalk v. Benson* was rejected in the F.R.G. *Id.* at 4, n.11. The European Patent Convention does not allow patent protection for computer software. WIPO(1978), *supra* note 2, citing Art. 52(2)(c).

62. WIPO(1978), *supra* note 2, at 8. Nimtz, *supra* note 28, at 9, states that during the early development of computer software, "hardware manufacturers sometimes secured patents on their software-like inventions by disclosing and describing the detailed hardware utilizing the programmed instructions, and by claiming the combination as apparatus." *Id.* (footnote omitted).

63. At present, the software industry is extremely competitive. CONTU, *supra* note 4, at 58-59, notes that at present there are few barriers

even when obtained, is uncertain as to degree and effectiveness.⁶⁴

On the other hand, trade secret protection is the most common form of protection for computer programs.⁶⁵ Basically, trade secret protection is derived from the common law of unfair competition.⁶⁶ The logic of this variety of protection is that a business that maintains confidentiality over knowledge which gives it a competitive advantage should have this knowledge protected by courts, and should be allowed to license the use of the secret with appropriate contract remedies for breach.⁶⁷ However, since trade secret

to entry into this market. Though a copyright on programs would not change this significantly, *id.* at 59, 61, a patent would appear to exert a significant blocking effect on competitive development.

64. WIPO(1978), *supra* note 2, at 8. Additionally, it should be noted that the average time between first presentation and final acceptance of a patent in the United States is over three years. Bender, *supra* note 7, at 10. This compares quite unfavorably with the useful life of many programs, which is "of the order of two to three years." *Id.* at 12. This time lapse negates the practical effect of the statutory monopoly granted by a patent. Further problems exist in the "[m]any [patent] infringers will not hesitate to challenge a patent knowing that in about 70 percent of infringement suits litigated to conclusion, the defendant emerges the victor." *Id.* at 11. See also CONTU, *supra* note 4, at 41.

65. Bender, *supra* note 7, at 5.

66. Nimitz, *supra* note 28, at 19. Further,

[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 competitors. . . . It differs from other secret information in a business . . . in that it is not simply information as to single or ephemeral events in the conduct of the business. . . . A trade secret is a process or device for continuous use in the operation of the business.

Restatement of Torts, § 757, comment b (1939).

67. Nimitz, *supra* note 28, at 19-20. A point to note here is that once the secret becomes public, all protection under this legal theory is lost. "Protection is lost when the secret is disclosed, without regard to the circumstances surrounding the disclosure." CONTU, *supra* note 4, at 43. Remedies for breach of contract and tort theories will still apply if the disclosure came about as a result of illicit means, however. Further problems are suggested by the doctrine of federal preemption (in the United States) as suggested by *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225 (1964): "To allow a State by use of its law of unfair competition to prevent the copying of an article which represents too slight an advance to be patented would be to permit the State to block off

law is derived from case law,⁶⁸ it varies according to the jurisdiction.⁶⁹

Trade secret protection, though attractive on its face, presents several major problems in use. It is not suitable for materials which are widely distributed,⁷⁰ which precludes its effectiveness in large-scale markets.⁷¹ Costs of maintaining the secrets are high,⁷² possi-

from the public something which federal law has said belongs to the public." *Id.* at 231-32. Fears have been expressed that state laws of trade secret protection will vanish in a similar manner:

It is conceivable that some court at a future date will regard the CONTU proposals, if enacted, as the exclusive law dealing with computer software and thereby preempting state trade secrecy law. Indeed, the new copyright law has a specific, although limited, preemption section which preempts all forms of protection "within the general scope of copyright." While this might be limited to acts such as copying and dissemination, it is entirely possible that, insofar as the new copyright law does control the *use* of a program, that law will be considered to preempt state law which also attempts to control the unauthorized use of computer programs.

Nimtz, *supra* note 28, at 20-21 (footnote omitted).

68. Nimtz, *supra* note 28, at 19.

69. "[E]ven in countries where trade secrets can be protected directly, there is uncertainty or differences as to the scope of protection and as to the conditions." WIPO(1978), *supra* note 2, at 9. This is true even within a single country: "[b]ecause the law of trade secrets does not arise under federal legislation, it varies in different state jurisdictions and is not uniform throughout the United States." Nimtz, *supra* note 28, at 20.

70. CONTU, *supra* note 4, at 43, citing R. Milgrim, Trade Secrets, § 2.05[2] (1976).

71. Nimtz, *supra* note 28, at 21. "Since secrecy is required, software which is very widely distributed or is distributed to recipients who are not likely to honor the secrecy requirements may well result in loss of this form of protection." *Id.* He cites the [growing] "microprocessor hobby group" and educational users as two large groups which would be ineffective choices for trade secret licenses. *Id.*

72. These costs are generally borne by the user, thus further inhibiting market growth. CONTU, *supra* note 4, at 43. More indirect costs are noted by a CONTU-sponsored study which suggests that "[a] failure to develop an adequate policy towards computer software could conceivably have an inhibiting effect on the overall growth of the economy." *Id.* at H-2. Other costs are those needed to enforce non-disclosure contracts and develop complicated codes. *Id.*

bilities of business transactions are reduced,⁷³ market information and techniques are restricted⁷⁴ and market entry is inhibited.⁷⁵

The last major branch of protection for computer software is copyright. Copyright protects the form of expression of an idea, rather than the idea so expressed.⁷⁶ Since most software is written,⁷⁷ and since the originality requirement for copyright is far less than that required for a patent, most programs appear eligible for copyright protection.⁷⁸ As a result, statutory improvements favored the development of the law of computer software. This approach was followed by the WIPO in their draft proposal, so that both the societal requirements of dissemination of information and the proprietor's rights to investment can be satisfied to the greatest degree.⁷⁹

73. *Id.* at 43.

74. *Id.* at 43, H-2.

75. *Id.* at H-2.

76. WIPO(1978), *supra* note 2, at 8. A program is protected only while it remains "fixed in a tangible medium of expression." CONTU, *supra* note 4, at 49. Therefore "the electromechanical functioning of a machine" would not be protected. *Id.*, citing S. Rep. No. 473, 95th Cong., 1st Sess. (1975) at 54, which notes that

[s]ection 102(b) [of the new Copyright Act] is intended to make clear that *the expression adopted by the programmer is the copyrightable element in a computer program*, and that the actual processes or methods embodied in the programs are not within the scope of the copyright law.

Id. (emphasis added) (footnote omitted). With this in mind, *see* note 43 *supra* regarding the possibilities of "pirating" programs.

77. There is disagreement as to whether magnetic tapes of programs can be copyrighted, principally based on whether such an expression is a "literary, artistic or scientific work." WIPO(1978) *supra* note 2, at 8; CONTU, *supra* note 4, at 82 (dissent of Commissioner Hersey); *Baker v. Selden*, 101 U.S. 99 (1879). Obviously to fail to allow magnetic tapes to be copyrighted would negate all rights to the programming, as the program could be stolen electronically without ever using a "tangible medium of expression." *See* notes 50 and 69 *supra*.

78. Copyright Office Circular 61, *reprinted in* T. Franklin, *Computer Abuse* 1976 41 (1977); WIPO(1978), *supra* note 2, at 8; CONTU, *supra* note 4, at 2.

79. WIPO(1978), *supra* note 2, at 9, states that

computers are becoming more and more important in the fields of science, technology and commerce and

World Intellectual Property Organization Proposal

WIPO was asked by the United Nations⁸⁰ to study and design a system of minimal protection for computer software.⁸¹ The aim was to create a form of protection specific to the needs of computer software producers.⁸² It was believed that inasmuch as computer software technology was a new and growing field, an international treaty would be suited to maintaining similarity in legal protection across international boundaries.⁸³ The group has met several times⁸⁴

other spheres of human activity; computer software accounts for the greater part of investment in computer technology and its creation requires a high degree of intellectual effort. It would therefore seem to need and deserve a guarantee of legal protection, which should encourage investment and trade in computer software and promote its wider accessibility. However, there is at present a state of uncertainty as to the protection of computer software under various legal systems. The purpose of the model provisions is to eliminate that uncertainty.

Id.

80. *Id.* at 6, citing the Report of the United Nations Secretary-General on the Application of Computer Technology for Development, U.N. Doc. E/4800 (1970) at § 202.

81. *Id.* at 6. See generally Kolle, *supra* note 9, at 70-71.

82. WIPO(1976), *supra* note 2, at 43. This call for a proposal specific to the needs of proprietors has been noted elsewhere. Soltysinski, *supra* note 8, at 7, citing Beier, *Zukunftsprobleme des Patentrechts*, 74 *Gewerblicher Rechtsschutz und Urheberrecht* 214, 220 (1972) as calling for "a new statutory scheme specifically designed to protect computer programs." *Id.* This was also seconded by the Expert Group on the Legal Protection of Computer Software, Note, Copyright, January, 1980, at 36, when they noted that existing international treaties, especially the Paris Convention and the Berne Convention, "did not fully cover the protection which should be granted to computer software." *Id.*

83. Soltysinski, *supra* note 8, at 25, notes that the Advisory Group of Governmental Experts on the Protection of Computer Programs "agreed unanimously that the future international study of the problem [of computer software protection] would be of value to avoid unnecessary divergencies of national laws." *Id.*, citing the *Report of the Advisory Group of Governmental Experts on the Protection of Computer Programs*, 8-12, 10 *Industrial Prop.* 64 (1971).

84. The Advisory Group of Non-Governmental Experts on the Protec-

and thus far two model drafts have been produced.⁸⁵ The earlier version of the model provisions is more detailed in that it lists the optional deposit provision. The later version does not, but refers to the system of deposit in its comments. WIPO has not yet drawn definitive conclusions as to the efficacy of an optional versus a mandatory deposit system.⁸⁶

It is with this background that an analysis of the draft proposals is undertaken. Generally, the purposes of the draft statute are several: to aid countries in creating a system of national protection for computer software,⁸⁷ to make the protection of software more dependable,⁸⁸ and to assist in the creation of a special

tion of Computer Programs continued the work started by the Advisory Group of Governmental Experts on the Protection of Computer Programs in 1971. WIPO(1978), *supra* note 2, at 6. The former group met in 1974, 1975, 1976 and 1977. *Id.*

85. WIPO(1978), *supra* note 2; WIPO(1976), *supra* note 2. The intent of the framers was to provide a basis for an international treaty, though the earlier draft also included "Draft Model Provisions for a National Law on the Protection of Computer Software," WIPO(1976) *supra* note 2, at 74-85. The deposit provisions, however, are based on the idea of protection at the national, rather than the international level. WIPO(1978), *supra* note 2, at 6.

86. WIPO(1978), *supra* note 2, at 9-11; WIPO(1976), *supra* note 2, at 44; Kolle, *supra* note 9, at 76-78. Since the provisions for deposit of computer software were commented upon but not elaborated in the newer draft, they will not be treated extensively here. Nonetheless, a brief discussion appears appropriate.

The protection afforded computer software does not depend on a deposit or registration by the proprietor. WIPO (1978), *supra* note 2, at 9. There appears to be some support within WIPO for various systems of deposit or registration, however.

Mandatory deposit requires that a proprietor must deposit a copy of the software with a national organization set up for that specific purpose. *Id.* Mandatory registration requires only that an abstract of the software be provided, largely to give notice to the public that a certain software expression is protected. Optional deposit systems serve only to establish "presumptions as to the time of creation of the software," *id.* at 10, and generally demand a minimum of mandatory registration to provide notice. *Id.* The least restrictive system discussed is that of an optional registration system, which would only provide notice, but would create no legal obligations, presumptions or responsibilities. *Id.* at 11. For a more detailed view of the system, see WIPO(1978), *supra* note 2, at 9-11; WIPO(1976), *supra* note 2, at 79-85. See also Kolle, *supra* note, 9 at 78-79.

87. WIPO(1978), *supra* note 2, at 11.

88. *Id.*

law relating only to computer software.⁸⁹ These general purposes stem from several compromises which were made over the past ten years⁹⁰ and reflect, again, a belief that

irrespective of any protection of software as know-how or of any protection provided by contract and by rules on unfair competition, intellectual creations in the fields of software in principle deserve and require protection by way of exclusive rights or inventors' certificates to encourage the production and foster the exploitation of software and to promote the dissemination of knowledge related to software. . . .⁹¹

The current first section of the draft proposal deals with definitions.⁹² This section is somewhat similar to the definitions expressed in the earlier version.⁹³ The thrust of the new provisions is broader; the old language was unclear as to the protection afforded programs for analog or hybrid analog-digital computers,⁹⁴ while the newer wording refers to a "machine having information-processing capabilities,"⁹⁵ which appears to include any programmable device.⁹⁶ The proposal refers to a "machine" rather than to a "com-

89. *Id.*

90. Despite the harmonization of national legislation which is typical of industrial and intellectual property law and despite the links set up between these fields by the international conventions, we are still faced with a whole gamut of divergent solutions ranging from the full recognition of the patentability of software and its protection under copyright, through various intermediary solutions, to a radical refusal of any protection under intangible property law.

Kolle, *supra* note 9, at 70 (footnote omitted).

91. *Id.*

92. WIPO(1978), *supra* note 2, at 12. The text of the draft proposal is found at Appendix I.

93. WIPO(1976), *supra* note 2, at 48, Art. 2, and 74, § 1.

94. *Id.* at 48, 74. The two definitional sections are identical. *Id.* at 48, n.2.

95. WIPO(1978), *supra* note 2, at 12, § 1(i).

96. This can include both the programs written for an IBM 370 and those for a hand-held Hewlett Packard. It may also include directions for working an abacus (but this may be protected under WIPO(1978) § 1(ii) or (iii),

puter" because of the former word's "more precise and wider meaning in the computer art."⁹⁷ Furthermore, there is an intent to protect programs for all machines which can process information.⁹⁸ The earlier version only allowed protection for "data-processing machines"⁹⁹ which was altered to the above phrase in the later edition because the drafters wished to extend protection to programs which processed textual material.¹⁰⁰

The programs must be able to "indicate, perform, or achieve a particular function, task, or result."¹⁰¹ This is an addition of the word "function" which was not present in the earlier draft.¹⁰² Through this, the draft proposal covers internal hardware manipulations and internal translation programs.¹⁰³ Another implication of this term is that subroutines may be covered by a copyright.¹⁰⁴

The next term defined is "program description."¹⁰⁵ A program description, under the Model Provisions, is not a computer program.¹⁰⁶ The term refers to a narrow range of documentation from which a program could be devised.¹⁰⁷ However, the difference between a program and a description is not at all clear: the definition suggests that a description should be presented "in sufficient detail to determine a set of instructions constituting a computer program."¹⁰⁸ The comments, however, state that the definition is fulfilled "if the program description sets out all the instructions to be followed by the computer, so that the only thing that remains to be done is to convert them into a form that is acceptable to a

or even under standard copyright laws).

97. WIPO(1978), *supra* note 2, at 14.

98. *Id.* Protection is intended for "any other special purpose machine, such as an automatic telephone exchange or an 'intelligent' terminal or a component thereof." *Id.*

99. WIPO(1976), *supra* note 2, at 48, Art. 2(1)(i), 74, Art. 1(1)(i).

100. WIPO(1978), *supra* note 2, at 14.

101. WIPO(1978), *supra* note 2, at 12, § 1(i).

102. "In order to indicate or achieve a particular result." WIPO(1976), *supra* note 2, at 48, Art. 2(1)(i), 74, § 1(1).

103. WIPO(1978), *supra* note 2, at 14. The *Gottschalk* program would be covered under this provision.

104. *Id.*

105. See Appendix I, § 1(ii).

106. WIPO(1978), *supra* note 2, at 14. A flow chart is a good example of a program description. *Id.*

107. *Id.*

108. See Appendix I, § 1(ii).

computer.”¹⁰⁹ This statement blurs the concept of computer program mentioned earlier:¹¹⁰ the difference between a program and a description is the form of expression,¹¹¹ and even that appears to be small in that there is only a mechanical transformation to be accomplished.¹¹²

An advantage of protecting the description rather than the program to be determined from it is that a description, being a more general statement, would appear to provide broader protection from infringement. This idea can be inferred from a statement in the comments that “a number of different but similar sets of instructions could . . . be directly developed from the same program description. . . .”¹¹³ Thus, since several programs could be developed from the same description, a software manufacturer would be able to protect his program both directly, through the statement of the program itself, and indirectly, through a related program description. The only requirement for this protection is that there is a “recognizable link between the possible sets of instructions and the steps indicated in the program description.”¹¹⁴

The third type of protected information is “supporting material.”¹¹⁵ This is material which is neither a program nor a description, but it is nonetheless supplied to software purchasers as extra explanatory documentation.¹¹⁶ The intent of the draft

109. WIPO(1978), *supra* note 2, at 14.

110. *See* Appendix I, § 1(i).

111. Thus, if a computer can “understand” the material it is defined by the draft proposal to be a program; if it otherwise would be a program but for this lack, it falls into the category of a program description. Therefore, since different computers are capable of accepting input in different formats, *e.g.*, IBM cards, magnetic or paper tape, or keyboard strokes, a program written for one computer would be reduced to a program description where another is concerned. Taken to a further degree, this ambiguity suggests that a “standard computer” should be written into the draft proposal to determine into which category a writing falls.

The draft makes it clear that a program description is an explanation in human terms of what the author wishes the computer to do. From this description, a computer program can then be written. The draft, however, ignores the possibility of copyright infringement which arises from the multiplicity of computer languages. For example, a programmer might be able to use a computer program written in one language as a program description for a program written in a second language. If the original program description was copyrighted, has there been an infringement?

112. Under some circumstances, this would reduce the originality requirement of copyright, Appendix I, § 3, to a nullity, since a program description is in sufficient detail to determine the set of instructions, *Id.* at § 1(ii), and the originality requirement embodied in the draft proposals appears to be quite high. *See* text accompanying notes 145-52, *infra*.

113. WIPO(1978), *supra* note 2, at 15.

114. *Id.*

115. *See* Appendix I, § 1(iii).

116. WIPO(1978), *supra* note 2, at 15.

than to programs and descriptions.¹¹⁷ The reason for this is that most countries are already able to protect this material adequately under current laws.¹¹⁸

The earlier proposal used the term "related documentation" to define both program descriptions and supporting materials.¹¹⁹ It was suggested that the term should be given a broad interpretation.¹²⁰ This was true even though this category was believed to be adequately protected under present copyright laws.¹²¹ The most interesting part of the prior proposal, however, was the inclusion of algorithms.¹²² This was rather unusual, since algorithms, if protected at all, are typically afforded protection under patent theories.¹²³ The proposal to protect algorithms in this manner met with some criticism and thus was dropped in the newer proposal.¹²⁴

Section 1(iv) defines computer software.¹²⁵ Essentially,

117. *Id.* "The extent of protection given to supporting material is very limited—merely trade secret protection [Appendix] (Section 5(i) and (ii)) and copyright protection [Appendix] (Section 5(iii), (vii), and (viii))." *Id.*

118. *Id.*

119. WIPO(1976) *supra* note 2, at 48, Article 2(1)(ii), 74, Section 1(1)(ii). Kolle, *supra* note 9, at 75, believes that this form of "open" protection is more suitable for delimiting the subject matter of the proposal. *Id.*

120. There is a difference in interpretation between the WIPO(1976) Draft Agreement and the WIPO(1976) Draft Provisions: the latter suggests that the term "related documentation" should be given a "wide interpretation," WIPO(1976), *supra* note 2, at 74, whereas the former provides no additional meaning.

121. Kolle, *supra* note 9, at 75.

122. WIPO(1976), *supra* note 2, at 48, 74. This reference was deleted in the WIPO(1978) Draft. *See* Appendix I, § 1.

123. Nimitz, *supra* note 28, at 23, notes that "if algorithms are going to be protected under any federal statute, it must be done under the existing patent laws." *Id.* Notwithstanding this idea, any patentable algorithm must first meet the high standards mentioned earlier.

124. Kolle, *supra* note 9, at 75. "[B]y extending protection to algorithms . . . the draft goes way beyond the recommendations of the Group of Experts. The algorithmic solution to a problem should normally be freely utilizable unless capable of protection under a patent." *Id.* This is a reasonable idea in that one of the goals of protection of software is to provide freer dissemination of programming concepts, which protection of algorithms would inhibit. Thus, the WIPO(1978) draft incorporated this idea. *See* Appendix I, § 4.

125. *See*, Appendix I, § 1(iv).

"computer software" is a generic term for all materials and documents relating to a program.¹²⁶ It is different both in intent and expression from the previous phrasing, largely as a result of the change from broad to narrow categorizations of material.¹²⁷

The last definition in the newer proposal is that of a proprietor.¹²⁸ Essentially, the intent of the section appears to be that of a statement of ownership of rights.¹²⁹ The section provides that joint creators and "legal entities" may also have ownership rights.¹³⁰ This is more detail than the earlier proposal, which merely allowed rights to be held by the "owners."¹³¹

The rights of proprietors are treated in both drafts in the second section.¹³² The later provisions appear simpler; however, they also appear to favor employers' bargaining positions.¹³³ Several

126. *Id.*

127. See notes 92-123 and accompanying text *supra*.

128. See Appendix I, § 1(v).

129. *Id.*

130. WIPO(1978), *supra* note 2, at 15.

131. WIPO(1976), *supra* note 2, at 74. Inasmuch as the 1976 Draft Agreement differs from the Draft Model Provision only in terms relating to international administration, only the latter provision will be considered, since it is the most direct predecessor to the current proposal.

132. See, Appendix I, § 2. The earlier second section read as follows:

Section 2

Ownership of Computer Software

(1) The rights granted by this Law in respect of computer software shall originally vest in the person who created such software, provided that if the software was created by an employee

[*Alternative A:* In the course of performing his duties as employee, the said rights shall originally vest in his employer.]

[*Alternative B:* The provisions of the Patent Law concerning inventions made by employees shall apply *mutatis mutandis*.]

[*Alternative C:* The provisions of the Copyright Law concerning literary works created by employees shall apply *mutatis mutandis*.]

WIPO(1976), *supra* note 2, at 75 (footnote omitted). The current second subsection of the earlier draft is identical to the WIPO(1978) version.

133. "[T]he said rights shall, *unless otherwise agreed*, belong to the employer." See Appendix I, § 2(1) (emphasis added). Compare WIPO(1976), § 2(1), note 132 *supra*, which could put creative employees in a better bar-

people may jointly hold the copyright;¹³⁴ if done in the context of employment, however, the employer would hold the right.¹³⁵ Further support is given to the employer by the comment that "subsection (1) adopts the kind of regulation to be found in many laws with respect to inventions or literary and artistic works created by employees."¹³⁶

An interesting problem raised by the comments in the newer draft is that of a program which creates other programs.¹³⁷ A case-by-case analysis is suggested to determine proprietorship:¹³⁸ and where it is done for hire, the employer would doubtless have the right.¹³⁹ The comments do not consider one of the primary research uses of computers, however, that of "artificial intelligence."¹⁴⁰ Psychological uses of this technique aside, a "creative" program would allow a computer to create its own programs in ways quite different from those which its human programmer may have intended.¹⁴¹

gaining position, and so appears to favor individual incentives toward innovative solutions in programming. See also CONTU, *supra* note 4, at 89 (dissent of Commissioner Hersey) which suggests that large companies are attempting, through the statutory copyright monopoly, "to lock their software into their own hardware, while the independents want to be able to sell their programs for use in all the major lines of hardware." *Id.*

134. See Appendix I, § 1(v) and § 2(1). If the legal entity is a partnership, joint ownership follows. Since subroutines may also qualify as programs, joint ownership should not produce any abnormally difficult problems. WIPO(1978), *supra* note 2, at 15.

135. See note 131, *supra*, and WIPO(1978), *supra* note 2, at 15.

136. WIPO(1978), *supra* note 2, at 15. This includes creations done outside of the employee's duties. *Id.*

137. *Id.*

138. *Id.*

139. *Id.*

140. "Artificial intelligence" is a term used to describe a program which instructs a computer to act like a human being. The rationale for programming in this fashion is that if a computer can be made to act like a person ("speaking," for example, through a print-out), then the programmer has essentially created a theory describing the human mind which is testable without the use of human subjects. The advantages of this system are mind-boggling. See Appendix I, § 7(2)(a)(i), which exempts research uses from the statutory time limits, but doubtless refers to a period of testing a commercially oriented program, rather than one used for scientific benefit.

141. The comments to the newer draft suggest that the original creator or employer should have all the rights to any new programs created in this

The transfer of rights under the new draft is substantially the same as that in the older version.¹⁴² The 1978 proposal adds a specific provision noting that "rights may be transferred . . . in part."¹⁴³ This provision is broader than the original draft, which spoke only of ownership,¹⁴⁴ rather than of rights. This appears to be a sound change in that it incorporates into the statute certain elements of earlier copyright case law which allowed rights to be divided among different users. The provision does not refer to licensing, and this is not intended¹⁴⁵ to be construed from the words of this section.

The third section of both proposals deals with the requirement of originality.¹⁴⁶ This term was used to satisfy the drafters' predisposition toward copyright law,¹⁴⁷ though the earlier draft suggested that a patent law novelty approach could be used.¹⁴⁸ The newer draft eliminated this proposal because the idea of originality is common to the "copyright laws of most countries."¹⁴⁹ This was accepted despite the drafters' knowledge that the standard of originality differs from country to country.¹⁵⁰ The drafters maintained that "the software must be 'the result of its creator's own intellectual effort,'"¹⁵¹ intending that certain software would not be protected. "Effort" appears to be the key distinction in

manner. WIPO(1978), *supra* note 2, at 15. It is emphasized that this would certainly be true for any programs which would be "substantially similar" to the original. *Id.* A reference is made, however, to the section on originality, *see* Appendix I, § 3, which would appear to leave these sorts of programs ownerless unless they are "substantially similar," or the original creator has had the foresight to include in his contract an ownership provision relating to such works. WIPO(1978), *supra* note 2, at 15.

142. Compare Appendix I § 2(2) and WIPO(1976), *supra* note 2, at 75, § 2(2).

143. See Appendix I § 2(2).

144. WIPO(1976), *supra* note 2, at 75, § 2(2).

145. WIPO(1978), *supra* note 2, at 16. *But see* Appendix I, § 6(1), which allows a proprietor to "authorize" uses.

146. See Appendix I § 3 and WIPO(1976), *supra* note 2, at 75, § 3.

147. WIPO(1978), *supra* note 2, at 16.

148. WIPO(1976), *supra* note 2, at 75, § 3 n.5.

149. WIPO(1978), *supra* note 2, at 16.

150. *Id.* The drafters waffle somewhat on this topic in that they desire a "uniformity of protection in the various countries," *id.*, but nonetheless allow "each country [to have] freedom of interpretation," *id.*, thereby assuring that the differences in originality standards will remain.

151. *Id.*

discriminating this serious from frivolous software:

the words "intellectual effort" could . . . be understood as excluding trivial computer programs consisting of few instructions. Other programs with few instructions may involve a high degree of intellectual effort where, for example, a programmer devises a shortcut to the solution of a problem that had hitherto required many instructions taking up expensive computer time. *The word "effort" would seem particularly appropriate since computer programs may take many man-months to prepare and it would be unjust if the result of such work could be appropriated by another person.*¹⁵²

The comments conclude by noting that "originality must be examined in each case."¹⁵³

Section four notes that concepts are not protected.¹⁵⁴ Again, noting the underlying theme of the draft proposals, a copyright system is used for protection, rather than a patent system. Thus, only the form of the work is protected, and not the basic concept itself.¹⁵⁵ This is another break from the earlier proposal, which

152. *Id.* (emphasis added). In this light, however, it is difficult to see how a program could be copyrighted from a program description, since the difference between the former and the latter can be considered almost effortless, and therefore unoriginal. See notes 105-112, *supra* and accompanying text. Thus, the person who has created the program description could hold the rights to all programs flowing from it, in whatever computer languages were used, and the person translating the program description into machine-readable form would have no rights.

153. *Id.* However, no factors other than those mentioned in the text are noted. As a result, the entire draft section appears quite circular in that cases will be decided in accordance with factors used in each country, thereby defeating the "desirable uniformity" of the Model Provisions. A further note is provided in regard to programs that create other programs, in that "own effort" does not mean "independent effort." *Id.* See notes 137-141, *supra* and accompanying text.

154. See Appendix I, § 4.

155. WIPO(1978), *supra* note 2, at 16. Similar ideas have arisen under United States copyright law, e.g., *Nicholas v. Universal Pictures Corp.*, 45 F.2d 119 (2d Cir. 1930), which suggests that although a playwright can clearly protect his basic expression, the rights accruing to him are not limited to such: but he also cannot prevent another's use of his "ideas." The degree of protec-

allowed protection for algorithms,¹⁵⁶ which are the basic concepts underlying programs. However, in the comment to this section, it is noted that "a person who uses a different form of expression with respect to each concept individually, but slavishly copies the structure of another person's software may well be held to have infringed on that person's rights."¹⁵⁷ This statement suggests that "slavish copying" of software concepts constitutes an infringement, although it appears unlikely that this could be shown factually.¹⁵⁸ Further help to software manufacturers is provided by the statement that protection under this law can be maintained concurrently with any patent.¹⁵⁹ This is an excellent idea, contrary to that in some countries where an election must be made as to the type of protection desired.¹⁶⁰ This can result in both patent and copyright protection being lost if the patent is held invalid.¹⁶¹

tion allowed by the current WIPO(1978) draft tries to accommodate this view. See the discussion regarding program descriptions *supra*.

156. See notes 121-123, *supra* and accompanying text.

157. WIPO(1978), *supra* note 2, at 17. Thus, "copying" may be viewed in two distinct but related concepts: as an infringement of the original copyright; or as evidence of insufficient originality to allow protection.

158. This appears to conflict with the computer program/program description differences noted above. See notes 105-112, *supra* and accompanying text. If "slavish copying" occurs, however, it is not the concepts in the work which are protected, but merely their arrangement, WIPO(1978), *supra* note 2, at 17, and thus "slavish copying" is determined largely by the order in which the instructions to the computer fall. Furthermore, this use of the term "copying" creates an ambiguity which might be considered as a two-pronged attack on a possible infringement: is the copying an infringement in itself, as under this section, or does the copying create a product undeserving of protection for lack of originality? See note 157 *supra*.

159. WIPO(1978), *supra* note 2, at 17, notes that "[s]ection 4 only relates to the rights under the Law. In countries which allow computer programs . . . to be . . . protected by patents, a computer program embodying a new and inventive concept may be patentable, and the concept thus protected." *Id.*

160. The United States appears to be one of these. "If the originator places a copyright notice on the . . . patent drawing, then the patent application may be rejected for noncompliance with the United States Patent Office drawing rules." Frijouf, *Simultaneous Copyright and Patent Protection*, 23 Copyright L. Symp. (ASCAP) 99, 108 (1977).

161. See generally Frijouf, *Simultaneous Copyright and Patent Protection*, 23 Copyright L. Symp. (ASCAP) 99 (1977). If the patent application contains a copyright notice, it will be refused. See note 160 *supra*. If the copyright notice is not attached, and the patent is not accepted or is declared invalid,

The fifth section of the draft proposal is designed to regulate unauthorized disclosure and copying of computer software.¹⁶² This section is broken up into three types of rights: the right of the proprietor to prevent disclosure; to control reproduction; and to control usage of computer software.¹⁶³

The prevention of unauthorized disclosure is a basic right which has elements of trade secret protection imbedded within it.¹⁶⁴ The term of this protection appears to run from the date of original manufacture of the software until the proprietor consents to disclose the material to the public.¹⁶⁵ The material protected is that of all the categories of software. Further, the law attempts to restrict the "facilitation" of disclosure: this term is not clearly defined.¹⁶⁶ This listing is apparently intended to be exclusive,¹⁶⁷ thus subjecting the current draft to some of the same criticisms of over-specificity which were directed at the earlier draft.¹⁶⁸

The second part of section five deals with the reproduction rights of the proprietor.¹⁶⁹ These are, basically, means by which

then copyright protection will be lost as a result of the proprietor's intent to obtain a patent and so allow entry of the software into the public domain. *Id.*

162. WIPO(1978), *supra* note 2, at 11. This appears to incorporate WIPO(1976), *supra* note 2, at 76, § 4.

163. *See generally* WIPO(1976), *supra* note 2, at 76-77, § 5.

164. *See* notes 65-75 *supra* and accompanying text. This also raises the possibility of "rights of disclosure" or "rights of first publication." *See* note 185 *infra*.

165. *See* Appendix I, § 5. This period may not be more than five years long. *See* Appendix I, § 7. The general thrust of the law here is to incorporate by implication provisions similar to the laws of trade secrets. WIPO(1978) *supra* note 2, at 17. The reason given is that software is highly vulnerable to theft and, once taken, is difficult to detect in use. *Id.*

166. The WIPO(1978) comments to the draft proposal suggest that the term "facilitation" refers to the "causing or procurement" of infringements, WIPO(1978), *supra* note 2, at 17, which is narrower in scope.

167. *See* Appendix I, § 6 and WIPO(1978), *supra* note 2, at 18: "Any act referred to in Section 5(i) to (viii) constitutes infringement." *Id.* Thus, with such a broad term as "facilitate" in use, a trade secret rationale is apparently intended by implication.

168. *See, e.g.,* Kollé, *supra* note 9, at 75: "all the proposals . . . suffer from the same tendency towards excessive perfectionism and wealth of detail [A] general 'open' clause on the subject matter of protection would be more suitable." *Id.*

169. *See* Appendix I, § 5, especially (iii)-(vi).

the dissemination of the computer software can be controlled by the creator.¹⁷⁰ Control of the work is maintained through an interlocking system which prohibits any protected software from being used to derive any other form of software.¹⁷¹

The most interesting aspect of this part of section five is that dealing with the use of the program to control the operation of a machine.¹⁷² This right does not exist directly under copyright law.¹⁷³ Protection afforded under this clause thus appears to be stronger than the protection gathered from indirect reproduction rights.¹⁷⁴

The third part of section five controls the commercial uses of software.¹⁷⁵ It allows the proprietor to regulate software produced in violation of the other parts of section five.¹⁷⁶ This is a reasonable step to take in that it reduces the likelihood of economic benefit to an infringer: however, it does not prevent the non-commercial transfer of software, which would be extremely difficult to detect.¹⁷⁷

Section six defines and describes infringement.¹⁷⁸ A rather

170. This is a basic right of copyright holders. See Kolle, *supra* note 9, at 74.

171. *E.g.*, Appendix I, § 5(iii)-(vi). It is forbidden to create a description from a program or vice versa without the permission of the proprietor. *Id.* This section incorporates WIPO(1976), *supra* note 2, at 76-77, § 5(i)-(iv). It is not clear to what extent this transfer of expression would influence the rights of integrity of the proprietor. See, *e.g.*, T. Crawford, *Legal Guide for the Visual Artist* 32 (1977).

172. See Appendix I, § 5(vi) and WIPO(1978), *supra* note 2, at 18. Indirect protection might be assumed since a computer cannot operate the machine without making at least a momentary copy of the program. *Id.*

173. See WIPO(1978), *supra* note 2, at 18. An argument could be made, however, that current copyright restrictions could protect this right indirectly in that it is forbidden to use the program without copying it.

174. These latter rights generally flow from the idea that the use of a program presupposes at least some reproduction of the program: but a protection of the use of that program, being essential to the field, is better done directly. See generally WIPO(1978), *supra* note 2, at 17-18.

175. See Appendix I, § 5(vii) and WIPO(1978), *supra* note 2, at 18.

176. See WIPO(1978), *supra* note 2, at 18.

177. This last sort of infringement might be protected under § 5(iii) and (vi). A further problem of this nature is noted in a situation whereby a computer programmed in one country is used to process information in a second. If the first country protects such use, but the second does not, § 5(vii) and (viii) will protect an infringement taking place in the second country.

178. See Appendix I, § 6 and WIPO(1978), *supra* note 2, at 18.

simplistic definition is used: an infringement is one of the acts done in section five without the authorization of the proprietor.¹⁷⁹ Notably, the authorization can be implied.¹⁸⁰ The other provisions of section six are descriptions of non-infringing acts.¹⁸¹ The first is the by-now standard "independent creation" idea that one who unknowingly and independently duplicates a work has not infringed.¹⁸² The second provision allows for "temporary or accidental" use in the presence of computer software on vehicles entering a country where such software is protected.¹⁸³

Section seven states the duration of rights.¹⁸⁴ All rights accrue to the proprietor at the date of creation of the software.¹⁸⁵ The term of protection, however, ends after twenty years, starting not from creation, but from the earlier of two events: the use of the software in a computer¹⁸⁶ or a commercial transaction involving the software.¹⁸⁷ No rights extend for more than twenty-five years from creation,¹⁸⁸ regardless of either event.¹⁸⁹ The main thrust

179. WIPO(1978), *supra* note 2, at 18. This section also reinforces the idea of an exclusive listing of infringements. See note 166 *supra* and accompanying text.

180. WIPO(1978), *supra* note 2, at 18. The drafters again leave the extent of implied authorizations to be determined by case law. This appears to conflict with their exclusive listing of infringing acts in that a court will not have so much leeway to interpret the law as when a more loosely determined statutory provision is used.

181. These are essentially the same as in the earlier draft. WIPO(1976), *supra* note 2, at 78, § 7.

182. T. Crawford, *Legal Guide for the Visual Artist* 6 (1977).

183. This provision is derived from Article 5 of the Paris Convention for the Protection of Industrial Property. WIPO(1978), *supra* note 2, at 18.

184. See Appendix I, § 7 and WIPO(1978), *supra* note 2, at 18-19.

185. Appendix I, § 7(1). "Creation" is an undefined term.

186. Appendix I, § 7(2)(a)(i). "Use" here does not include purposes of "study, trial or research," *id.*, but is not limited further. This raises the possibility of a "right of first publication," or the right to determine when a work has been completed. Thus, the proprietor could choose not to disclose for the duration of the protection period, basing his choice upon a claim that a trial of the software was being done. This would lend further protection to the idea of trade secrecy for software.

187. *Id.* at § 7(2)(a)(ii).

188. *Id.* at § 7(2)(b). The expiration of rights places the software into the public domain. WIPO(1978), *supra* note 2, at 18.

189. *Id.* Thus the statute incorporates a trade secret provision: a creator can gain his twenty years of protection after maintaining secrecy about it for five years. This would enable him to make the maximum use of the program,

of the extra five years appears to revolve around the protection of the software in its developmental phase.

The problem arises, however, in the ambiguity inherent in the term "creation."¹⁹⁰ There are several dates which may be used to decide this: the date of the first writing of the program; the date of the first usage of the program;¹⁹¹ or the date of the first written suggestion in a description or in supporting material, that a need for a program exists.¹⁹² Nonetheless, it becomes clear that unless certain acts are defined as the creation of the program, the twenty-five year period will essentially have no determinable end, since its starting point is defined as an unknown.¹⁹³ This idea is antithetical to the purpose of the law, and so it doubtlessly will be construed narrowly:¹⁹⁴ however, the loophole appears to exist.¹⁹⁵

Relief is treated under section eight.¹⁹⁶ It is left to the courts

inasmuch as the normal, useful life of a program is only 3-5 years. Disclosure after obsolescence would appear to be more beneficial to the proprietor, while also advancing societal goals. *Id.* at 19.

190. See note 184 *supra*. The comment to § 7 states that:

A problem . . . is how to find a point in time from which the period of duration can be calculated. The obvious reference point is the date when the rights begin, namely the date of the creation of the computer software But such a date is sometimes imprecise and often difficult to prove by third parties wishing to have some degree of certainty as to when the rights will expire.

WIPO(1978), *supra* note 2, at 18.

191. *E.g.*, when a program has been "debugged" and is ready for its intended use.

192. WIPO (1978), *supra* note 2, at 17-18.

193. See note 185 *supra*. This would be true if the proprietor neither used the program to control a machine nor offered the program for sale. A claim of, for example, long-term trial usage would appear to defeat the provisions as they stand.

194. Additionally, the intent of the drafters was to avoid the "infinite duration" of rights "if neither of the events . . . in subsection (2)(a) occurred." WIPO(1978), *supra* note 2, at 19.

195. It existed in the earlier draft, which allowed only a ten-year protective period, but in a different form: the right accruing to the proprietor after creation only protected unauthorized possession and disclosure, while in the current draft, the rights begin under all sections. Thus, the problem of creation was more limited in the earlier draft.

196. See Appendix I, § 8.

to determine proper remedies for infringement¹⁹⁷ and is intended only as a guideline.¹⁹⁸ As opposed to most of the other sections, an open approach is used here. This is more efficacious in that whereas a detailed listing of improper acts creates gaps in protection,¹⁹⁴ a more open formula of protection allows loopholes to be closed in accordance with the spirit of the law. This adjustment is in accordance with some of the criticisms of the earlier draft.²⁰⁰

Section nine is a useful provision. Its purpose is to insure that no conflicts will arise between local laws and the draft proposal.²⁰¹ Protection is intended under as many laws as is possible, allowing for various legal systems to effect this as they may.²⁰²

Conclusions

In general, the current proposal appears to be an improvement to the general law surrounding the protection of computer software. At the very least, it simplifies the terms which apply to the area, and, to a degree, draws a well-defined line between the needs of software manufacturers and those of society. To this degree, it deserves consideration in the countries enrolled in WIPO, despite suggestions that special legislation is not needed in some countries.²⁰³ One of the strongest arguments favoring an international treaty (or identical national laws) is that of clarifying much of the uncertainty surrounding the protection which may be afforded to computer software.²⁰⁴ By delimiting the subject matter to be protected and the origins of the protection afforded, the present draft has succeeded in this goal.

197. The section was worded generally so that it could be used in many different countries, WIPO(1978), *supra* note 2, at 19.

198. *Id.*

199. *See, e.g.*, notes 178-180, 184-185 *supra* and accompanying text.

200. *See generally* Kolle, *supra* note 9, at 76.

201. WIPO(1978), *supra* note 2, at 19.

202. *Id.* *See* notes 159-161 *supra* and accompanying text. There appears to be no conflict with the United States systems of state and federal law in that CONTU has recommended repeal of the current 17 U.S.C. § 117. CONTU, *supra* note 4, at 29. This would be particularly true if Commissioner Hersey's suggestions were adopted; these are similar to those suggested by WIPO. Nimtz, *supra* note 28, at 22. These suggestions, however, have not been adopted. *See* Computer Software Copyright Act, Pub. L. No. 96-517, §§ 10(a), 10(b), 94 Stat. 3028 (1980), amending 17 U.S.C. §§ 101, 117 (1976).

203. Kolle, *supra* note 9, at 78.

204. WIPO(1978), *supra* note 2, at 11. *But see* note 150 *supra*.

Nonetheless, the draft still has certain limitations. Perhaps the greatest of these is a refusal to consider alternatives to copyright-based protection.²⁰⁵ A few of these exist and appear to be reasonable alternatives to purely copyright ideas. However, because other protective devices will interact with the copyright system, of necessity they must become hybrid forms.

The first of these is suggested by the system of petty patents used in the Federal Republic of Germany.²⁰⁶ The essential feature of this law appropriate to the WIPO draft is that of the "utility model" law.²⁰⁷ This statute provides a shortened and limited form of patent protection for "inventions not rising to the high standards of formal patentability."²⁰⁸ The term of protection used in the F.R.G. is three years,²⁰⁹ which is thought to be adequate to protect the reduced inventiveness involved.²¹⁰ This notion could be interwoven into the WIPO draft as a substitute for the optional five-year "trade secret" period.²¹¹ This would aid in the dissemination of programs which are of moderate inventiveness, and would in no way detract from formal patentability of software meeting more stringent requirements. It would also allow a small degree of algorithm protection, at least for the period of time covered by the petty patent period. This period should be long enough to correspond with the normal commercial lifetime of programs

205. Some alternatives do appear, though phrased in a copyright context. See note 164 *supra*.

206. See generally Note, *Petty Patents in the Federal Republic of Germany: A Solution to the Problem of Computer Software Protection?* 8 Sw. U.L. Rev. 888 (1976).

207. *Id.* at 889.

208. *Id.*

209. *Id.* at 893, citing *Gebrauchmustergesetz*, Art. 14.

210. *Id.* It should be noted that under the F.R.G. system, computer software cannot be protected. *Id.* at 901. Nevertheless, if a program were built into a hardware module, e.g., a "chip," Gemignani, *supra* note 10 at 311, then it would become patentable under this system. It is difficult to reconcile the mere difference in form which prevents petty patents in the first instance and yet allows it in the second, when the end result is exactly the same in both instances. Perhaps an explanation for this is that "automatic data processing confronts us . . . with products of a new type which straddle the traditional boundaries between intellectual and industrial property and which would not seem capable of adequate coverage by one or the other of the systems of protection." Kolle, *supra* note 9, at 70.

211. See notes 185-194 *supra* and accompanying text.

generally. At the expiration of the patent, normal copyright coverage should ensue. The only difficulties inherent in such an idea are those which a patent application normally would require, such as tests for the adequate degree of novelty, a showing of the prior state of the field, and a lack of qualified examiners.²¹² The difficulties inherent in detecting infringements appear to be as great as those in the copyright field, suggesting that the best course would be allowing an option of either secrecy or petty patent.²¹³

Another idea not mentioned was that of compulsory licensing.²¹⁴ The essence of this concept is that computer programs could be treated in a similar manner to phonograph records under the United States law: this is, a person who records his composition must allow distribution upon payment of a nominal fee.²¹⁵ This idea could easily be incorporated into the WIPO draft, perhaps as a different alternative to the "trade secret" ideas already embodied.²¹⁶ It is probable, however, that, in view of the enormous difficulties in detecting infringements,²¹⁷ non-disclosure contract

212. See, e.g., WIPO(1978), *supra* note 2, at 8. A benefit of this system would be that the patent would run out before any lawsuits could be completed, thus reducing the legal challenges (but perhaps encouraging infringements?).

213. If the petty patent were allowed for three years after approval, then the period for final expiration of rights would be twenty-three years. An optional secrecy program could then allow rights for a maximum of twenty-three years after creation, rather than the current twenty-five. In this manner, the secrecy alone would constitute the difference.

214. See generally Lorr, *Copyright, Computers and Compulsory Licensing*, 5 Rutgers J. Computers & the Law 149 (1975).

215. 17 U.S.C. § 115(c). Obviously, a higher fee than the 2½ cents charged for records as a royalty would have to be figured. It is not necessary to discriminate among the value of programs, just as it is not necessary to discriminate among records; the better records make more money for their creator, so that market forces will be able to differentiate good from bad programs. If needed, programs worthy of petty patent could receive a greater royalty. Worthwhile programs would be in demand because they are by nature more efficient, and use less computer time: this would cost the licensee less. The program usage could be monitored in much the same way as a gas or electric line is, by attaching a counter to the computer to record each use of the program. Similar mechanisms have been developed, for example, to note the amount of usage on a photocopier.

216. See Appendix I, § 7.

217. These difficulties are also present in the case law governing audio and video recordings, see, e.g., *Goldstein v. California*, 412 U.S. 546 (1973),

remedies might also be required and used.²¹⁸

With these additions, computer software will be protected so as to meet the desires of both the manufacturers and of society. Industry users will have the options of continuing their current practices of using trade secrets protection,²¹⁹ of accepting copyright protection, or of attempting to patent the program.²²⁰ These will all protect their rights to some degree. However, if the WIPO system is adopted, society's needs of dissemination of information will also be protected. Further, the WIPO system in the long run, will improve the ability of the software industry to create more and better programming.

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Universal City Studios v. Sony Corp. of Am., 429 F. Supp. 407 (C.D. Cal. 1977). These problems do not appear to have damaged their respective industries to any great degree, despite the increasing market in tape and video recorders. See, e.g., N.Y. Times, November 7, 1980, at D1, col. 3.

218. This might be feasible if the market for computer software were not extraordinarily large. If it became so, the paperwork might make this solution economically infeasible. At such a point, where retail sales become a large part of a software producer's business, copyright protection becomes almost essential. This is currently occurring. See, e.g., Wall St. J., December 1, 1980, at 14-15 (ad for Atari computers): "[e]ven now . . . we're working to supply you with additional components and programs that are increasingly more useful and tailor-made for your own special interests." *Id.* at 15. Under present law, the programs Atari supplies may be public domain information.

219. Some writers suggest that trade secret protection may fail at any time, e.g., Bender, *supra* note 6, who notes that "we have been uncertain as to whether the law of trade secrets still exists." *Id.* at 5. He concludes nonetheless that trade secrets are the best form of protection yet available, *id.* at 37, but does not consider any markets other than those between large users. For a retail or large scale market, trade secrets are inappropriate. See Nimtz, note 28 *supra*. Thus, there is currently no viable alternative to copyright; and the copyright protection that exists, because of the nature of computer software, is sketchy and insecure.

220. See, e.g., *Parker v. Flook*, 437 U.S. 584 (1978); *Gottschalk v. Benson*, 409 U.S. 63 (1972); *In re Christianson*, 478 F.2d 1392 (C.C.P.A. 1973). In each of the above cases, the patents were struck down.

APPENDIX I

Text of the WIPO(1978) proposals
WIPO(1978), *supra* note 2, at 12-13

MODEL PROVISIONS

*Section 1**Definitions*

For purposes of this Law:

(i) "computer program" means a set of instructions capable, when incorporated in a machine-readable medium, of causing a machine having information-processing capabilities to indicate, perform or achieve a particular function, task or result;

(ii) "program description" means a complete procedural presentation in verbal, schematic or other form, in sufficient detail to determine a set of instructions constituting a corresponding computer program;

(iii) "supporting material" means any material, other than a computer program or a program description, created for aiding the understanding or application of a computer program, for example problem descriptions and user instructions.

(iv) "computer software" means any or several of the items referred to in (i) to (iii);

(v) "proprietor" means the person, including a legal entity, to

whom the rights under this Law belong according to Section 2(1), or his successor in title according to Section 2(2).

Section 2

*Proprietorship; Transfer and
Devolution of Rights in Respect
of Computer Software*

(1) The rights under this law in respect of computer software shall belong to the person who created such software; however, where the software was created by an employee in the course of performing his duties as employee, the said rights shall, unless otherwise agreed, belong to the employer.

(2) The rights under this Law in respect of computer software may be transferred, in whole or in part, by contract. Upon the death of the proprietor, the said rights shall devolve according to the law of testamentary or intestate succession, as the case may be.

*Section 3**Originality*

This Law applies only to computer software which is original in the sense that it is the result of its

creator's own intellectual effort.

Section 4

Concepts

The rights under this Law shall not extend to the concepts on which the computer software is based.

Section 5

Rights of the Proprietor

The proprietor shall have the right to prevent any person from:

(i) disclosing the computer software or facilitating its disclosure to any person before it is made accessible to the public with the consent of the proprietor;

(ii) allowing or facilitating access by any person to any object storing or reproducing the computer software, before the computer software is made accessible to the public with the consent of the proprietor;

(iii) copying by any means or in any form the computer software;

(iv) using the computer program to produce the same or a substantially similar computer program or a program description of the computer program or of a substantially similar computer program;

(v) using the program description to produce the same or a substantially similar program description or to produce a corresponding computer program;

(vi) using the computer program or a computer program produced as described in (iii), (iv) or (v) to con-

trol the operation of a machine having information-processing capabilities, or storing it in such a machine;

(vii) offering or stocking for the purpose of sale, hire or license, selling, importing, exporting, leasing or licensing the computer software or computer software produced as described in (iii), (iv) or (v);

(viii) doing any of the acts described in (vii) in respect of objects storing or reproducing the computer software or computer software produced as described in (iii), (iv) or (v).

Section 6

Infringements

(1) Any act referred to in Section 5(i) to (viii) shall, unless authorized by the proprietor, be an infringement of the proprietor's rights.

(2) The independent creation by any person of computer software which is the same as, or substantially similar to, the computer software of another person, or the doing of any act referred to in Section 5(i) to (viii) in respect of such independently created computer software, shall not be an infringement of the rights of the latter under this Law.

(3) Any presence of the computer software on foreign vessels, aircraft, spacecraft or land vehicles, temporarily or accidentally entering the waters, airspace or land of this country, and any use of computer software during such entry, shall

not be considered an infringement of the rights under this Law.

Section 7

Duration of Rights

(1) The rights under this Law shall begin at the time when the computer software was created.

(2)(a) Subject to paragraph (b), the rights under this Law shall expire at the end of a period of 20 years calculated from the earlier of the following dates:

(i) the date when the computer program is, for purposes other than study, trial or research, first used in any country in controlling the operation of a machine having information-processing capabilities, by or with the consent of the proprietor;

(ii) the date when the computer software is first sold, leased or licensed in any country or offered for those purposes.

(b) The rights under this Law shall in no case extend beyond 25 years from the time when the computer software was created.

Section 8

Relief

(1) Where any of the proprietor's rights have been, or are likely to be, infringed, he shall be entitled to an injunction, unless the grant of an injunction would be unreasonable having regard to the circumstances of the case.

(2) Where any of the proprietor's rights have been infringed, he shall be entitled to damages or such compensation as may be appropriate having regard to the circumstances of the case.

Section 9

Application of Other Laws

This Law shall not preclude, in respect of the protection of computer software, the application of the general principles of law or the application of any other law, such as the Patent Law, the Copyright Law or the Law on Unfair Competition.