

12-1-1985

The Creator and the Benefits of Creation: Protection of Software in the Information Revolution

Martin Kratz

Follow this and additional works at: <https://digitalcommons.schulichlaw.dal.ca/dlj>



Part of the [Computer Law Commons](#)



This work is licensed under a [Creative Commons Attribution-Noncommercial-No Derivative Works 4.0 License](#).

Recommended Citation

Martin Kratz, "The Creator and the Benefits of Creation: Protection of Software in the Information Revolution" (1984-1985) 9:3 DLJ 555.

This Article is brought to you for free and open access by the Journals at Schulich Law Scholars. It has been accepted for inclusion in Dalhousie Law Journal by an authorized editor of Schulich Law Scholars. For more information, please contact hannah.steeves@dal.ca.

1. *Introduction***

Mankind is presently passing through a technological revolution unlike anything seen in any prior era. In a world where the total mass of man's knowledge doubles in less than two years¹ information has become an increasingly valuable commodity. Similarly, the means by which information is manipulated has become evermore important.

The development of the computer² has been the catalyst of this information revolution as it has freed man from many time consuming and monotonous tasks. The development of the computer industry has been phenomenal.³ It has gone from its infancy in the late 1940's to a stage where annual sales figures read in the hundred billion dollar range. The growth of this industry has been marked⁴ by a seemingly continuous series of lawsuits. In fact, the first computer law suit was between the rival claimants to the honour (and Patent rights) of being the first inventor of the computer.⁵

**The author wishes to thank a number of people who laboured over early versions of this study and identified many of the grammatical and spelling errors and also contributed to the quality of the technical discussion. In particular, I would wish to thank the ever patient Margaret Burghardt who was kind enough to proof read several versions and Robert Rolf, systems analyst, who enlightened me on several technical matters.

1. Alvin Toffler, *Future Shock* New York: Random House Inc., 1970)

2. Also known as a general purpose data processing device. It is generally either a digital computer, analog computer or a hybrid computer.

3. This typically western phenomenon has even resulted in a computer revolution in Eastern Europe. See *Economist* Jan. 19, 1985 at 71.

4. Or is it more appropriate to say checked?

5. This dispute was between John Vincent Atanasoff, who developed the "ABC" (Atanasoff-Berry Computer) in conjunction with his graduate student Clifford Berry, and John W. Mauchly who later developed ENIAC (Electronic Numerical Integrator and Computer). This dispute finally was heard in 1973. See *Honeywell Inc. v. Sperry Rand Corp. and Illinois Scientific Developments* U.S. District Court, District of Minnesota, Fourth Div. Civil Action File No. 4-67 Civ. 138.

The legal system was not then and is not now capable of dealing with an industry of this complexity and dynamism. This is not difficult to understand given the nature of law itself. The common law has developed slowly over time and has not been able to keep up to the furious pace of the computer industry. Statute based law is fixed in time and usually “freezes” the law as was appropriate for the technology in existence at the time of the statute’s passage. It will be shown that two branches of law have been able to keep up with the computer industry. These are the law of contract and certain equitable doctrines dealing with confidence and fidelity between certain parties.

The basic reason why these branches of law have “survived” the onslaught is due to their basic character. The law of contract deals fundamentally with the ability of individuals (or groups) to make binding arrangement between themselves with very little restriction. This has allowed contractual terms to evolve with developments in the new technology. The law of equity has its origin in the prerogative of the Queen to do justice between contestants. It developed a number of doctrines that are applicable in the type of transactions that this paper will deal with. Equitable remedies are generally discretionary so a good deal of flexibility has allowed these doctrines to adapt to the needs of the computer industry.

II. *Scope of This Analysis*

There are many elements involved in the growth of the computer industry that have given rise to difficult legal problems. This discussion will be limited to a contemplation of mechanisms available to protect software.⁶ For the purpose of this analysis, there are 2 components in most modern computer systems.⁷ These are:

(a) *Hardware*

6. The protection of software, in both object and source versions, is conceptually one of the most difficult legal problems in the high technology industries. It is noted that most of the analysis following in this paper is equally applicable to other forms of high technology innovation.

7. For perhaps the most thoughtful judicial review of the elements of a computer system see the majority judgments in *Apple Computer Inc. v. Computer Edge Pty. Ltd. and Suss*, (1984), 11 Fleet Street Reports 481 (Federal Court of Australia).

- (i) The Central Processing Unit
 - (ii) Input and Output Devices
 - (iii) Communications Equipment
 - (iv) Memory Devices⁸
- (b) *Software*
- (i) System Software¹⁰
 - (ii) Application Software¹¹

This paper will examine a variety of potential and commonly used methods to protect software. Particular emphasis will be placed on application software as opposed to system software. System software is, generally, quite machine specific and so 'lifting' an operating system from one machine to use in another machine would normally require considerable modification in the program. It is noted that, particularly in the micro computer market, operating systems are more readily transferable. This is due to the number of 'clones' available in this market.¹²

1. *Definition of Software*

Software is composed of a number of discrete components including the computer program, the program description and any ancillary materials which might be supplied. The computer program¹³ consists of the set of instructions which cause the

8. Typically, a medium or larger installation will use magnetic tape or magnetic disk drives. Some portion of the memory may be in the form of Random Access Memory (ie. silicon "chips").

9. For the purposes of this paper computer programs stored in the form of firmware will be considered software. The particular issues relating to the firmware form of storage are addressed in the following discussion.

10. This is also known as the operating system. These programs basically provide the set of rules that govern the operation of the central processing unit.

11. These are programs that solve specific problems (ie. accounting systems, wordprocessing, data storage and retrieval). They operate within the framework established by the System (also called operating system) Software and so must be compatible with the rules established in the System Software.

12. For the purpose of this paper, a clone is a machine that uses, so far as is legally possible, identical hardware and firmware as that in a machine developed by a market leader (ie. I.B.M. PC or APPLE) so that application software developed for the market leading machine can also be used on the clone. Often the clone manufacturer will make improvements in the way the clone handles these application programs. A further discussion on the status of clone machines will be dealt with in the section on Copyright protection. See *I.B.M. v. Spirale* (1984), 80 C.P.R. (2d) 187 (F.C.T.D.).

13. World Intellectual Property Organization definition in "Model Provisions on the Protection of Computer Software".

computer to perform the desired function or functions. The 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.¹⁴

An example would be a flowchart. The ancillary materials are generally instructions for using the computer program. These are most commonly in the form of manuals¹⁵ and therefore in a tangible written form with which the court is far more comfortable.

This analysis will be primarily concerned with the protection of the computer program itself rather than its supporting materials. As will be discussed further below, written materials should get copyright protection without encountering the conceptual hurdles that the computer program encounters.¹⁶

The process of developing a computer program is complex, expensive and usually requires considerable creative input from the programmer or program designer. This analysis will chiefly be concerned with the end product of this work, the marketable computer program. It is noted that the problems to be discussed below may also arise during intermediate steps in the development phase. The considerations of protection will, however, be similar to those involved in dealing with the marketable product.¹⁷

14. W.I.P.O. Model definition. Liberman, in *The Protection of Software in Australia* (1981), Australian Business Law Review 234, at note 7 disagrees that the program description need not be in a tangible form as this definition implies.

15 Note however that many computer programs can come with a separate computer program which instructs the ultimate user in an interactive fashion. These computer assisted instruction programs will have the same protection concerns as the main program.

16. See *I.B.M. v. Spirale* (1984), 80 C.P.R. (2d) 187 (F.C.T.D.) where Reed J. used this fact and the right of the copyright holder to reproduce the work in other forms to find an alternative basis for *prima facie* existence of copyright in object code and source code.

17. In fact, it is arguable that there may be a greater degree of secrecy and confidence during the research and development phase. If so, then it ought to be somewhat easier to establish the basis of trade secret protection, to be discussed later.

2. *Tangible or Intangible?*

The limitation of the study of the “computer program”¹⁸ does not really make things very much clearer as there is still considerable fundamental disagreement about the definition and character of a “computer program”. These disagreements reflect the basic difficulty in determining what the *nature* of a computer program is. The origin of this difficulty is in the fact that the program has both a tangible and an intangible character depending on what one wishes to see. In the United States a computer program can be a “good” under that Uniform Commercial Code.¹⁹ In this sense the program is a tangible item, it is a thing which can be moved. Similarly, the fact that a computer must read a computer program into its memory implies a tangible aspect.²⁰ On the other hand, a program may be considered from the perspective of the underlying algorithm. This focuses on the ideas or the concept behind the program and, thus, seems intangible.

The characterization of a computer program is vital when one seeks to invoke one of the statutory schemes of protection. There are basically three possible characterizations.²¹

(a) *Computer Program As Intangible*

If the court concentrates on the intangible aspect of a computer program, such as the algorithm, then copyright and patent protection may be inappropriate. Copyright does not protect the idea or concept behind the series of steps and, if the only novelty is seen to exist in the concept, then traditional copyright protection will not be available for the codified manifestation of the concept.²² Similarly, if the logic is the essence of the program it may be inappropriate as a subject of patent

18. The further difficulties in dealing with the source code and object code versions of a program are dealt with in detail in the section dealing with copyright protection.

19. *Triangle Underwriters, Inc. v. Honneywell, Inc.* 457 F. Supp 765 (E.D.N.Y. 1978) *reversed on other grounds* 604 F.2d 737 (D Cir. 1979).

20. Duncan M. Davidson, *Protecting Computer Software: A Comprehensive Analysis* (1983) 23 *Jurimetrics* J 339 at 343.

21. M. Popper, (1977), *Technology and Programming — Is it a Problem in Definitions?* As listed in Palmer & Resendes, *supra*. The citation given for the report is 6 *Rutgers J Computers and the Law*.

22. John Palmer & Raymond Resendes, (1982), *Copyright and the Computer*. Consumer and Corporate Affairs Canada, Copyright Revision Series at 9.

protection under the mental steps doctrine.²³ Furthermore, if the ideas or concepts behind the unique logic are the essence of the program then one is faced with the public policy position that one can not have a monopoly on an idea or principle.

(b) *Computer Program As Tangible*

It is possible to see a computer program as a part of a complex machine, much like a camshaft in a typical automobile engine. This definition sees the program as a machine part which together with the rest of the machine, performs a specific function. The sense behind this more functional perspective is that without the computer programs a computer is only capable of heating a room.²⁴ Seen in this light, the program is the controller, the missing machine part that gives life and purpose to the machine.

By concentrating on the tangible aspect, the setting of electrical switches in the computer, patent protection may be a viable mode of protection²⁵ if novelty can be shown in physical operation of the computer.

(c) *Computer Program As Instructions Fixed in a Tangible Medium*

This view ignores the intangible and tangible aspects of a computer program, concentrating instead on the form of the program's presentation. This is the most widely held view²⁶ being recognized by the U.S. Supreme Court,²⁷ the Canadian Patent Appeal Board²⁸ and the software subcommittee of CONTU.²⁹ The emphasis in this definition is to see the series of steps fixed in some form. This series of steps is then able to direct the computer in its performance of an assigned task. The emphasis is on the form of the program, and the set of

23. Palmer & Resendes, *supra*, at 10. See Patent Protection below for an explanation of the mental steps

24. That is the only function it can serve is to pass current through its circuits and incur I²R losses.

25. Palmer & Resendes, *supra*, at 12. The U.S. Court of Customs and Patent Appeals has advanced this view.

26. Palmer & Resendes, *supra*, at 10.

27. *Gottschalk v. Benson* 409 U.S. 63, 1972.

28. Patent Office Record, August 1, 1978 p. 27.

29. National Commission on New Technological Uses of Copyrighted Works, (1977), *Software Subcommittee Report and Additional Views* Washington D.C. U.S. Department of Commerce in Palmer & Resendes, *supra*, at 11.

instructions and so copyright might be a viable form of protection.

It is submitted that this view does not adequately recognize the reality of the computer industry. There are virtually an infinite number of ways a particular problem can be solved in a computer program. Different computer languages can be used and different programming techniques can be used. It is submitted that the quality that makes one program a commercial success, and therefore of value, and another a commercial failure is a combination of (a) the logical steps used, (b) the programming concepts invoked and (c) the particular attributes of the language used.³⁰ The *form* of the program, the steps used, are merely the mechanism to implement the unique logic. In fact, as will be discussed later, program encryption is becoming one form of providing technical protection for a program. Encryption prevents, to a degree, a person from analysing a program listing to derive the unique logic underlying it.

(d) Computer Program As Having Tangible and Intangible Aspects

It is submitted that concentration on one or another aspect of the characteristics of a computer program will only lead to unsatisfactory legal results. If only the form is seen as valuable then only the form is protected, as in copyright. The result in copyright is that the underlying concept or logic can be freely taken, once “decoded”. The time, effort and money expended to develop the program’s unique logic will not be rewarded if only the form of the program listing is protected. If the program is seen as a machine part, so that patent law might apply, then other concerns arise. It appears to take at least 18 to 24 months and considerable expense to register a patent. The unique logic of a computer program might give it a market life on the same order of magnitude. Patent protection, it would seem, would be too late to protect against misappropriation of the program immediately after it appears on the market. These reasons, as well as the underlying uncertain existence of statutory protection in the first place, have

30. Of course, marketing has a significant role (perhaps the major role) to play. This is, however, outside the scope of this analysis.

resulted in wide spread industry use of contract and trade secret protection. These forms of protection are able to protect the “know how” that makes a program competitive. Yet, as will be seen later, these methods of protection are also limited.

The nature of a computer program raises significant conceptual problems. Yet this should not be the basis for the adoption of a simplistic view of the problem. Reform of the law, as it relates to this most important industry, is needed but it must be reform that accepts the realities of the complex world of the information age. The analogy of the dual nature of the electron might serve as a guide. Is it a wave or is it a particle? One test shows “wave like” characteristics, such as defraction and another shows “particle like” characteristics, such as scattering. The real problem is that we are attempting to define new concepts in old forms. The reality, in the case of subatomic physics, is that an electron can be *both* a particle and a wave³¹ depending on which tests are done. Heisenberg’s “Uncertainty Principle³³ might be acceptable in the world of science but a legal system strives for the removal of uncertainty and so abhors a fundamental uncertainty. It is submitted, that in these circumstances the legal system ought to concentrate on the reality of what is desired to be protected and then, in the light of public policy considerations, determine to provide the extent of that protection.

III. *The Problem of Protection in the “Information Age”*

The problem of the protection of one’s investment in creative effort arises particularly in the unique characteristics of the computer industry. As has been noted earlier, this is the fastest growing industry of all time. This rapid growth has led to significantly high levels of employee mobility from one computer firm to another. As a result, there is a greater opportunity for employees, highly trained with the employer’s latest innovation, to move to a competitor and remove the former employer’s competitive edge. To further complicate

31. Robert H. Dicke & James P. Wittke, *Introduction to Quantum Mechanics*. (London: Addison Wesley, 1960) or Werner Heisenberg, *The Physical Principles of the Quantum Theory*. (New York: Dover Publications Inc. 1946). (in translation).

32. Heisenberg, *supra*, at 20.

matters, it is very expensive and very difficult to create commercially viable computer programs. The creativity needed is not found equally distributed throughout all of mankind and so those particularly creative and successful programmers or program designers will be expensive to employ. They will require expensive facilities on which to create the new program. This will require time and considerable financial investment. On the other hand, once developed, a computer program can be copied into a completely operational form for less than \$5.00.³³ As a result, there is a tremendous economic incentive to allow someone else to incur the development costs and simply copy the result.

The economic incentive coupled with the greater opportunity has resulted in a significant problem of software piracy. Estimates of the extent of this piracy range from five “pirated” copies for each program sold³⁴ to nine,³⁵ ten³⁶ or even thirty³⁷ “pirated” copies for each legitimate copy of a program that is sold or licensed.

These problems have resulted in a variety of attempts at either preventing the illicit copying of computer programs or providing disincentives if programs are copied. Generally, technical methods of protection fall into the former class and legal forms of protection into the latter.

IV. *Technical Methods to Protect Software*

The most secure method of preventing illicit copying of a computer program is not to allow any access to the program. This might be effective in certain specialized applications but is not satisfactory if you wish to market the software to a large audience. As a result a number of methods have been developed

33. This is the approximate retail cost of a “floppy” diskette.

34. WGBH Boston, NOVA Adventures in Science, *Software Bandits* (New York: Addison Wesley, 1982) at 218.

35. See also responses on conference topics dealing with legal and technical means of protection software: (1) MCRO:MICRO at the University of Alberta, (Program used is: CONFER II (06/83) - designed by Robert Parnes, Trademark: Advertel Communication Systems), and (2) LAW:FORUM at Wayne State University (Program used is CONFER II (10/83) - designed by Robert Parnes, Trademark: Advertel Communication Systems - Conference organizer is Professor Jennifer Bankier, Dalhousie Law School)

36. Laver, *Fighting Computer Pirates*, MacLean's July 23, 1984.

37. R. McGuire, *Software Piracy*, INPUT March 1985 at 8.

to provide some technical protection against copying after the program is out of the seller's hands.

1. *Machine Dependent Programs*

The system software is necessarily dependant on the architecture of the computer hardware on which it is to be used. As a result, this program is not that portable and, usually, cannot be used on other, different, computers. This state of affairs however limits the marketability of the system software. In recent years system software is becoming more portable especially in the micro computer end of the market. Where it was once considered "safe", system software is now coming under the same piracy pressure as application software.

I.B.M. made a bold marketing move in the late 1960's when it decided that application software should be portable within the I.B.M. 360 series of computers. This move, by the giant in the computer industry, reflected the consumer demand for less expensive application software and has resulted in portability being one of the hallmarks by which modern application software is evaluated. The rise of the micro computer market resulted in a tremendous expansion of the market for application software. The application packages now available are readily characterized as portable within a specific operating system (ie. CP/M, MS-DOS or UNIX).

While it is possible to develop machine specific programs, there is little commercial incentive to do so except in very narrow and specialized segments of the market. A further factor mitigating against the use of machine dependant programs is the fact that most application software is developed by parties quite independant of the hardware manufacturers. These software developers have no incentive to limit the potential market for their products to a particular machine or operating system.

However this form of protection is still viable, particularly in the case of specially developed application software. It is noted that there are many other factors, such as the interdependence of the developing and using parties, in this case which also serve to limit the *threat* of illicit copying.

2. *Limiting the Ability to Copy*

A more effective way to protect mass marketed application software is through the use of some mechanism to prevent additional copies from being made. These techniques are never absolutely effective and there is a constant technical “race” between the developers of copy protection methods and developers of copy techniques to circumvent this protection.

The need to make copies exists for several reasons. First, the programs and data are usually stored on some form of magnetic media. These storage media are very vulnerable to physical damage, electric or magnetic fields, or extremes in temperature. All of these factors may modify or destroy the information that has been stored. Secondly, while computers are very reliable machines, they will, from time to time, “crash”.³⁸ When a system crashes, it may alter or destroy all the programs or data that might be stored in the computer at the time of the crash. As a result, the wise practice of maintaining a collection of backup copies of programs and data has developed.³⁹

A number of copy prevention mechanisms are listed below. This is not intended to be a comprehensive list and given the rapid developments in this area certainly could not hope to be so.

(a) *Issue software in the Form of FIRMWARE*⁴⁰

Issuing a program in this form makes duplication more difficult for the average user since the program listing is seen as

38. A system “crash” may occur when an error occurs from which the computer can not recover. This is most often due to software design errors or transient failures which cause the system to loose track of what it is doing. If due to a hardware failure, then the entire system might be powered down to protect the internal circuits from further damage.

39. A backup copy allows one to continue to use the computer, once the problem causing it to crash has been solved. Given the potential results from the loss of all one’s computer records (ie. extreme financial insecurity ranging from loss of accounts receivable to bankruptcy) it can be seen why this practice is required.

40. Firmware is a term used to describe a program that is written on a silicon “chip” rather than on a “floppy” diskette or magnetic tape. ROM chips are used as distinguished from RAM chips. ROM is Read Only Memory - a set of instructions that can not be changed by the user of the computer. RAM is Random Access Memory - the main memory area in a computer where information can be read in, changed or erased.

unintelligible. However, equipment is available which allows one to read the instruction set in such a chip and so it would be possible to make copies or determine the unique logic of the program. The issue is complicated further by a development of variations on the ROM⁴¹ theme. With the availability of PROMs,⁴² EPROMs⁴³ and EEPROMs,⁴⁴ which allow for the relatively easy programming or duplication of a new instruction set, it becomes easier to copy a program in ROM form. Indeed it is copying of software in the firmware form that has given rise to some of the most important litigation.⁴⁵

(b). *Hardware Dependant Software*

It is possible to create a program that requires a certain hardware option in order to operate. Typical of this form of protection is the encryption of the instruction set. A copy of the program will be unusable without a special "decoder" module plugged into the computer. It is far more difficult to make a copy of the "decoder" circuitry than it is to make a copy of the program. Therefore it is easier to maintain control over the hardware module and restrict its access to the class of permitted users. One drawback of this form of protection is the independent development of compatible "decoder" modules outside the control of the program developer. Another perhaps more important flaw is the fact that it will almost certainly cost more to sell this program with a "decoder" than to sell the program itself. This tends to make the program less commercially attractive.

A simple form of this technique involves the software reading a machine "serial number" imbedded in the hardware. The software will only run on the machine for which it is sold or created.

There are other hardware dependant protection mechanisms such as a date-lock. This is mainly used as a form of access control rather than as a protection mechanism. The date-lock would not allow a program to operate after a certain date.

41. Read Only Memory.

42. Programmable Read Only Memory.

43. Erasable Programmable Read Only Memory.

44. Electric Erasable Programmable Read Only Memory.

45. See, for example, *Apple Computer Inc. v. Computer Edge Pty. Ltd. and Suss*, (1984), 11 F.S.R. 481 (Federal Court of Australia).

Most computers have internal clocks which allow the time and date to be altered so that it is quite easy to circumvent this protective scheme.

3. *Structural Protection*

Structural protection refers to programs offered to the public in such a way that the user will be continually dependant on the seller in order to make most effective use of the program. Typically this could be done through the registration of the program (ie. each program has a unique serial number which the seller notes). The seller would only provide updated copies of the program to registered users. Similarly assistance with the operation of the program or recovery from any errors or program failures would only be available to registered users. These serial numbers might be embedded in the program instructions and so also provide a unique identifier to assist in determining the source of any copies found or to help prove, in court, that it is a copy.

Other methods are to sell incomplete packages to the users and have the seller complete a vital operation in person. For example, in an accounting package, the program to develop the year end financial statements might be missing. This mechanism is generally only effective when dealing with a small volume distribution program unless the seller's organization can manage to provide the labour to satisfactorily serve a large disbursed user group.

Another method used is the provision of a password to make the program operate. This might be effective in deterring a person outside the seller's organization or outside the user's organization from copying the program. However, it would not prevent someone from within either of these organizations from making working copies for third parties.

Structural protection may also refer to the physical environment in which the computer facility operates. The considerations in such forms of protection would relate, in part, to limiting the access of potential pirates or other computer abusers from the system or programs. Often a risk analysis will be conducted by a security specialist, particular where large

systems are involved.⁴⁶ Such an analysis becomes increasingly important as the value of the programs or data increases or as the data contains sensitive information. The rapid increase in telecommunications access through the use of modems⁴⁷ has given rise to significant problems of designing physical and legal solutions to the resultant computer abuse.⁴⁸

4. *Psychological Methods of Protection*

There are a number of protection mechanisms that rely on the premise that most people are basically honest. These methods would provide little challenge to copying but would tend to rely on the user's basic honesty. One such method is to provide "Freeware". These are computer programs which are available without initial cost to the user. The user is encouraged to send a contribution to the developer if satisfied with the product. It has been estimated that approximately one in ten users do send the contribution and this covers the costs of development. A refinement of this scheme is the duplication policy of "FreeSoft". A user sends in his or her contribution if they like the software but the user also has a further option. The user, for a small additional sum, can become a local distributor and is issued a diskette with a serial number. The local distributor receives a percentage of all new users who register under that number. As a result there is considerable incentive for the registered user to make copies and have others register.

A variation on this theme is to provide programs at a very low cost and have copies available at a cost just above the cost of the copy media. Most people would just as soon pay

46. For an overview of some of the considerations in conducting such a risk analysis see D. B. Parker, *Safeguards Selection Principles* (1984), 3 *Computers & Security* 81.

47. A Modem is a "modulator-demodulator", a device, simply put, which permits one computer to communicate with another computer through the use of the telephone network.

48. For an overview of the situation particularly as it applies to the Datapac network, see A. G. Dobson, *The Ballad of the Hacker* (1985), 10 *Computer Data* 10. For a more thorough review of the telecommunications and other computer security situation see the proceedings of the 2nd annual I.F.I.P. Conference on the "Security of Computer Systems", September, 1984 and the proceedings of the 3rd annual IFIP Conferences, Dublin, August 1985.

the slightly higher amount and have a legitimate copy.⁴⁹

These methods are of limited appeal since they do not provide any security that large, expensive software will be able to generate sufficient income to pay for development costs much less earn a profit. The methods appear to be effective when dealing with particular classes of users who might be restrained by some peer group pressure from “cheating” when the cost to have legitimate copies is so low.

Another form of psychological protection is to arrange for the customization of all user’s programs. For example, a business might licence an accounting package and the seller would arrange for the business’s name to appear on all forms that are printed out. The embarrassment of another business, in using forms with the legitimate users name on them, and the time and effort in locating and changing all these titles provides a further disincentive to copying.

The provision of extensive written documentation (which is clearly protected by copyright) means that a person who wishes to copy a program will also have to copy the user documentation. The developer should, if it became necessary, be able to enforce the documentation’s copyright. More significantly, the effort of copying a large amount of documentation would serve as a disincentive to the “casual” program pirate.⁵⁰

5. *Marketing Mechanisms of Protection*

If a product can be marketed fast enough, it may capture a significant portion of the available market before a competitor, using the “acquired” creative innovations of the original developer, can affect the marketability of the original work. Studies⁵¹ have indicated that the average life span of particular

49. See comments about the likely viability of protection in the educational context in Robert A. Abell, *Implementation Study of Microcomputer Technology in Science Education* (1983), PhD Thesis University of Alberta, Edmonton, Alberta at 109-110.

50. Some “pirates” simply collect software with no intention of making significant use of the stolen program. See R. McGuire, *Ex-Pirate Jumps Ship* INPUT March 1985 at 10 quoting Kevin Pickell “Most of the pirates I know locally collect software like stamps.”

51. Palmer & Resnedes, *supra*, at 44 Study of 5,328 I.B.M. application programs - average life span of approximately 16 months. See note 2 Frank, (1979), In Depth 10.

computer programs is in the area of 16 months. Given this very short time in which a program can maintain its marketability, the danger would appear to exist more from copying rather than from reverse engineering.⁵² It is therefore prudent to attempt to market the program as quickly as possible, not only to return the developmental costs and maintain the liquidity of the company, but also to avoid any competition from copies.

In fact a related marketing strategy is sometimes cited in support of software piracy, if the marketplace is using pirate versions of, say, wordprocessing made by firm X, then that market segment is generally closed to Y, who makes a competing product. It may be that the pirates might acquire legitimate copies if they find the software useful and they need manuals or software support from the vendor.⁵³

A related marketing concept is that used by "freeware" and others mentioned above. PC-TALK III, for example, a "freeware" product, has gained a very significant legitimate market share for communications software for microcomputers. Because it is possible to readily copy and pass on copies, such a product can significantly undercut the competition. It may be noteworthy that prices for microcomputer communications software appears to have dropped since this phenomenon began.

6. *Diseased Software As A Means of Protection*

Few would deny that software piracy is epidemic as a phenomenon. Some software developers are taking advantage of that fact and may provide diseased software to their customers. A diseased program is one that will perform some function or functions, generally unknown to the user, that may have a destructive effect on the program itself, or on the other programs or in extreme cases on the hardware. As a result, a program may, after some condition precedent is met, say, the program has been copied 5 times, self destruct or cause some other damage.

52. Reverse engineering is the process whereby a competitor will attempt to determine what the creative logic existing behind a product is, usually, by disassembling it and attempting to determine what algorithms were employed in the products creation.

53. See L. Davidson, *Software Piracy May Be Beneficial*, Chappel Davidson Associates Inc.

One approach is the release of a “worm”, a small program that moves through the memory space of the computer and destroys the information stored there one line at a time.⁵⁴ The “worm” may destroy the applications software or, in some cases, disable the operating system.⁵⁵

Another, perhaps more devious, approach utilizes a “virus”. A “virus” is a program that may destroy random lines of program code in the program. In one case a disk operating system was infected with a “virus” that caused it to reinitialize the disk immediately after bootstrap and the sixteenth self-reproduction cycle.⁵⁶

This concept appears to have developed out of a game, called “Core Wars”, in which two or more computer programs move through a defined memory space and try to destroy the others⁵⁷ and also out of certain practices in large systems, such as the provision of “trapdoors”⁵⁸ during the creation of the program.

It is not within the scope of this paper to examine the possible legal consequences of the provision of diseased software to an unknowing public.

7. *Conspicuous Litigation as a Means of Protection*

Litigation of software pirates has a significant non-legal effect on the protection of software as part of a complete marketing strategy. Where very publicity-vulnerable pirates are sued in a manner which generates considerable publicity; then a significant deterrent effect may be realized with similar classes of pirates. For example, Lotus Corporation brought action in late 1983 against Rixon alleging copyright infringement of more than 10 copies of the popular “Lotus 1-2-3” programs and claiming the maximum statutory damages of \$50,000 for each

54. See PC Magazine, Nov. 27, 1984 at 54 for an example of a commercially available “worm” from Prolock, a software security company.

55. See A. K. Dewdney, *Computer Recreations*, Scientific American 1985 vol. 252 No. 3 14 at 19 for an example of a “worm” for an Apple microcomputer.

56. See Dewdney, *supra*, at 20.

57. See A. K. Dewdney, *Computer Recreations*, Scientific American, 1984 vol. 251 No. 5 at 14.

58. A “Trapdoor” is a means used by the programmer to facilitate rapid and unobstructed entry into the heart of a computer program. It is used for debugging or otherwise editing the computer program. A “Trapdoor” may often be left in a program even after release.

such unauthorized copy plus costs. Rixon quickly settled and agreed to a permanent injunction against further unauthorized copying and also paid an undisclosed sum.

In July 1984 Lotus Corporation sued Health Group Inc. on similar grounds. This action was also settled by consent, by a decree in September 1984. Again a permanent injunction and an undisclosed sum formed part of the settlement.⁵⁹ These suits and other similar actions produced widespread publicity and presumably caused some embarrassment to the corporate defendants. There appears to be a deterrent effect produced in the industry, at least insofar as Lotus Corporation software is concerned.

If such litigation becomes part of a protection strategy, then there is a need to target the defendants carefully for the greatest effect. Presumably pirates within such organizations as schools, universities, user's groups, government bodies, and such commercial organizations as software manufacturers, consultants and law firms would make suitable defendants. Some Canadian distributors have certainly evidenced a desire to "bust pirates".⁶⁰

8. *Summary of Factors Affecting Non-Legal Methods of Protection.*

There are potentially an infinite amount of protection mechanisms possible. These may be more or less effective, depending on a number of factors such as:

- (a) The expected volume of sales,
- (b) The regional extent of the market,
- (c) The particular class of users and their particular characteristics,
- (d) The type of computer used,
- (e) The programming language used,
- (f) The options available in the systems software, and
- (g) The nature of the program itself.⁶¹

59. See R. G. Sterne, P. J. Saidman, *Copying Mass-Marketed Software*, BYTE February 1985 at 387.

60. See R. McGuire, *Software Piracy*, INPUT March 1985 at 8.

61. Most of this list was suggested by Al Dunbar in the micro computer conference on *Legal and Technical Protection of Software*, MCRO:MICRO at the University of Alberta.

Just as there are infinite possibilities of developing protection systems, so also there are infinite possibilities to circumvent these systems. In the final analysis, it appears as though no guarantee can be provided against the possibility of copying computer programs. Given that some copying will take place, then what are some practical methods to identify a particular program as a copy?

V. *Identification of the Software*

Several significant problems arise in any attempt to enforce legal remedies. First and foremost is the knowledge that an offence has taken place. This very difficult problem is dependant on the information available to the seller/developer/ rights holder to the program. It is beyond the scope of this analysis to consider mechanisms available to increase the detection of software piracy. A second, lesser problem, is given that piracy has been detected, how will one prove to a court of law that the pirate copy is in fact a copy?

A number of programming techniques serve to assist in making this identification. First, any given programmer has virtually unlimited options for solving any particular problem.⁶² Most programmers will make consistent decisions in the style in which the problem is solved. If this style can be identified, say in the repeated use of favorite routines, then identical usage in the pirate version raises doubts about its genuineness. A second, and better, method is for programmers to embed serial numbers, or dummy routines or instructions within a program.⁶³ If a pirate does not thoroughly examine the logic, then this should serve to prove the origin of the program.⁶⁴

62. Judicial recognition of the creativity that results in this unique aspect of computer program may be found in *I.B.M. v. Spire* (1984) 80 C.P.R. (2nd) 187 (F.C.T.D.).

63. The author's initials, imbedded in source code, and translated to the object code version lead to a conclusion of copying in *Apple Computer Inc. v. Computer Edge Pty. Ltd. and Michael Suss* (1984), 11 F.S.R. 481 (Federal Court of Australia) per Fox J. at 494 and per Lockhart J. at 525.

64. Consider *Williams Electronics, Inc. v. Artic International, Inc.* 685 F.2d 870 (1982 U.S. C.A. 3rd Circuit) where a "buried" copyright notice served as an aid to proof that there was "manifest similarity" between the two programs.

In the videogame cases in the United States,⁶⁵ courts have looked at the percentage of the instruction set that was identical to determine copying. Note that in these cases the plaintiff had to establish “substantial similarity” since he was relying on copyright protection. It is submitted that satisfaction of the “substantial similarity” test should be sufficient to establish the fact that one program is a copy of the other.

In *S & H Computer Systems, Inc. v. SAS Institute, Inc.*⁶⁶ the court dealt with a claim of copyright and trade secret infringement of an update of a pre-existing computer program. Wiseman D. J. examined the evolution of the program. At p. 423 he said:

However, if a party adopted an already prepared computer program and made very simple changes in the program involving mere rearrangement of the existing expression to disguise its copying, there would certainly be an absence of worthwhile imagination, creativity and independent thought. . . . The copyright “cannot be limited literally to the text, else a plagiarist would escape by immaterial variations”. *Nichols v. Universal Pictures Co.* 45 F.2d 119, 121 (2d Cir. 1930).

The determination of whether or not one program is a copy of another will ultimately rest on the facts of the individual case. As Judge Learned Hand said in *Peter Pan Fabrics, Inc. v. Martin Weiner Corp.*⁶⁷

Obviously, no principle can be stated as to when an imitator has gone beyond the ‘idea’, and has borrowed its ‘expression’. Decisions must therefore inevitably be ad hoc.

65. The video game industry has been estimated to have gross revenue of \$7,700,000,000 *Pay Meter* Nov. 15, 1983, at 44 (estimated at \$7,000,000,000 by *Business Week* Dec. 6, 1982, at 39) annually and has resulted in considerable litigation. See for example *Nintendo of America Inc. v. Elcon Industries, Inc.* 564 F.Supp 937 (D. Mich. 1982) “Donkey-Kong”, *Artic International, Inc. v. Midway Manufacturing, Co.* J.26068 June 1983 (U.S. S.C.) where it was indicated Midway had sold more than \$200,000,000 worth of machines to play the “Pac-man” videogame, and approximately \$120,000,000 worth of machines to play the “Galaxian” videogame, and *Videotronics, Inc. v. Bend Electronics* 564 F.Supp 1471 (D. Nev. 1983) “Challenger Wildpoker”. These cases and others are discussed in the copyright protection section, following.

66. 568 F. Supp. 416 (1983 Tenn. D.C.).

67. 274 F.2d 487 at 489 (2d Cir. 1960).

The next question is how to prove which program is the original. This can be done in a number of ways. One is to file a copy with an impartial party as evidence of time of creation. This is substantially how the copyright register works though this could be done through the creation of a private filing and registration system⁶⁸ that would not face the disclosure requirements under the *Copyright Act*.⁶⁹

VI. *Legal Protection of Software*

There are basically two types of legal protection possible in the Canadian Legal system. These correspond to the two sources of law in our legal system, statutes and the common law. Statutory forms of protection exist under the Copyright Act⁷⁰ and the Patent Act.⁷¹ Numerous mechanisms of protection exist at common law but most important are the law of trade secrets, equitable doctrines relating to fiduciary obligations and constructive trusts and the law of contract. These forms of protection⁷² will be examined in the remainder of this analysis from the particular perspective of the software industry. Note, however, that these doctrines have much broader application to coverage in the high technology industries in general.

VII. *Statutory Legal Protection of Software*

1. *Patent Law*⁷³

A patent is a monopoly right in respect of an invention.⁷⁴ The patent system is intended to encourage innovation and

68. Software escrow functions are often used in the licencing of custom software in circumstances where the licensee wishes to have access to the source code on the happening of some event (such as the licensor's bankruptcy) and where the licensor does not wish to disclose the source code except on these circumstances. This function *may* be of some evidentiary value of first creation where a software copyright is not registered.

69. R.C.S. 1970, C.C30 as am.

70. R.C.S. 1970, C.C30 as am.

71. *Patent Act* R.S.C. 1970, c.203.

72. The contractual aspect of licence agreements is outside the scope of the present discussion. The license agreement as a means to create the relationship of confidence is examined in some detail in the trade secret section.

73. Note that an earlier version of this section has appeared in (1985), 2 Canadian Computer Law Reporter 72.

74. See 35 Hals. (4th Ed.) para. 303.

continual improvement in technical and industrial creativity. Under this system, the inventor is given a monopoly to the use of his invention for 17 years from registration as a patent. The price the Crown exacts for this exclusive right is the disclosure of the invention through the registration process. This differs from Copyright protection where neither disclosure nor registration is required to vest protection in the creator.⁷⁵ The law of patents is derived, originally, from the *Statue of Monopolies*⁷⁶ and declared all grants of monopoly rights at common law to be void, with certain exceptions, one of which was “letters patent” to the true and first inventor of any manner of new manufacture.⁷⁷ In Canada, Parliament has exclusive legislative jurisdiction in the field of patent law under s.22 of the *British North America Act*.⁷⁸ Pursuant to this legislative competence, Parliament has enacted the *Patent Act*.⁷⁹

The scope of patent protection is limited to an invention that is within the class of “new and useful art, process, machine, manufacture or composition of matter”.⁸⁰ The invention must *also* satisfy three additional tests once within the statutory definition. The invention must have utility, novelty and not be obvious to a person skilled in the trade.

The first step, in considering patent law as a candidate for the protection of computer programs, is to show that the program falls within the class of “new and useful art, process, machine, manufacture or composition of matter”. Clearly, a computer program might be a “new and useful art”, it might be a “process”, or it might be a part of a “machine”.⁸¹ An initial consideration is that “machine” claims and “process” claims are treated somewhat differently. “Process” claims concentrate on the steps of the process. These steps must be novel and not obvious. It does not matter if the machine, on

75. In this sense it has been argued that technical or scientific creativity is afforded much less protection in law than the forms of creativity that exist in the humanities.

76. 1623 21 Jac. 1 c.3.

77. s.6.

78. 1867 30 & 31 Victoria, c.3, Now cited *Constitution Act, 1867*.

79. R.S.C. 1970, c.203.

80. *Patent Act* R.S.C. 1970, c.203, s.1 as am.

81. This particular characterization is possible if the program is seen as a machine part, such as a cam shaft.

which the steps are performed, is not novel or is obvious. On the other hand, a “Machine” claim must establish that the use of the ideas underlying the invention are used in a novel or not obvious manner. In this case it is not necessary that the idea itself be novel or not obvious.

Given that the computer program might fit within one of these categories, depending largely on how it is characterized, the next step is to examine the three tests mentioned above. First, and easiest, an invention is of utility if it performs some beneficial function claimed for it by the program’s creator. Virtually all computer programs should be able to satisfy this test since they will, generally, convert data from one, less meaningful, form into another, more meaningful, form. The utility test would, of course, not be met if the computer program did not work.⁸² This basic test will be met if the program yields the result promised in the specifications.⁸³

The obviousness test requires that the invention must not be such as would be obvious to other skilled persons working in the same field. Not only that, but the unique composition of the invention’s elements must also not be obvious to other skilled persons working in the same field. Lord Reid, in *Technograph Printed Circuits Ltd. v. Mills and Rockley (Electronics) Ltd.*,⁸⁴ stated that the notional person to whom the invention must be obvious is the uninventive person, skilled in the art, capable of assimilating the contents of scores of specifications, but incapable of a scintilla of invention.⁸⁵ Therefore there must be an inventive step.⁸⁶

Finally, the invention must be novel. That is, it must be something new. An invention must not have been known or used prior to the application, in the industry. The invention cannot just perform the same functions as an existing invention in the same way in which the existing invention performs the

82. See *Mullard Radio Valve Co. Ltd. v. Philco Radio and Television Corporation*, (1926), 2 All E.R. 920 (H.L.).

83. See the classic case of *Manton v. Parker* (1814), Dav. Pat. Cas. 327 on this point.

84. (1972), R.P.C. 346 (H.L.) at 355.

85. See also 35 Hals. (4th Ed.) para. 492.

86. See *Benmax v. Austin MotoCo. Ltd* (1953), 70 R.P.C. 284 (C.A.) on appeal (1955) 1 All E.R. 326 (H.L.) and *Beecham Group Ltd’s (Amoxycillin) Application* (1980), R.P.C. 261 (C.A.).

functions. It is, however, sufficient if “one or more features of the claim are new by themselves, or by themselves form a new combination” that was not anticipated.⁸⁷ Note that the novelty and obviousness requirements are related but also distinct. Not everything which is new (hence novel) is inventive (not obvious).⁸⁸ Similarly, though not usually, an invention may be old without being obvious.⁸⁹

(a) *Advantages of Patent Protection*

Patent protection allows the Patent holder to enforce the right to exclude others from making, using or marketing the patented item for a period of seventeen years. This provides a very strong monopoly for basically about eight to sixteen times the market life of most software. Unlike copyright, there is a very limited access to the patented invention, as there is no “fair use” exception or limitation on the protection provided. Compulsory licencing will occur only after three years⁹⁰ and only if Patent rights have been abused.

(b) *Disadvantages of Patent Protection*

The first obstruction to Patent protection is the very debate, to be examined later, over whether it is possible and under which circumstances it might be possible to patent a computer program. It appears, from the trend in recent U.S. cases at the Supreme Court level, that it may now be easier to get Patent protection for computer programs in the U.S.. The question still remains to satisfy the Patent Office, whose stated policy is to *not* grant patents for computer programs, that the requirements of Patent protection are fulfilled.

Patent protection is only limited to the physical embodiment of the ideas utilized by the invention but does not protect the ideas underlying the unique logic of the program. There can be no Patent on ideas, mathematical or scientific principles on

87. See 35 Hals. (4th Ed.) para. 462; *Almanna Svenska Elektriska AB v. Burntisland Shipbuilding Co. Ltd.* (1952), 69 R.P.C. 63 (C.A.) and *Martin and Biroswan Ltd. v. H. Millwood Ltd.* (1956), R.P.C. 125 (H.L.).

88. *Riekmann v. Thierry* (1896), 14 R.P.C. 105 (H.L.).

89. An example is *Re Molin's v. Industrial Machinery Co. Ltd.*, (1937), 4 All E.R. 295 (C.A.). Contrast this with the usual case, as in *Saccharin Corporation Ltd. v. Anglo-Continental Chemical Works* (1900), 17 R.P.C. 307.

90. Note in case of food or drug patents there is no three year waiting period.

public policy grounds in favour of preventing the creation of a monopoly of ideas.

It takes approximately 18 to 24 months to have a Patent application approved, assuming you are able to satisfy the stringent requirements to show the invention is patentable in the first place. This time and the cost from a minimum of about \$5,000 to \$10,000 or more depending on the complexity of the application make Patent protection fundamentally unsound. The program is of most value in exactly the time when it is *not* protected, in those preliminary 18 to 24 months.⁹¹ Similarly, again assuming that the program can be considered patentable, it will be that first version that is patented, not the version (perhaps already second or third generation) that is being marketed at the time the Patent might be issued. Finally, it has been estimated⁹² that approximately 50% of all successful Patent applications that are subsequently challenged in legal proceedings are struck down. Thus, after you have had to make a full disclosure of the workings of your program and have undergone the time and expense of the application, now, since your invention is in the public domain, you can not even get trade secret protection.

(c) *The United States Perspective*

The cases in the United States have proven to be particularly persuasive with Canadian courts dealing with these issues and so, due to the large amount of litigation in this area in the U.S., this is the most relevant starting point.

In 1966 the U.S. Patent Office stated in its guidelines that computer programs could be patented⁹³ if they consisted of “utility steps” and not “mental steps”.⁹⁴ This reflected the case of *In Re Abrams*⁹⁵ which established what was later to become the “Mental Steps Doctrine”. This doctrine basically provides that if a process could be undertaken mentally, say, by working

91. In *Data Cash Systems, Inc. v. J. S. & A. Group Inc.* 628 F.2d 1038 (1980) (U.S. C.A. 7th Circuit) reversing 480 F.Supp. 1063 (1979) (U.S. DC Illinois) the competitor marketed a similar program (Chess game) within about one year of the original programs marketing debut.

92. Comments by Grant Hammond.

93. Under 35 U.S.C. s.101.

94. 829 Off. Gaz. Pat. Off. 1 (1966).

95. 188 F.2d 165 (C.C.P.A. 1951).

out a formula on paper, then it could not be patentable. Most computer programs basically provide for the very fast execution of processes which are fundamentally capable of mental execution, but in a long time. This doctrine was limited in subsequent Court of Customs and Patent Appeals cases.

First, in *In re Prater*⁹⁶ and then in *In re Bernhart*⁹⁷ the C.C.P.A. allowed claims, based on a characterization of the programmed computer as a new machine, on the ground that “the steps were performed by a machine and therefore were not “mental”.”⁹⁸ A test for process claims developed indicating that if the claim could be in the “technological arts”, though performed on a computer, it was patentable since the steps were not “purely mental”.⁹⁹

This expansionist trend of the C.C.P.A. was cut short in the U.S. Supreme Court decision in *Gottschalk v. Benson*.¹⁰⁰ Here the court was faced with a patent claim for an invention described as being related “to the processing of data by program and more particularly to the programmed conversion of numerical information” in general-purpose digital computers.¹⁰¹ This broad claim was purported to cover the method in a general-purpose digital computer of any type. The court addressed the issue of whether this was a “process” capable of patent protection. The court recognized that the process, here, could be performed without the aid of a computer. The claim was so broadly framed as to be akin to the claim to a scientific truth,¹⁰² a disembodied idea¹⁰³ or a principle.¹⁰⁴

96. 415 F.2d 1393 (C.C.P.A. 1969).

97. 415 F.2d 1395 (C.C.P.A. 1969).

98. Duncan M. Davidson, *Protecting Computer Software: A Comprehensive Analysis* (1983), 23:4 *Jurimetrics J* 337 at 349.

99. See *In re Musgrave* 431 F.2d 882 (C.C.P.A. 1970), *In re Foster* 438 F.2d 1011 (C.C.P.A. 1971), *In re Mahoney* 421 F.2d 742 (C.C.P.A. 1970) and *In re McIlroy* 442 F.2d 1397 (C.C.P.A. 1971).

100. 409 U.S. 63 (1972) (U.S. S.C.).

101. Douglas J at 64.

102. *Mackay Co. v. Radio Corp.* 306 U.S. 86 (U.S. S.C.) at 94 “while a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be”.

103. *Rubber-Tip Pencil Co. v. Howard* 20 Wall. 498 at 507 “an idea of itself is not patentable”.

104. *Le Roy v. Tatham* 14 How. 156 at 175 “A principle, in the abstract, is a fundamental truth; an original cause; a motive; these can not be patented, as no one can claim in either of them an exclusive right”.

Here, if the patent was granted it would pre-empt use of the mathematical formulation and this would be too broad a monopoly. No general rule was stated and the door was left open that, under the right circumstances, a program might be capable of patent protection.

This rebuff forced the C.C.P.A. to curb its liberal approach and the “point of novelty” test developed. That is, in a patent application, if the point of novelty was the use of the computer program to execute a mathematical formula then the claim would not be allowed. The “point of novelty” test was a narrow reading of *Benson* but still struck down a large number of broad or unspecific claims. An alternative approach to patenting of computer programs was to avoid the entire issue of the subject matter’s fundamental capacity to be protected under the patent system. If the court looked, instead to the use of a particular machine capable of being programmed¹⁰⁵ or more efficient mechanisms to operate a machine¹⁰⁶ in order to validate the patentability of the program.

This renewed effort at finding computer programs as capable of patent protection was cut short by the U.S. Supreme Court, again, in *Parker v. Flook*.¹⁰⁷ Here, a patent was claimed on a process for updating alarm limits during a catalytic conversion process.¹⁰⁸ The only novel feature of the claim was a mathematical formula. The claimant did not seek to wholly pre-empt the use of the formula, but did seek to pre-empt its use in a limited class of uses. The court rejected the claim since the discovery of a new use for an existing principle or formula does not have the requisite novelty to found a patent claim.

Just prior to the decision in *Flook*, the C.C.P.A. had decided *In re Freemand*¹⁰⁹ where a computerized typesetting claim was allowed. This was achieved based on a two step test:

First, it must be determined whether the claim directly or indirectly recites a mathematical algorithm.

Second, the claim must be further analyzed to ascertain whether in its entirety it preempts that algorithm.¹¹⁰

105. *In re Noll* 545 F.2d 141 (C.C.P.A. 1976).

106. *In re Deutsch* 553 F.2d 689 (C.C.P.A. 1977).

107. 437 U.S. 584 (1978) (U.S. S.C.O).

108. Stevens J at 585.

109. 573 F.2d 1237 (C.C.P.A. 1978).

110. Davidson, *supra*, at 351.

*In re Walter*¹¹¹ the second part of this restrictive reading of *Benson* was modified after the decision in *Flook* to:

If the mathematical algorithm is implemented in a specific manner to define structural relationships between the physical elements of the claim (in apparatus claims) or to limit the claims steps (in process claims), the claim is statutory subject matter.

If, however, the mathematical algorithm is merely presented and solved by the claimed invention and is not limited in any manner to the physical elements or process steps, no amount of post-solution activity nor limited field of use will render the claim statutory.¹¹²

This new tactic, the C.C.P.A.'s third attempt at bat after two strike outs, was accepted by the U.S. Supreme Court in *Diamond v. Diehr*¹¹³ when it allowed a claim in which a computer program was one step in an entire process and where that process was, itself, patentable. This at least leaves the door open for a patent claim where one element in a process involves the use of a computer program. In a split decision, which therefore affirmed the C.C.P.A. decision, the U.S. Supreme Court also held a patent claim involving a computer program in *Diamond v. Bradley*.¹¹⁴

Subsequent C.C.P.A. decisions have allowed patents claimed on specific processes, not general concepts¹¹⁵ and have restricted processes that rely on computer programs to situations where more than mere calculation is done.¹¹⁶ Even the Patent Office, traditionally opposed to patent protection for computer programs (as is the case in Canada), has issued guidelines basically reciting the *Freeman* two step test as modified by *Walker*.¹¹⁷ The new approach appears to be an emphasis on the novelty,¹¹⁸ obviousness¹¹⁹ and proper disclosure tests¹²⁰

111. 618 F.2d 758 (C.C.P.A. 1980).

112. Davidson, *supra*, at 351.

113. 450 U.S. 175 (1981) (U.S. S.C.).

114. 450 U.S. 381 (1981) (U.S. S.C.) affirming *In re Bradley* 600 F.2d. 807 (C.C.P.A. 1979).

115. *In re Abele* 684 F.2d 902 (C.C.P.A. 1982).

116. *In re Pardo* 684 F.2d 912 (C.C.P.A. 1982).

117. Manual of Patent Examining Procedures s 2110.

118. In s. 102.

119. In s. 103.

120. s.112.

rather than the nonstatutory subject matter test¹²¹ as in the past¹²²

This trend opens up the possibility of patent protection, albeit in very limited circumstances. It must be remembered that most computer programs will not have sufficient novelty or non-obviousness to meet the strict tests necessary to qualify for patent protection.

(d) *Patent Protection in England and the E.E.C.*

Under the *Patents Act 1949* several patent claims were upheld on the characterization of the programmed computer as a modified machine. In *Slee and Harris's Application*¹²³ the applicants put forward several claims. The court held that the product of the computer's operation, intellectual information which was valuable was not a "vendible product" and so this characterization did not proceed. However, the programmed computer could fall within a manner of new manufacture if considered as a machine modified in a particular way. Similarly, a claim to a means of controlling the operation of a computer, in analogy to the operation of a camshaft with a novel profile, was allowed. The same characterization was used to uphold patents in *Badger Co. Inc.'s Application*¹²⁴ and *Gevers' Application*.¹²⁵

The focus in apparatus or machine claims was, therefore, on the computer and not on the program. A similar approach was used in process claims, as in *Burroughs Corporations Application*.¹²⁶ The test was whether the process results in a new machine or process or an old machine giving an improved result using the method.¹²⁷ The only limitation was that the results of the process must have "economic importance or advantages in the field of useful as opposed to the fine arts."¹²⁸

Up to this point the Tribunal had not seriously considered the issue of novelty. This state of affairs was ended with the

121. s.101.

122. Davidson, *supra*, at 353.

123. (1966), 9 R.P.C. 194 (Patent Office).

124. (1970), R.P.C. 36 (Patents Appeal Tribunal).

125. (1970), R.P.C. 90 (Patent Appeal Tribunal).

126. (1973), F.S.R. 439 (Patent Appeal Tribunal).

127. at 447.

128. at 449.

decision in *International Business Machines Corporation's Application*.¹²⁹ The claim was for a product that stored and updated prices and sales information in such a way as to retrieve the price at which goods are to be sold in a manner dependant on the last comparable pair of buy and sell orders. I.B.M. claimed that the price selection scheme was not a manner of manufacture and could not be transformed into such merely through the use of a computer. The Tribunal inverted this argument and came up with the proposition that a computer, "which was a manner of manufacture, could be transformed into a new manner of manufacture — a new computer simply by the input of the novel programme".¹³⁰ As a result, I.B.M.'s claim was upheld. In this process the Tribunal considered that two elements of novelty had to co-exist. The first element was the requirement that the claim must disclose a new concept or idea, which would not be, of itself, capable of patent protection. The second required element was that the medium on which the program was stored must be novel due to "different holes in the card or different patterns on tape, or some other automatic control imposed to ensure that the computer carried out the particular operation required".¹³¹ In effect, as Liberman points out, there are two products — the new computer and the unique storage mechanism.

The U.S. Supreme Court had appealed to Congress in *Benson* and *Flook* for a reform of the U.S. Patent Law. As was seen above, the C.C.P.A. and the U.S. Supreme Court ended up taking on this task. Similar pleas in England did not, however, go unheeded. In 1977 the *Patents Act 1949* was repealed and replaced by the *Patents Act 1977*.¹³² This new Act expressly provided that computer programs are excluded as proper subjects for patent protection.¹³³ This provision puts

129. (1980), F.S.R. 564 (Patent Appeal Tribunal) Note: The decision was handed down on October 16, 1978. The application appears to have been brought prior to the repeal of the *Patent Act 1949* and the express exclusion of Patent protection for computer programs.

130. Adam Liberman, *Patentability of Data Handling Systems* (1982), 56 Australian L J 80.

131. Liberman, *supra*, at 80.

132. chapter 37.

133. s.1(2)(c) *supra*, However, Niblett argues that patent protection may still be available in some cases. See B. Niblett, *Legal Protection of Computer Programs* (1980), at 30-33.

England in step with other E.E.C. countries. For example, in Germany, computer programs are expressly excluded from patent protection.¹³⁴ A similar express exclusion is found in the *European Patent Convention*.¹³⁵

While the English cases, above, will certainly not be typical of post-repeal cases in the future, they do provide a potential viewpoint that might be accepted in Canadian courts.

(e) *Patent Protection in Australia*

Under the *Patents Act 1952*, similar to the *Patents Act 1949* (U.K.), the Australian Patent Office practice is summarized:

1. So far as product claims are concerned, two categories are relevant:

(i) The medium upon which the programs are written or recorded may be viewed as a manner of manufacture. Such medium, however, has to be novel in order to be patentable. The Patent Office contends that there is no novelty in punch cards or magnetic tapes or discs.

(ii) Computers programmed in a particular manner may be viewed as a modified computer and therefore a manner of manufacture. The novelty of such manner of manufacture may however be doubtful.

2. So far as process claims are concerned, these cannot be viewed as a manner of manufacture because they do not result in a "viable product", rather they are merely a "new way of solving mathematical problems" or are "in the nature of a scheme".^{136 137}

To date no Australian courts have ruled on the validity of these Patent Office practices.¹³⁸

(f) *Canadian Patent Protection*

The Canadian Patent Office policy looks pessimistically at the possibility of obtaining patent protection for computer programs. The law, as contrasted from the Patent Office policy, has outlined a familiar story. The few decisions show that here, as elsewhere, the characterization of the computer program and

134. *Bundesgesetzblatt* (BGB I p. 1273) s.1(2) no. 3.

135. Art 52(2)(c).

136. *British Petroleum Co. Ltd. Application Nos 30390/63 and 30391/63* 38 A.O.J.P. 1020.

137. Adam Liberman, *The Protection of Computer Software in Australia* (1981), Australian Business L Rev 234 at 246.

138. Liberman, *supra*, at 247.

its function in a machine or process claim is vital to the success or failure of the claim.

The first case, decided only at the Patent Appeal Board level, was *Waldbaum*.¹³⁹ The applicant in *Waldbaum* brought forward three characterizations: (1) a method for controlling a data processor to determine the relative number of 0s and 1s in a data set. (2) a method of operating a data processor with specific application to counting the number of busy and idle lines in a telephone system, and (3) a process consisting of a new use of a computer.¹⁴⁰ The Patent Appeal Board was deciding prior to the later U.S. Supreme Court restrictions on the C.C.P.A.'s expansionist policy and as a result relied on the reasoning in *In re Bernhart*.¹⁴¹ The Board adopted the characterization of the program creating a different machine from the unprogrammed computer and was thus patentable.

The leading Canadian case is *Schlumberger Canada Ltd. v. Commissioner of Patents*.¹⁴² Here, Schlumberger sought to patent a system which analyzed the various instrument readings made during the testing of a well. The measurements were recorded on magnetic tape and then input into a computer which had been programmed, according to the mathematical formulae applicable. The output of this process was useful information.

The Patent Commissioner rejected the claim on the ground that Schlumberger had, in effect, claimed a monopoly on a computer program and also that such a program, even if new and useful, is not an invention within the meaning of the *Patent Act* s.2.. Schlumberger appealed claiming that the invention claimed is not merely a computer program but a complex process, which is effected by computer.

The Federal Court of Appeal examined the claim for novelty. It found that there was nothing new in using a computer to make the kind of calculations that were involved here. The novel element was the discovery of the mathematical formulae or relationship. The court applied the mental steps doctrine:

139. (1972), 5 C.P.R. (2d) 162.

140. Palmer & Resendes, *supra*, at 64.

141. *supra*, Note that *Bernhart* was overturned by the rule in *Benson*, *supra*,

142. (1981), 56 C.P.R. (2d) 204 (Fed C.A.) Leave to Appeal to the Supreme Court of Canada Dismissed Oct. 20, 1981 (1982), 63 C.P.R. (2d) 261 (S.C.C.).

“If those calculations were not to be effected by computers, but by men, the subject-matter of the application would clearly be mathematical formulae and a series of purely mental operations; as such, in my view, it would not be patentable”.¹⁴³ S.28(3) provides that no patent shall issue for a “mere scientific principle or abstract theorem”.

Schlumberger argued that the steps were not mental but mechanical and were only part of the process claimed as an invention. Pratte J. said “If the appellant’s contention were correct, it would follow that the mere fact that the use of computers is prescribed to perform the calculations prescribed in the specifications would have the effect of transforming into patentable subject-matter what would, otherwise, be clearly not patentable.¹⁴⁴ In effect, the basic process was not patentable and the use of the computer can not change the nature of the basic claim.

The court is clearly using the characterization of the computer program as identical with the mathematical algorithm that underlies its logic. The door does not appear to be closed by this narrow characterization, as is shown in the later case of *Re Application For Patent Of Lelke (Now Patent No. 1,113,194)*.¹⁴⁵ In *Lelke*, the claim was for a system to lay out advertising copy by computer. On amendment by including a limitation that an essential feature of the invention was the bit image memory refreshing the display, the claim was allowed. Note that this case seemed to avoid the issue of subject-matter patentability and concentrated on the narrow, apparently well defined, claim.

Lelke was decided just after *Diehr*¹⁴⁶ and so does likely not give us a Canadian commentary on *Diehr*.¹⁴⁷ It appears that the claims in *Schlumberger* and *Diehr* were similar so it may be useful to contrast the cases. In *Diehr* the claim was for a process which involved the measurement of temperatures during a rubber molding process. These temperatures resulted in recalculation of the cure time. It is difficult for the author

143. Pratte J speaking for the court, at 206.

144. at 206.

145. (1983), 72 C.P.R. (2d) 139 (Fed C.A.).

146. *Lelke* April 21, 1981 and *Diehr* March 3, 1981.

147. NOTE however that the Supreme Court of Canada is likely to have been aware of *Diehr* when it denied leave to appeal in October 1981.

to see how this is substantially different from what Schlumberger was claiming, a process of measurement, subsequent calculation and then the production of useful information. *Diehr* was decided by concentrating on the process as a whole and not on the mathematical formulae that made up part of the process. Justice Rehnquist stated: "We view the respondents' claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula".¹⁴⁸ It is significant that in *Diehr* the court expressly found that the applicant did not seek to pre-empt the use of the mathematical relationship. It does not appear that this limitation was forcefully argued in *Schlumberger* though it is noted that the Patent Appeal Board allowed the claim in *Lelke* when the claim was limited.

In *Re Application of Honeywell Inc. (Now Patent No. 1,130,462)*¹⁴⁹ Honeywell was successful in claims 2 to 6 for an invention entitled Synchronizing System for a Microprogrammed Computer. The first claim was rejected as being too broad in the light of the cited art. As in *Lelke*, the successful claim characterized the invention as a system. Computer programs are, then, part of an otherwise patentable process.

In summary a claim for patent protection of a computer program will be difficult to justify but in the proper case computer programs, as apart of an otherwise patentable process or machine, have been allowed. Characterization of the role of the computer program is vital to the success or failure of the application. Where the court wishes to see the program as a machine part, something that changes the nature of the machine or controls the machine, then patent protection is possible. Where the court assimilates the algorithm underlying the program with the claim for patent protection, a very difficult road lies ahead for patent protection of computer programs.

The Canadian courts have shown a great willingness to follow the decisions of the U.S. Supreme Court in this area.¹⁵⁰ This

148. *Diehr, supra*, at 191.

149. (1984), 79 C.P.R. (2d) 281 (Fed. Patent Appeal Board and Commissioner). Decided May 21, 1981.

150. See, however, Justice Walsh's comments contrasting the U.S. and Canadian law on obviousness in *Minnesota Mining & Manufacturing v. Lorcon Inc.* (1983), 73 C.P.R. (2d) 176 (F.C.T.D.).

is understandable given the greater experience of the U.S. courts with these matters and also given the fact that Canada's largest trading partner is the United States. It has yet to be seen whether the Canadian courts will follow the more liberal trend away from a concentration on the algorithm as evidencing the character of a computer related claim, and concentrate instead on the tests of novelty, non-obviousness and inventiveness as the proper criteria to determine whether or not a computer program might be eligible for patent protections.

2. *Copyright Law*

(a) *The Constitutional Basis for Copyright*

The federal Parliament has exclusive jurisdiction over the field of copyright by virtue of s.91(23) *British North America Act*.¹⁵¹ Prior to Confederation there existed a common law doctrine of copyright. Parliament in the exercise of its exclusive jurisdiction has completely covered the field, as is seen in s.45 of the *Copyright Act*.¹⁵²

No person is entitled to copyright or any similar right in any literary, dramatic, musical or artistic work otherwise than under and in accordance with the provisions of this Act, or any other statutory enactment for the time being in force, but nothing in this section shall be construed as abrogating any right or jurisdiction to restrain a breach of trust or confidence.

It is clear that, unlike the United States where a common law copyright still subsists, in Canada the *Copyright Act* governs the entire field. The latter words of s.45 are very important since they implicitly recognize that the right of copyright co-exists with the law of trade secrets. It is submitted that the law of trade secrets is fundamentally within the scope of s.92(13) of the *British North America Act, 1867*¹⁵³ and so is within an area of exclusive provincial competence. This would be so since there are no express provisions of s.91 which

151. 1867, 30 & 31 Victoria, c. 3, Now Cited Constitution Act, 1867.

152. R.S.C. 1970 c.C-30 as am.

153. 30 & 31 Victoria, c.3, Now Cited Constitution Act, 1867.

would limit this legislative competence.¹⁵⁴ The doctrine of trade secrets and breach of confidence was surely known to the fathers of our confederation and so it is submitted that the latter words in s.45 are *necessarily* implied even if they had not been expressly stated.

(b) *Nature and Elements of Copyright*

Copyright confers a limited monopoly, for the benefit of authors or creators of works appropriate for copyright protection. Under s.3(1) it is clearly a negative monopoly right.

For the purposes of this Act, “copyright” means the sole right to produce or reproduce the work or any substantial part thereof in any material form whatever. . .

The basis for the law of copyright is that the protection of the author’s moral rights (such as claims to paternity) and the protection of copying rights will encourage individual artistic and creative gain. While this might have been the original intention, copyright protection now appears to be broadly available without the necessity of an “artistic” rather than “utilitarian” aspect of the work.¹⁵⁵

It is important to distinguish the difference between the right of copyright and other rights, such as possession. Possession of a copyrighted work may allow the possessor to use the work in many ways but the possessor is not permitted to make copies of the work. It is very possible, in fact the general case, that one person or entity will own the copyright to the work and another distinct person or entity has a right to use the work. Copyright law is concerned with the rights of the copyright holder, not the possessor.

154. Note however s.7(e) *Trade Marks Act* R.S.C. 1970, c.T-10 which purports to legislate that “no person shall. . . do any act or adopt any other business practice contrary to honest industrial or commercial usage in Canada”. One of the functions of the law of trade secret and trust has been to provide a minimal level of commercial conduct. S.7(e) certainly moves into this area. There is *prima facie* a broad purported inclusion of the province’s jurisdiction under s.92(13) of the *B.N.A. Act*. By analogy with *MacDonald v. Vapor Canada* (1976), 66 D.L.R. (3d) 1 (S.C.C.) this is surely unconstitutional.

155. *Apple Computers, Inc. v. Franklin Computer Corporation* (1983), 2 C.L.R. 335 (U.S. C.A. Third Circuit) August 30, 1983 and *I.B.M. v. Spirale* (1984), 80 C.P.R. (2d) 187 (F.C.T.D.). Note, however, The White Paper on copyright, which appears to insert a requirement of aesthetic appeal as justification for expropriating copyrights from software developers.

Certain formal conditions must be satisfied before it is even possible to come within the protection of the *Copyright Act*. Briefly, these are:

- (1) Author or creator must be, at the time of creation:
 - (i) a British subject, or
 - (ii) a resident of Canada, or
 - (iii) a resident of a country that is a member of the Berne Convention,¹⁵⁶ and
- (2) The work must be within the class of works protected under s.4(1): “copyright shall subsist . . . in every literary, dramatic, musical and artistic work. . . .”

For a work to be capable of supporting copyright protection it must have certain attributes, as follows:

(i) *An Original Creation*

This implies, first, that a work exists and second, that it is an original work. Original is defined in a negative sense, meaning essentially that the work is not copied from someone else’s work.¹⁵⁷ To be original, the work must emanate from the author, it must be the product of his labour and skill and an expression of his thoughts. A mere *amanuensis* who does nothing more than take down what is dictated to him does not exercise labour and skill of the required character.¹⁵⁸ Copyright is only concerned with the form of expression and so it is this form which must be original. The ideas underlying the form of expression need not be original. This is the basic problem, to be discussed in detail later, in copyright protection for computer programs. For the valuable part of the program is not so much its form of expression but rather the unique logic that underlies that form. This is *not* protected by copyright.

(ii) *Fixation in a Tangible Form*

The work done, to be capable of copyright protection, must

156. The Berne Convention was the first international attempt to provide some degree of international intellectual property protection to residents of member countries. Under this agreement, the member countries allow reciprocal protection of copyright in the member states.

157. *University of London Press v. University Tutorial Press Ltd.*, (1916), 2 Ch. 601.

158. *Canadian Admiral Corporation Ltd. v. Rediffusion Inc.*, (1954), Ex. C.R. 382 (Exchequer Court).

be fixed in a tangible form.¹⁵⁹ Through the idea of fixation, the work must have some form of permanence. This would coincide with general legal theory in favour of certainty and order. It would be very difficult to acknowledge an enforceable right in a person when it can never be proven what the subject matter of the right consists of. Fixation provides a tangible work against which an alleged copy can be contrasted. The requirement of fixation is an indication of the courts' difficulties in dealing with transient intangible phenomenon.

The requirement of fixation is generally satisfied in the case of computer programs, since they will be "fixed" in some form of magnetic or other media.

(iii) *Requirement of Registration*

Unlike the United States, which requires notice of copyright on the work, in Canada, there is *no* formal requirement for registration of notification in order for copyright to subsist in an appropriate work. Once the labour, skill and judgment results in an original work that is fixed in a tangible media, the work is protected by copyright.¹⁶⁰ There is a register for copyrights in Canada, but its value is only evidentiary in nature. Under s.20(3) registration provides certain useful presumptions which would assist in an action enforcing the right. The Supreme Court of Canada, in *Circle Film Enterprises Inc. v. C.B.C.*,¹⁶¹ has held that registration may give rise to a rebuttable presumption of copyright. In *Blue Crest Music Inc. v. Canusa Records Inc.*¹⁶² it was held that where copyright is presumed to exist, then originality is also presumed. The *Blue Crest* decision was followed in *Bally-Midway Mfg. Co. v. M.J.Z. Electronics Ltd.*,¹⁶³ a case dealing with a claim of copyright in a computer program.

Note, however, that registration also requires a disclosure of a human readable form of the work. This might be disadvantageous since a competitor could determine what the underlying logic of the program is. It might also provide a

159. *Canadian Admiral Corporation Ltd. v. Rediffusion Inc.*, (1954), Ex. C.R. 382 (Exchequer Court).

160. *Gribble v. Manitoba Free Press*, (1931), 1 D.L.R. 169 (Man. C.A.)
Dennistoun J.A. (1959), 31 C.P.R. 57, 20 D.L.R. (2d) 211, 19 Fox Pat. C. 39, (1959), S.C.R. 602 (S.C.C.).

162. (1974), 17 C.P.R. (2d) 149 (F.C.T.D.).

163. (1983), 75 C.P.R. (2d) 160 (F.C.T.D.).

problem if trade secret protection is sought concurrently with copyright protection.

(c) *Ownership of Copyright*

Under s.12(1) copyright will reside in the author or creator of the work. Where the author is an employee and creates the work within the scope of his employment, then under s.12(3) the employer is entitled to the copyright.¹⁶⁴ Where the programmer is a consultant, and absent any agreement to the contrary, the programmer will own the copyright.¹⁶⁵ Similarly, it appears that where an employee develops a program at his own expense and on his own time then he will own the copyright even if the employer uses the program that he developed.¹⁶⁶

(d) *Advantages of Copyright Protection*

There are several advantages to protection under the copyright system. First, the *Copyright Act* gives the copyright holder a right *in rem*, a right against all the world, to prevent appropriation of the labours of one author by another. This, like patent law, allows one to enforce rights against strangers, persons you might not have other dealings with. This is an important advantage over contractual and trade secret protection which appear to protect only against wrong-doing between specific parties.¹⁶⁷

A second advantage of copyright protection is the absence of the need to register the work. The work is protected by

164. *Patchett v. Sterling* (1955), 72 R.P.C. 50 per Lord Simonds dealing with a patent case declared "it is an implied term in the contract of service of any workman that what he produces by the strength of his arm or the skill of his hand or the exercise of his inventive faculty shall become the property of his employer". These words were, of course, spoken in an age very different from the "information age" of the present. See W. R. Cornish, *Intellectual Property: Patents, Copyright, Trademarks and Allied Rights*, (London: Sweet & Maxwell 1981) at 216.

165. See, for example, *Northern Office Micro Computer Pty. v. Rosenstein*, (1982) 8 F.S.R. 124, 1981, (4) S.A. 123 (S.C. S.A.). This case was generally approved of by Reed J. in *Spirale* and by Hughes J. in *Computermat*. See also *Thrustcode Ltd. v. W. W. Computing Ltd.*, (1983), F.S.R. 502 (Ch.D.) at 507.

166. See, for example, *Babolat Mailot Witt S. A. v. Pachot*, (1984), E.C.C. 282 (Paris C.A.) not yet commented upon in Canada in this context.

167. See a possible exception in the case of trade secret in limitations that have been placed on the defence of bona fide purchaser for value without notice, discussed later.

copyright once the conditions, above, have been satisfied. This is a major advantage of copyright protection over patent protection. As was mentioned earlier, patent protection only subsists on the successful application for a patent, usually 24 months after the application was filed. Copyright, like trade secret protection, arises instantly on the creation of the work.

(e) *Disadvantages of Copyright Protection*

The primary disadvantage to copyright protection is the fact that copyright protects only the form of expression of an idea and not the idea itself. There are so many possible forms that a given computer program can take to solve a particular problem, using the same idea, that it is readily apparent that it is not the form of the idea's expression that is important but rather the idea, the method or logic, that provides for the solution. The time and effort spent on the development of new techniques in programming are not protected. So long as the competitor's version is not "substantially similar" in form, then use of the idea is not a violation of copyright.

The *Copyright Act* itself provides for certain allowable limitations on the creator's copyright. Section 17(2)(a) provides that "any fair dealing with any work for the purposes of private study, research, criticism, review or newspaper summary" is not an infringement. This provides a possible limit to the extent of copyright protection. It is noted that "fair dealing" does not likely extend to commercial dealings as appears to be indicated by s.17(4). s.17(2)(d) provides that "short passages", if suitably acknowledged, do not infringe in school use, so long as "not more than two of such passages from works by the same author are published. . . within five years". Section 17(2)(f) provides that recitation in public "of any reasonable extract" is not an infringement. Therefore, there might be defences available to an alleged infringer that would not be available if the program were protected by patent law.

Another serious limitation to the possible protection offered under copyright law is due to s.46 of the *Copyright Act* which provides that works which are industrial designs are not protected under the *Copyright Act*. Rule 11¹⁶⁸ provides

168. Industrial Design Rules, 1978, c.964 under s.19 *Industrial Design Act* R.S.C. 1970, c.1-8.

A design shall be deemed to be used as a model or pattern to be multiplied by any industrial process within the meaning of s.46 Copyright Act, (a) where the design is reproduced or is intended to be reproduced in more than 50 single articles. . .

The Act defines an industrial design as anything reproduced in an industrial process in more than 50 copies. The test is one of intention. If at the time of creation the creator intended to produce more than 50 copies of the work then it might be only possible to protect the work under the *Industrial Design Act*. This Act provides broader protection but for a much more limited term of 5 years protection with a possible extension of another 5 years.

While there are no formalities for copyright protection to vest in a work (ie. no need to register), to obtain industrial design protection one must register the work within one year. Many other technical formalities must also be satisfied to have any security in the industrial design protection. As a result it is not a preferred method of protection.

In Canada, the *Copyright Act*¹⁶⁹ was enacted in 1924 and has only seen minor amendments since then. Unfortunately, much of the language in the Act has had the effect of fixing technology as at the date the Act was first passed.¹⁷⁰ As is seen in the exemptions above the *Copyright Act* was originally intended for works which are creative in the “artistic” rather than “practical” or “utilitarian” sense. The modern view appears to be that the merit, if any, of a work is quite irrelevant to the question of copyright protection.¹⁷¹ Unfortunately, old ideas do not leave us as fast as the times have changed and so cases still exist which attempt to require some degree of “artistic” creative value. An example is Case no. 7-0-143/80¹⁷² where the judge found that a computer program did not have the necessary “intellectual-aesthetic content” associated with works

169. R.S.C. 1970, c.C-30 as am.

170. *Canadian Admiral supra*, where the Act did not provide for the situation where television broadcasts were rediffused through other than “radio transmission” through the “ether”.

171. *D. P. Anderson & Co. Ltd. v. The Lieber Code Co.*, (1917), 2 K.B. 469 (K.B. Div.) where a code, each word of which was meaningless, was held to be protected by copyright as an “original literary work”.

172. District Court, Mannheim, 1981, *Der Betriebsberater* (BB), p. 1543 June 13, 1981.

traditionally protected by copyright. Heidrich¹⁷³ points out that s.2(2) of the German Copyright Act does not make this a requirement of copyright protection.

A further problem is one of fundamental conceptual difficulty. The typical use of a computer program will involve the loading of the program, which has been stored in some form, into the computer. In effect the computer makes a copy of the loaded program in order to use it most effectively. Concern has been raised that this copying might be an infringing use. This reproduction is not generally available for human perception and so it has been commented that it might not be reproduction as understood by the *Copyright Act*.¹⁷⁴ Similarly the W.I.P.O.¹⁷⁵ Committee made the following comment in this regard:

...it is, . . . , possible that copyright law can provide a remedy in this case since it is probable that the use of a program always involves its copying into the computer memory, but courts may not regard such internal reproduction as sufficient for the purposes of copyright law.¹⁷⁶

It would be very unpractical to have a situation whereby literally millions of copyright violations might occur each day and, in fact, there would be no other method to make use of the work. Such a situation was rejected by the majority in *Apple Computer Inc. and Apple Computer Australia Pty. Ltd. v. Computer Edge Pty. Ltd. and Michael Suss*¹⁷⁷ and this reasoning was adopted in Canada in *I.B.M. v. Spirale*.¹⁷⁸ In the United States, part of the amendments to their *Copyright Act* has provided an explicit right to make an archival copy of the program.¹⁷⁹ While this does not directly address the issue,

173. U. Heidrich, *Portection of Computer Programs Under German Copyright Law* (1983), 2 C.L.R. 41 at 44.

174. Witford Committee, *Report of the Committee to Consider the Law on Copyright and Designs: Copyright and Designs Law*, Cmnd. 6732 at 129.

175. World Intellectual Property Organization.

176. (1977), *Model Provisions on the Protection of Computer Software*. Industrial Property 259 at 261. See *I.B.M. v. Spirale* (1984), 80 C.P.R. (2d) 187 (F.C.T.D.) where Reed J. uses this reproduction or translation as an alternative basis for finding copyright in source code and object code.

177. (1984), 11 F.S.R. 481 (Federal Court of Australia).

178. (1984), 80 C.P.R. (2d) 187 (F.C.T.D.).

179. s.117(2) *1980 Computer Software Copyright Act*, *infra*, at 00. Discussed later.

it does, perhaps, indicate that such is a reasonable use. The issue in Canada might be decided on the basis of an implied authority to make such internal copies only for the use of the computer program.

The preceding discussion has alluded to another problem area. While a program written in source code might be read by a computer programmer and might even make some sense to a lay person, the same program in its object code version is virtually impossible to read.¹⁸⁰ The mere fact that it is not readable or intelligible ought not to be a problem as was held in the *Lieber Code*¹⁸¹ case. The problem is that the object code is designed and intended to be read by a machine and not by human beings.¹⁸² As a result it might be outside the scope of the protection that might exist under the *Copyright Act*.¹⁸³

This problem has been resolved in the United States by amendments to their Act which basically provides that it is irrelevant that one might have to use a machine in an intermediary position in order for a human to read the work. We unfortunately do not have such provisions in our Act. The case might be made, if this arises as an issue, that since the law of copyright protects a computer program in one form, say the written program listing of the source code, then it ought to also protect the program in another translated form. It is noted that one of the author's rights under the *Copyright Act* is the right to adapt or translate the work.¹⁸⁴

A further related problem looks to the scope of protection

180. Note however that Lockhart J., in his concurring decision, in *Apple Computer Inc. and Apple Computer Australia Pty. Ltd. v. Computer Edge Pty. Ltd. and Michael Suss*, (1984), 11 F.S.R. 481 (Federal Court of Australia) appears at p. 523 to have decided, on an alternative basis for his decision, that object code could be read by skilled humans. I submit Fox J. provided the better view by deciding on a broader basis rather than trying to patch up an obsolete *Copyright Act*.

181. (1917), 2 K.B. 469 (K.B. Div.).

182. For a more detailed view of this position see the dissent of Sheppard J. in *Apple Computer Inc. and Apple Computer Australia Pty. Ltd. v. Computer Edge Pty. Ltd. and Suss*, (1984), 11 F.S.R. 481 (Federal Court of Australia), particularly at 538-539.

183. This issue was assessed in favour of copyright in both *Apple Computers, Inc. v. Franklin Computer Corporation* (1983), 2 C.L.R. 335 (U.S. C.A. Third Circuit) and *I.B.M. v. Spirale* (1984), 80 C.P.R. (2d) 187 (F.C.T.D.).

184. s.3(1)(a) *Copyright Act* This argument has been adopted by Reed J. in *I.B.M. v. Spirale* (1984), 80 C.P.R. (2d) 187 (F.C.T.D.).

under the Act. As the Act was apparently enacted to encourage creative work of the “artistic” kind, there has sometimes been a tendency to imply that coverage does therefore not extend to works which are creative in a “practical” or “utilitarian” sense. Again, the *Lieber Code* case should put to rest any attempt to read such additional requirements in to the *Copyright Act*. However, this issue is still raised in the odd case.¹⁸⁵

In the United States, the Court in *Apple Computer Inc. v. Franklin Computer Corporation*¹⁸⁶ directly addressed this issue. Operating under a revised *Copyright Act*, the court found that the fact that the object code was not in a human readable form did not preclude copyright protection. The *Apple* case really only affirmed the rule in *Williams Electronics, Inc. v. Artic International, Inc.*¹⁸⁷ which overturned *Data Cash Systems, Inc. v. JS & A Group Inc.*¹⁸⁸ The District court in *Data Cash* had found that there was no copyright in the complainant’s ROM, and so the defendant was able to make a direct copy of the ROM chip and market a competing chess game.

(f) *Copyright in the United States*

As in the case of patent law, the development of the law of copyright has had, and can be expected to have, a significant effect on the direction of Canadian copyright law. The United States has gone through somewhat more of the analysis stage and has had a number of major amendments to their *Copyright Act*. Starting about two decades ago, the Copyright Office had been registering copyrights for computer programs. The Office expressed concern about the validity of this policy.¹⁸⁹ Their primary concern was the copyrightability of object code. Source code, as mentioned earlier, is directed towards a human reader

185. It was argued by the defendants in *Apple Computer Inc. and Apple Computer Australia Pty. Ltd. v. Computer Edge Pty. Ltd. and Suss.* (1984), 11 F.S.R. 481 (Federal Court of Australia).

186. (1983), 2 C.L.R. 335 (U.S. C.A. Third Circuit).

187. 685 F.2d 870 (3rd Circuit 1982) *See also Stern Electronics, Inc. v. Kaufman* 669 F.2d 852 (2nd Circuit 1982), *Midway Manufacturing Co. v. Artic International, Inc.* No. 82-1607 (7th Circuit April 11, 1983), *Midway Manufacturing Co. v. Dirkschneider* 543 F.Supp 466 (D. Neb. 1981).

188. 480 F.Supp 1063 (N.D. Ill. 1979) *affirmed on another ground* 628 F.2d 1038 (7th Circuit 1980).

189. Office of the Register of Copyrights, Announcement SML-47, Copyright Office Circular 31D 1965.

as opposed to a machine reader and is therefore perceptible by a human.

As early as technology developed mechanisms to store and retrieve information this debate developed. From the days of the player piano as in *White-Smith Publishing Co. v. Apollo Co.*¹⁹⁰ it has continued. The *White-Smith* case inhibited the protection of unperceptible forms of information without specific amendment and exception.¹⁹¹

A very major change in American copyright law occurred with the 1976 *Copyright Act*.¹⁹² The *White-Smith* rule was overturned in favour of protection for works which are perceptible "with the aid of machine or device". Several recent cases have held that this Act now provides copyright protection to object code.¹⁹³

The second aspect of the problem remains. Object code is not intended to be perceived by a human being but by a machine, so is not a literary work within its traditional meaning. "Its function is to substitute for manual labour. It is designed to be a mechanical apparatus which runs a machine."¹⁹⁴ Basically this has brought us back to the issue of characterization of the computer program. If the "machine control" aspect is emphasized, then the problem appears. If the program is merely seen as a form of writing, then the problem disappears.

CONTU continued to press for a functional rather than formal view of computer programs.¹⁹⁵ As a result of the recommendations made by CONTU¹⁹⁶ the *Copyright Act* was amended in 1980. This amendment is of particular interest to this entire topic and so will be reproduced in length.

190. 209 U.S. 2 (1908) (U.S. S.C.).

191. For example, phonographic records were not copyright protectable until the amendment in 1971 Act of Oct. 15, 1971; Pub.L. No. 92140; Stat. 2541, amending Act of Mar. 4, 1909, c.320; 35 Stat. 1975.

192. 17 U.S.C. s.102(a).

193. *Williams Electric Inc. v. Artic International Inc.* 685 F.2d 870 (3rd Circuit U.S. C.A. 1983) and affirmed by *Apple Computer Inc. v. Franklin Computer Inc.* (1983) 2 C.L.R. 335 (3rd Circuit U.S. C.A.).

194. Davidson, *supra*, at 361.

195. That is looking at the unique circumstances of the computer programming industry, computer programs ought to be protected whether they fit into one of the old categories or not.

196. CONTU Final Report July 31, 1978.

s.101. Definitions. . . A computer program is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result.

s.117 Notwithstanding the provisions of section 106 (exclusive right's of copyright holder) it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy of adaptation of that computer program provided

1. That such new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or

2. That the new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event the continued possession of the program should cease to be rightful.

Any exact copies prepared in accordance with the provisions of this section may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale or transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner.¹⁹⁷

This Act recognizes the reality of the need to make a backup or archival copy in order to protect valuable programs or data. It also recognizes and resolves the potential argument that the internal copying of the program is an infringement by expressly providing that such internal "adaptations" are not an infringement where necessary for the use of the program. Finally, the Act provides statutory recognition and force of the reality of modern licencing practices. Since most programs are sold under a licence agreement, the licencor would wish to get all "archival" copies back if the licence should terminate. The Act gives this arrangement statutory effect. Finally and most importantly, the Act ensured that if object code was not included in the 1976 Act, it was certainly included in the 1980 amendments.

It was still possible, up to the 1980 amendments, to make the argument that object code was a utilitarian device and was, therefore, not the proper subject of copyright protection. In *Data Cash Systems, Inc. v. J.S. & A. Group*¹⁹⁸ the District

197. 1980 *Computer Software Copyright Act*; Act of Dec. 12, 1980; Pub.L. No. 96-517, s.10; 94 Stat. 3028 (as codified in 17 U.S.C. ss.101,117.

198. 480 F.Supp 1063 (N.D. Illinois 1979).

Court held that a direct copy of the plaintiff's ROM chip was not copyright protected since the object code contained therein was not in a form which one can see or read with the naked eye but was a machine part. The Court of Appeal affirmed the District Court decision on another ground.¹⁹⁹ There is a requirement of notification under U.S. copyright law²⁰⁰ and neither the object code stored in the ROM, nor the gameboard, packaging nor accompanying instructions contained the required notice.

The District Court was just applying the rule in *White-Smith* in rejecting the protection because it was not intelligible to a human. The court also relied on the characterization of the program as part of the machine to reject protection. The *Data Cash* case has been subsequently considered in several cases and has been rejected as the proper interpretation of the protection available under the 1976 Act.

In *Tandy Corporation v. Personal Micro Computers, Inc.*¹²¹ the plaintiff complained that the defendant had copied his "input-output routine". Proof of this was shown by the fact that only the name, "Radio Shack" or "Tandy" had been removed from the program listing. It appears that in all other respects the programs were identical. The program was stored in a ROM chip. The District Court expressly distinguished *Data Cash* and observed that the Illinois Court of Appeals had noted neither side had actually argued the issue.²⁰²

The first Court of Appeal decision to reject the *Data Cash* argument was *Williams Electric Inc. v. Artic International Inc.*²⁰³ where it found the argument to be artificial and contrary to the 1976 Act. The Court of Appeal found an infringement of the "Pac-man" and "Galaxian" program copyrights. There was substantial copying of the sequence of program steps. Note that the claim to copyright in all possible video display images was rejected by the United States Supreme Court.²⁰⁴

199. 628 F.2d 1038 (7th Circuit 1980) (U.S. C.A.).

200. This condition does not exist in Canada.

201. 524 F.Supp 171 (N.D. California 1981).

202. *Midway Manufacturing Co. v. Artic International Inc.* 547 F.Supp 999 at 1012-13 (N.D. Illinois 1982) also disassociated itself from the *Data Cash* decision.

203. 685 F.2d 870 (3rd Circuit 1982) (U.S. C.A.).

204. (1983), 2 C.L.R. 135 (U.S. S.C.) June 1983 J. 26068.

The *Williams Electronics* decision was applied in the subsequent case of *Apple Computer, Inc. v. Franklin Computer Corporation*.²⁰⁵ This was a case where Apple claimed an interim injunction to restrain Franklin's alleged infringement of 14 computer programs.²⁰⁶ Franklin moved to dismiss 11 of the counts on procedural grounds. At trial, Apple showed the Franklin programs were virtually identical to the Apple programs.²⁰⁷ Franklin admitted the copying and relied in defence on the argument that the operating system was not capable of protection under the *Copyright Act*. The Court of Appeal reviewed the state of the law on this issue and agreed with its earlier decision in *Williams Electronics*. It had been suggested that *Williams Electronics* depended on the "communicative" aspect of the video game. The program was designed to communicate with a human, whereas it was claimed the Apple programs were designed to communicate with the machine. This was rejected. The Court held that the categories of literary work is not closed and is broader than the common law definition of literary works.²⁰⁸ As a result, a computer program, whether in object or source code form, is a literary work within the meaning of the U.S. *Copyright Act*.

Franklin claimed that s.102(b) of the *Copyright Act* expressly prevented copyright protection in any "method of operation" and hence the operating system ought not be protected. The Court found that Apple did not seek to copyright the method but only the unique instruction set. An operating system is not, *per se*, precluded from copyright protection.

Franklin claimed that Apple was attempting to gain a monopoly on the idea for the operating system. The Court found difficulty in drawing the line between ideas and the expression of the ideas. This, it was said, had to be a pragmatic decision based on the facts of each case. Consideration was

205. 2 C.L.R. 335 (3rd Circuit 1983) (U.S. C.A.) August 30, 1983.

206. (1) Autostart ROM, (2) Applesoft, (3) Floating-Point Basic, (4) Apple Integer Basic, (5) DOS 3.3, (6) Master Create, (7) Copy, (8) Copy A, (9) Copy OBJO, (10) Chain, (11) Hello, (12) Boot 13, (13) Apple 13-Sector Boot Rom, and (14) Apple 16-Sector Boot Rom.

207. For example the only change in the Autostart ROM was 8 bytes of memory to display "ACE 100" rather than "APPLE II". Similarly the Franklin DOS 3.3 only changed 16 bytes out of 9,00 bytes.

208. *Harcourt, Brace & World, Inc. v. Graphic Controls Corporation* 329 F.Supp 517 (S.D. N.Y. 1971).

given to preserving the balance between competition and protection.

*Midway Manufacturing Co. v. Strohon*²⁰⁹ provides an example of the method of analysis that the court might use in a case of an infringement claim. Here, the plaintiff manufacturer of “Pac-man” video game claimed that the defendants infringed on both the audio visual component²¹⁰ and in the object code stored in the ROM. The analysis outline follows:

(1) *Whether Infringement of the Audio Visuals?*

(a) Was there access to the copyrighted work by the Defendants? In this case, yes.

(b) Was there “Substantial Similarity” between the works?

(i) No copyright is a mere idea — limit to protection.

(ii) TEST: Would the ordinary observer think that the defendant copied the plaintiff’s audio visual display?

This test was not satisfied by the defendant’s “Cute-see” audio visuals.

(2) *Whether Infringement of the Computer Program?*

(a) Can the audio visual display and the program be considered separately?

TEST: The skill, ingenuity and effort required to design the computer program is quite different from the process of conceiving and designing the audio visual display.

(b) Is the computer program protected by copyright?

Yes, the *Computer Software Act 1980*²¹¹ covers:

1. the human readable source code, and

2. the machine readable object code.

It does not matter in which form the object code is stored (ie. ROM, Floppy Diskettes or Magnetic Tapes).

It does not matter that electric current passes through the “Firmware”,²¹²

209. (1983), 2 C.L.R. 105, 564 F.Supp 741 (N.D. Ill 1983) June 1, 1983.

210. This case appears to have been decided just prior to the decision of the U.S. S.C. in *Midway v. Artic* (1983), 2 C.L.R. 135.

211. Pub.L. 96-517, 94 Stat. 3015 (1980).

212. The ROM chip. The argument which focuses on the placement or movement of electrons appear to be a refinement of the argument against protecting utilitarian devices.

The chip only serves as a repository for the computer instructions in object code.

(c) Was there access to the copyrighted work by the Defendants? In this case, yes.

(d) Was there “Substantial Similarity between the works?”

(i) No copyright in a mere idea — limit to protection.

(ii) TEST: Would the ordinary observer think that the defendant copied the plaintiffs audio visual display?

Yes, out of the 16,000 bytes available Pac-man used 13,382 steps. In total the defendants’ steps were common with 89% of the Pac-man program, considering both the data and instruction sets. When just the instruction set was considered, then 97% of the steps were common. Also, most of the enhancements to the “Cute-see’ game were contained in the unused top locations of the chip. This supports an inference of copying and “patching”.

A number of observations were made by the court that might be of assistance in future litigation.

(A) The computer program is a distinct creation from the function that it might provide.²¹³

(B) It is quite possible to design a game that would infringe the audio visual copyright but would use an entirely different, non-infringing, computer program.²¹⁴

(C) It is virtually impossible that two programmers working independently would write so nearly identical programs.²¹⁵

It had been argued that computer programs in the firmware form were not capable of copyright protection. The Court rejected this argument in favour of a more practical and less technology-bound solution. Congress has now gone even further in a less related area with the *Semiconductor Chip Protection Act of 1984*²¹⁶ This Act creates a new form of

213. *supra*, at 21.

214. *Stern Electronics, Inc. v. Kaufman* 669 F.2d 852 at 885 (2nd Circuit 1982). NOTE that here, in the instant case, the reverse happened. An infringing program was used to produce a non-infringing audio visual work.

215. *supra*, at 33.

216. Enacted November 8, 1984.

intellectual property to protect the large research and development effort in the design of semiconductor chips.²¹⁷

In summary, in the United States, copyright protection is available for computer programs whether in the source code or object code form and regardless whether stored in the form of firmware, magnetic diskettes or magnetic tape. It must be noted that the author or copyright holder must provide notification of the copyright claim. Canadian courts have shown great respect for the decisions of the American courts.²¹⁸ As Canada's domestic Computer Law continues to evolve, it may be expected that the reasoning of the courts in the United States will continue to receive high respect in Canadian courts.

(g) *Copyright in Australia*

After an adverse decision at trial²¹⁹ the case of *Apple Computer Inc. and Apple Computer Australia Pty. Ltd. v. Computer Edge Pty. Ltd. and Michael Suss*²²⁰ has proved the strongest authority in the Commonwealth, to date, for the existence of copyright in computer programs. As a result of the importance of this case²²¹ it will be dealt with in some detail, below.

The dispute centered around the Apple II and the defendant's Apple II compatible, the WOMBAT microcomputer. The proceedings include heads of claim under both the *Trade Practices act* and the *Copyright Act*. The programs in question were Apple's "Autostart"²²² and "Applesoft"²²³ programs which were stored in the ROMs in the Apple II and similar programs stored in EPROMs in the WOMBAT.

217. See B. Eischen, *U.S. Legislation Protects Semiconductor Chips From Piracy* (1985), 2 C.C.L.R. 45 for a comment on this Act.

218. See *I.B.M. v. Spirale* (1984), 80 C.P.R. (2d) 187 (F.C.T.D.).

219. Reported in (1984), 10 F.S.R. 246 (Federal Court of Australia); For a comment see B. Eischen, (1984), 1 C.C.L.R. 75; or J. F. Mann, (1984), 1 C.C.L.R. 105.

220. (1984), 11 F.S.R. 481 (Federal Court of Australia).

221. Reed J. in *I.B.M. v. Spirale* (1984), 80 C.P.R. (2d) 187 (F.C.T.D.) relied heavily on this decision and also on the South African decision in *Northern Office Micro Computers Pty. v. Rosenstein*, (1982), 8 F.S.R. 124 (S.C.S.A.), in the discussion about copyright protection in South Africa, to find copyright may exist in computer programs as "literary" works.

222. Written by Stephen Wozniak in 1977.

223. A modified version of Microsoft's BASIC, modified in 1977.

Apple argued, firstly, that its source code was a new and original literary work, secondly, that the object derived from the source code was also a new and original literary work, and thirdly, in the alternative, that the object code was an adaptation or translation of a copyrighted work (being the source code). The defendants argued, firstly, that neither the source code nor the object code were either original or literary works. In the alternative the defendants claimed there was no reproduction, or if so, then it was not a reproduction in material form. The defendants also argued that a work, to be capable of copyright protection, must provide some information or enjoyment to a human directly. This was basically a variation on the argument for some aesthetic purpose discussed above.

Fox J. began by stating that he would not look at the case of the specific programs in front of him but rather would decide the issue of the existence of copyright in computer programs from a broader perspective. He found no difficulty in finding that the source code version²²⁴ was a literary work and therefore protected under the *Copyright Act*. Turning then to the object code, Fox J. considered it to be a translation of the source code and so within the monopoly rights granted under the *Copyright Act* to the copyright holder. He said the Court must consider “translation” in a wider sense when dealing with modern technology. At p. 496 he said:

object codes contained in the Apple ROMs are a straightforward electrical translation into a material form of the source codes, and it would be entirely within ordinary understanding to say that they are translations of the source code.

The printouts before the Court of what was contained in the Apple ROMs and the WOMBAT EPROMs were “substantially the same indicating that the sequences of impulses are the same”.²²⁵ In particular the initials of the author imbedded in the code showed copying. Fox J., therefore, granted the *quia timet* injunction sought by Apple. The Court did not consider how the pattern of electrical charges was stored

224. Which incidentally was not copied by the defendants. Sheppard J. dealt with this issue most directly.

225. per Fox J., at 494.

in the Apple ROMs and the WOMBAT EPROMs and whether or not that pattern of charges was substantially similar.

Lockhart J., in a concurring opinion, also easily found the source code to be a literary work. His approach to the object code also evidenced a broad view. At p. 522 he said:

Courts have generally construed copyright legislation mindful of changes in ideas and advances in technology.

No authority is cited for this proposition. Similarly at p. 532 he said:

In my opinion copyright legislation should be construed liberally and with a view to the furtherance of justice. In particular, such legislation should be interpreted to keep pace with technological innovation. But this does not mean that the language of copyright legislation should be strained to bring within its scope subject matter which, although perhaps deserving of protection, is not conformable with the principles developed by the Courts over many years of experience. An approach of this kind defeats the ends of justice.

Using this approach Lockhart J. framed the meaning of “translation” in the *Copyright Act*. At p. 523 he said:

Although the word generally would be used, in the context of copyright law, to suggest translation from one humanly intelligible language to another such language, I do not think that its meaning should be necessarily confined to that sense. Programs in source code may be read and understood by persons trained in the art of computer science. Programs in that form can, to all intents and purposes, be stored on disks or tapes for later retrieval and use. This is done by the computer “assembling” the source code into electrical impulses and storing those impulses on the disk or tape. When required at some later time, the computer reads those stored impulses, disassembles them and precisely reproduces the program in source code.

To be understood by the computer, the program in source code must undergo the transformation mentioned earlier via the “assembler”. Having passed through the assembler the program is stored in the CUP as a sequence of electrical impulses. This sequence is, however, capable of being directly reduced to a written form namely, object code.

In these ways, the transposition of the source code into object code by the Apple II computer is not an irreversible process. It is possible to have the source code, or at least the mnemonic parts of the source code, reproduced at any

time. Further, the object code into which the source code has been translated can be reproduced in written form and examined by a human being to see whether or not it is a faithful version of the source code.

The fact that a program in object code is the result of the computer's interpretation of the program in source code, and in that sense is a mechanical result without the intervention of a human being, does not in my view prevent the object code answering the description of a translation of the source code.

Lockhart J. rejected the aesthetic test at p. 522. Yet later in his judgment, he appears to have relied to some degree on the proposition that a skilled human could read the object code version.

Sheppard J. concurred in the decision that source code was protected as a literary work.²²⁶ However, he dissented on the question of translation. He saw the issue as whether or not the object code in the WOMBAT was a reproduction of a literary work, a reproduction or adaptation of a literary work, or a mere reproduction of a reproduction which would not carry copyright protection. At p. 538 he said:

It is to be observed that it will not assist the appellants to show that the programs when converted into object code became reproductions of the programs in source code. That is because there is no infringement if what is done by the alleged infringer is to make a reproduction of a reproduction.

Sheppard J., then, said at pp. 538-539:

In my opinion the programs in object code are not literary works. Fixed as they are in ROMS, they are unable to be seen in that code. True, it is, someone could write them out so as to show them symbolically in binary notation or hexadecimal notation. The computer itself can show them symbolically in hexadecimal notation. But all of that is irrelevant. The important point is that it is only the machine itself, that is, the microprocessor, which can "understand" or "see", and thus deal with, the object code.

It is to be emphasised that the appellants need to persuade the Court that the ROMS with the program fixed in them are literary works because it was the ROMS which the manufacture of the WOMBAT computer copied. Unless that copying constituted a reproduction of a literary work (or of an adaptation thereof to which I have later to come), there

226. per Sheppard J., at 537.

will be no infringement. I recognise that it is trite law that copyright subsists in the order of the words and not in ideas. It is the form, not the idea, which is of paramount importance. But if what is alleged to constitute a literary work (here the programs in object code) cannot be seen even with the aid of screening or printing devices attached to the computer, they cannot in my opinion, amount to a literary work.

Sheppard J. disagreed completely with the broad approach of the majority in dealing with the meaning of “translation” in the *Copyright Act*. His concern was that a form that cannot be seen cannot constitute a literary work as contemplated by the draftsmen of the *Copyright Act*.

The contrasting opinions of the Court have set out, at a minimum, the range of positions that a Canadian appellate level court might take on the issue.

Shortly²²⁷ after the decision of the Court of Appeal was handed down the Australian Parliament amended the *Copyright Act*²²⁸ to provide specific protection for computer programs.²²⁹ As a first step the definition of “literary work” has been expressly modified to include reference to computer programs. The Act provides:

A literary work includes:

- (a) a table, or compilation, expressed in words, figures or symbols (whether or not in visible form); and
- (b) a computer program or compilation of computer programs.

The definition of “adaptation” is similarly amended and would appear to contemplate object code as a adaptation of source code. “Material form”, a term that the Court of Appeal did not have difficulty with, was also defined so as to include information stored on a magnetic medium.

As in the United States, the Australian Act provides a specific right to make a back-up copy of a computer program. This is part of the fair dealing provisions. The Act goes further and “makes it an offence to transmit a copy of a computer program

227. Enactment June 7, 1984.

228. *Copyright Amendment Act 1984*.

229. See B. Eischen, (1985) 2 C.C.L.R. 9 for a short note on this amendment and a commentary on some potential problems.

if it is received and recorded so as to result in the creation of an infringing copy” of the computer program.²³⁰

(h) *Copyright in South Africa*

For all that might be said about South Africa on many other issues, they were the first legal system in the Commonwealth which had a decided case on the issue of copyrightability of computer programs. In *Northern Office Micro Computers Pty v. Rosenstein*²³¹ a company trading and dealing in computers hired X to prepare programs for medical applications (such as billing systems, etc.). X started and then left. The company hired Rosenstein to complete the job. Rosenstein quit and then claimed the copyright in himself.

From the evidence the judge found that the programs were a “literary work” entitled to protection under the *Copyright Act 1978*. Rosenstein had also expended sufficient effort or skill to give the programs a new and original character from the program he took over from X. The analysis of the copyright issue was:

(A) Was the work reduced to a material form?

Here, it was stored in an unintelligible form on a floppy diskette. There was no doubt that a printout is a reduction into a material form. The court relied on the *Lieber Code*²³² case to eliminate the need for some “meaning in language” as a requirement of copyright protection. The court found that once the program had been recorded onto the diskette it had been reduced into a tangible form.

(B) Sufficient effort or skill expended to give the program a new and unique character?

It was probable that a program which takes months of research and development is one with a new and original character, based on the evidence in front of the court.

The result was that Rosenstein, hired by the company, had the copyright in the work. However, as will be discussed later, the law of trade secrets came to the company’s rescue and prevented Rosenstein from exploiting his copyright.

230. *Id.* at 10.

231. 1981, (4) S.A. 123, (1982) 8 F.S.R. 124 (S.C. S.A.).

232. *Id.*

It is not clear whether the South African *Copyright Act* has a section similar to s.12(3) of the Canadian Act. s.12(3) provides that where a person develops a copyrightable work under a contract of service, the copyright shall vest in the employer. Justice Hughes, in *Apple Computer, Inc. v. Computermat*,²³³ noted that *Rosenstein* decision, referring to it as “a learned and comprehensive judgment”. The *Rosenstein* decision was not applicable to the *Computermat* case since the South African legislation was different from Canada’s legislation. In *I.B.M. v. Spirale*²³⁴ however, Reed J. did rely on the reasoning in *Rosenstein* to find that copyright *prima facie* existed in I.B.M.’s BIOS program.

(i) *Copyright in England and the E.E.C.*

England has started to come to grips with the entire problem of computer program copyrightability in the case of *Sega Enterprises Ltd. v. ALCA Electronics*.²³⁵ Both parties manufacture and distribute video games. The plaintiff programmed EPROMS to drive a game called “Frogger”. The defendant developed a very similar game and the action resulted with the plaintiff claiming a copyright in the EPROM version of the computer program.

The plaintiff got an Anton Pillar²³⁶ order at first instance and the defendant appealed on the basis that he ought not to be required to disclose all the names, addresses and locations of all alleged infringing games. In a related action, of more significance to the present discussion *Sega Enterprises Ltd. v. Richards*²³⁷ the plaintiff sought an interlocutory injunction on the basis of alleged copyright infringement in the same game. The defendant, here, claimed that no such right existed in computer programs in English law. The court found that *prima facie* the plaintiff had established that the development of the program was such as would constitute a literary work within the meaning of the *Copyright Act 1956*.²³⁸ This copyright

233. (1983), 75 C.P.R. (2d) 26 (Ont. H.C.).

234. (1984), 80 C.P.R. (2d) 187 (F.C.T.D.).

235. (1982), 9 F.S.R. 516 (C.A.).

236. See discussion of these orders later.

237. (1983), 9 F.S.R. 73 (Ch D).

238. 4 & 5 Eliz. 2, chapter 74.

applied to the “assembly code program”. The machine code derived from this is either a reproduction or adaptation of the “assembly code program” and so is also protected. *Sega Enterprises Ltd. v. Richards* has been applied subsequently as the proper basis for proceeding in an application for an interlocutory injunction in *Thrustcode Ltd. v. W.W. Computing Ltd.*²³⁹ In this case the plaintiff brought forward no real evidence of copying so Vice-Chancellor Sir Robert Megarry was unable to find the plaintiffs had serious prospects of succeeding at trial. As a result, the motion was dismissed.

In *Systematica Ltd. v. London Computer Centre Ltd.*²⁴⁰ the suppliers of a “TTY” computer program claimed copyright infringement by the defendant, D2, who had purchased a “TTY” program for D1. D1 subsequently resold a copy of a “TTY” program to a third person, after removing the plaintiff’s copyright legend from it. This program appeared to be an infringement though it later turned out that other “TTY” programs sold by D1 were completely different programs but performed very similar functions. An Anton Pillar order was granted, though not in as broad terms as the plaintiff sought.

An earlier case seems to implicitly find that computer programs might be protected by copyright. It is noted that this case did not directly address the issue whether or not computer programs were eligible for copyright protection. In *Ocli Optical Coatings Ltd. v. Spectron Optical Coatings Ltd.*²⁴¹ employees from the plaintiff company left to work for the defendant company. The plaintiff alleged improper use of its confidential computer programs and documents. At trial an Anton Pillar order was granted with the exception that it did not require the defendant to disclose the names and addresses of all persons to whom the programs had been disclosed. The reason for denying this information was that it would result in the defendants having to give self incriminating answers which might lead to charges being laid.

The Court of Appeal discussed the possibility of charges being laid under the *Copyright Act* and under the *Theft Act*.

239. (1983), 10 F.S.R. 502 (Ch. D.).

240. (1983), 9 F.S.R. 313 (Ch. D.).

241. (1980), 6 F.S.R. 227 (C.A.).

In *Rank Film Distributors Ltd v. Video Information Centre*²⁴² the possibility of proceedings under the *Copyright Act* was regarded as sufficient ground for allowing a defendant to refuse to answer questions. The court held that here there was no real risk or reasonable ground to apprehend a prosecution under the *Copyright Act* for infringing the plaintiff's "copyright" in the computer programs. The reason being that evidence showed no one had ever been prosecuted under the *Copyright Act* s. 21.

Even in the Court of Appeal, the actions have proceeded on the basis that copyright was assumed to exist in computer programs. In *Format Communications Mfg. Ltd. v. ITT (United Kingdom) Ltd.*²⁴³ the Court of Appeal was considering the ability to discover the source listing of a disputed computer program. The plaintiff claimed breach of confidence and breach of copyright in their "Mark III" message switching system. The Court does not even address the issue but decided on the basis of the presumed existence of copyright.

The situation in Germany is somewhat more developed though without any real advance in certainty. The position of the Federal Ministry of Justice is that the present Act does provide copyright protection for computer programs.²⁴⁴ As was mentioned previously, copyright protection was initially denied on the basis of a lack of "intellectual-aesthetic content".²⁴⁵ It appears that two other district courts have found in favour of copyright protection for computer programs.²⁴⁶ At least one appeal court has found in favour of copyright protection.²⁴⁷ Heidrich²³⁸ discusses the decision of the Munich District Court in the "VISICALC" case. The court decided in favour of copyright protection under ss.97,1,2(1) no. 1,7; 16,17 *Copyright Act*, and art.2(1) *Universal Copyright Convention*. The copyright "will have to be acknowledged if the set task allows

242. (1980), 6 F.S.R. 242 (C.A.).

243. (1983), F.S.R. 473 (C.A.).

244. 1982 G.R.U.R. (German Association for Industrial Property and Copyright), at 620.

245. Case no. 7-0-143/80, District Court, Mannheim, 1981, *Der Betriebsberater* (BB) at 1543.

246. 1982 G.R.U.R. International, at 489.

247. Case no. 6 U 150/81; 1983 *Expertmenbrief Wirtschaftskriminalitet*, at 44.

248. Heidrich, *supra*, at 44.

several solutions and the choice allows the program author a wide variety of ideas. . . The creative intellectual content of the computer programs is expressed in the choice, collection, review, arrangement and classification of the material. . .".²⁴⁹ The program was considered as a linguistic work and it was held irrelevant that the program can not be "read" except only by special means.

The court appears to have characterized the program as a form of writing rather than see it as part of a machine process. It is interesting to note that there does not appear to be any provision in the German *Copyright Act* similar to the U.S. 1976 Act provisions, yet the court had no difficulty dealing with the argument that the program could only be "read" through the use of a machine. While German jurisprudence might be of minimal interest to a Canadian court, the characterizations the German cases disclose, and the methods the court uses to deal with these arguments might be of assistance in the Canadian context.

France has also seen the development of copyright as the mechanism used to protect computer programs. In *Babolat Mailot Witt S.A., v. Pachot*²⁵⁰ the Paris Court of Appeal dealt with a case where an employee had removed computer programs from his company's place of business so that they could not be copied. This was in response to the employee's dismissal. The employee was acquitted of a charge of theft of the programs and brought action in wrongful dismissal. The Court held (as set out in the F.S.R. headnote):

The compilation of a computer program is an original intellectual work which goes beyond the automatic compulsion of logic. An employee who in his own time and without any help or payment from his employer, compiles programs for his employer's use, which compilation was not part of his duties, owns the copyright in them.

See also *Le Monde Sarl v. Microfor Inc.*²⁵¹ where the Paris Court of Appeal held that the right to make an abstract or index of abstracts is part of the right of the copyright holder. As a consequence a Canadian Company wishing to set up a

249. Heidrich, *supra*, at 46.

250. (1984), E.C.C. 282, (1985), 12 F.S.R. 35 (C.A.).

251. (1981), E.C.C. 489 (C.A.).

database of French materials was prevented from using the fair use exception to prepare mere indicies of copyrighted works.²⁵²

(j) *Copyright in Canada*

Canada has had a number of cases granting preliminary or interim injunctions on the basis that the plaintiff was able to make out a *prima facie* case for the copyright protection of their computer programs. Some are part of the video game litigation that has spilled over into Canada from the United States. The reasoning in the video game cases has left much uncertainty about the eventual status of copyright protection of computer programs in Canada.

In *Nintendo of America, Inc. v. Coinex Video Games Inc.*²⁵³ the plaintiff alleged infringement of the “Donkey Kong” and “Donkey Kong Junior” copyrights and sought an Anton Pillar order against the 47 defendants.²⁵⁴ Like the first English *Sega* case, the court found a *prima facie* infringement without specifying or apparently considering whether or not copyright might actually exist in the program.

In *Bally Midway Manufacturing Co. v. Coinex Video Games Inc.*²⁵⁵ the plaintiff sought an interlocutory injunction restraining alleged infringement of the copyright in “Ms. Pac-man”, “Super Pac-man” and “Galaga”. As in the *Nintendo* case the court appears to have assumed that copyright exists in the computer programs.

The same result is apparant in *Midway Manufacturing Co. v. Bernstein.*²⁵⁶ Again, the claim was for an interlocutory injunction and an Anton Piller order on the ground of an alleged infringement of an alleged copyright in three video games.²⁵⁷ The games in question were “Galaxian”, “Pac-man” and “Rally X”.

252. See N. M. Hunnings, *Copyright in Information*, (1983), European Business Law 531 for an assessment of this decision.

253. (1983), 69 C.P.R. (2d) 122 (Fed. C.A.).

254. Manufacturers, distributors and operators of allegedly infringing programs “Crazy Kong” and the like.

255. (1983), 71 C.P.R. (2d) 105 (Fed. Ct. T.D.).

256. (1982), 67 C.P.R. (2d) 112 (Fed. Ct. T.D.).

257. The income earned by the video game industry has resulted in considerable interest in the status of the legal protection available for computer programs.

In *Spacefile Ltd. v. Smart Computing Systems Ltd.*,²⁵⁸ the plaintiff sought an interlocutory injunction to restrain the infringement of its alleged copyright in the plaintiff's software. The defendant was a former employee of the plaintiff and had taken the plaintiff's confidential information, in the form of source code, in its SBS 80 program. The defendant then sold an almost identical product, called MAC-PAC, at a substantially lower price. Justice Steele noted that the plaintiff had been competitively prejudiced since it would be less able to recover its development cost and time. Since the other elements required were also available, the injunction was granted.

These cases are certainly not a suitable basis on which to speculate whether or not computer programs might be capable of copyright protection in Canada. The *Nintendo* case appears to have been decided *ex parte* both at trial and appeal and so the argument might not have been put to the court. Neither *Bernstein* nor *Bally* provides any reasoning why we might assume copyright might, in fact, be a possible vehicle for the protection of computer programs. *Spacefile* appears to use reasoning more appropriate to a trade secret theory. This lack of reasoning is not inappropriate at an interlocutory stage in proceedings. However, these cases provide little guidance from which to predict the future of Canadian computer program protection under a copyright theory. The non-video game litigation has provided some greater degree of certainty. These cases are discussed below. Recall that it is the policy of the Copyright Office that computer programs might be protected by copyright and so they will accept any registration of a computer program.²⁵⁹

In *Apple Computer, Inc. v. Computerpat Inc.*,²⁶⁰ the plaintiff, Apple Computer, sought an interlocutory injunction restraining the defendants from "importing, distributing and selling" computers and computer components alleged to infringe Apple's registered copyrights in its AUTOSTART ROM and APPLESOFT programs. The defendants were

258. (1983), 75 C.P.R. (2d) 281 (Ont. H.C.); Leave to Appeal Denied November 22, 1983. For a comment see G. E. Fisk, (1983), 1 C.C.L.R. 27.

259. Recall the earlier discussion about the problems of registration.

260. (1983), 75 C.P.R. (2d) 26, (1983), 23 A.C.W.S. (2d) 44 (Ont. H.C.); For a comment see G. E. Fisk, (1983), 1 C.C.L.R. 14.

distributors and retailer of computer equipment. In particular, the defendant carried the “GOLDEN II” (also known as OPUS II” in Quebec) which was advertised as “fully Apple II compatible” which was alleged to be the source of the violation. The defendant argued particularly that APPLESOFT, as an operating system, and all the programs generally, were not subject to copyright.

In this case the interlocutory injunction was refused as Apple had not proved damages would not be an appropriate remedy. Also the balance of convenience favoured the defendants as they would not be able to survive financially under an interim injunction.²⁶¹ Contrast this with *I.B.M. v. Spirale*²⁶² where the plaintiff computer giant would suffer “death by 1000 cuts” if the infringement were permitted to continue. This was the first Canadian decision which started to make an effort to assess the suitability of copyright protection for computer programs. However, as the case was really decided on the criteria for an interim injunction, all of the comments about the possibility of copyright in computer programs are *obiter dicta*. It was also the first Canadian case not related to the video game industry.²⁶³

In *Bally Midway Mfg. Co. v. Fountainhead Amusement Corp. Ltd.*²⁶⁴ Cattanach J. appears to have relied solely on the presumption of copyright upon registration and the defendant’s admission of copying as the basis for his order.

In *I.B.M. v. Spirales*,²⁶⁵ Madam Justice Reed granted an interim injunction restraining Spirale from selling a personal computer²⁶⁶, describing it as a “blatant” copy of I.B.M.’s personal computer. Madam Justice Reed found that the

261. See also *Atari Inc. v. Video Amusements of Canada Ltd. et al.* (1982), 19 A.C.W.S. (2d) 4 (F.C.T.D.) where the one party was of such substance that irreparable harm was unlikely and the other party (defendant) would give a security deposit instead of suffer the injunction.

262. (1984), 80 C.P.R. (2d) 187 (F.C.T.D.) discussed below.

263. In the United States it had been suggested that there might be a distinction between the video game cases and other computer protection cases. This argument was rejected in *Apple Computer Corporation v. Franklin Computer Inc.* 2 C.L.R. 335 (3rd Circuit 1983) (U.S.C.A.) August 30, 1983.

264. (1984), 79 C.P.R. (2d) 241 (F.C.T.D.).

265. (1984), 80 C.P.R. (2d) 187 (F.C.T.D.).

266. This had been imported from Taiwan and was marketed as the “COPAM Intelligent PC-301”.

copyright existed in I.B.M.'s software and the decision is significant enough for this reason alone. However, Madam Justice Reed's holding is also important because it is the first generally thorough²⁶⁷ analysis of the suitability of copyright protection for computer programs. In doing so Madam Justice Reed did not really break new ground but rather applied in the cases discussed earlier to abstract the principles she relied upon. It is observed that Commonwealth and American authorities will likely continue to influence the development of Canada's domestic Computer Law. The logic of Madam Justice Reed's decision may be useful as a key to understanding the framework in which copyright protection might develop in Canada.

Madam Justice Reed used generally the following steps in her analysis of whether or not, on a *prima facie* basis, copyright might exist in computer programs:

(1) *The Copyright Act*

Section 4 of the *Copyright Act*²⁶⁸ provides that ". . . copyright shall subsist . . . in every original literary, dramatic, musical and artistic work. . . ." It would seem that a computer program would fall within the "literary work" concept for copyright protection.

(2) *Interpretation of the Copyright Act*

The court interpreted the Act in a practical manner mindful of changes in ideas and advances in technology.²⁶⁹ Thus, the fact that a computer program is not literature is not a bar to copyright.

(3) *Is a Computer Program Within the Scope of the Copyright Act?*

Source code and object code were considered separately to a degree.

267. Note that Madam Justice Reed relied very heavily on the majority in *Apple Computer Inc. v. Computer Edge Pty. Ltd.* (1984), 11 F.S.R. 481 (Federal Court of Australia) and *Northern Office Micro Computer Pty. v. Rosenstein* (1982), 8 F.S.R. 124 (S.C.C.A.), for the framework for her analysis.

268. R.S.C. 1970, c.C-30.

269. This approach to interpretation came chiefly from Lockhart J. in *Computer Edge*, (1984) 11 F.S.R. 481 (Federal Court of Australia).

(a) Source Code

It seemed clear that source code would meet the test of “expression of thought in print or writing”. Madame Justice Reed relied on *Rosenstein* to illustrate that a work need not be “literature” to be a “literary work” within the meaning of s.4 of the *Copyright Act*.

(b) Object Code

It was argued that object code, particularly in ROM form as was the case with I.B.M.’s BIOS programs, was part of the device itself and so was not protected by copyright as a mechanism or apparatus. Madam Justice Reed considered the I.B.M. BIOS program. The issue was whether one ought to focus on the ROM chip, a utilitarian device, or on the program information. She used the analogy of a cassette to a tape recorder. The tape may contain magnetically encoded copyrighted material which is used in the device to allow one to ascertain the copyrighted work. The fact that the chip could be removed and another inserted appeared to make it less part of the apparatus. This analysis is, with respect, potentially dangerous.

Several popular micro computers are supplied with memory chips that are soldered in place for better electrical connection. Since these would not be as readily exchangeable, does this mean that object code stored on the chip would not be copyrightable? It is submitted that the “ease of exchange” distinction does not assist the analysis and might only serve to confuse an already complex area of law. The problem is that by focusing on the “container” for the information one might lose sight of the more basic issue: that is, is the form of expression of the ideas which controls the process deserving of copyright protection as a literary work. The copyright is claimed in the unique form of the instruction set stored in the ROM chip and not in the chip itself.

A second problem is whether or not object code, which is not designed to communicate with a human being in any direct form, has to meet some aesthetic benefit test to qualify for copyright protection. Madam Justice Reed relied on *Apple Computer Inc. and Apple Computer Australia Pty. Ltd. v. Computer Edge Pty. Ltd.*²⁷⁰ to state that copyright protection

270. (1984), 11 F.S.R. 481 (Federal Court of Australia).

has no requirement of aesthetic appeal. It is solely concerned with the form of expression of ideas. It is not concerned with the use made of that form of expression.

Madam Justice Reed pointed out that in both the case of source code and object code, I.B.M.'s BIOS program was printed in the Technical Manual.

(4) *Requirement of Fixation*

Rosenstein and Apple v. Computer Edge were cited as authority for the proposition that a computer program may be fixed in the form of electric charges and, thus, comply with the requirements of *Canadian Admiral Co. v. Rediffusion*.²⁷¹ Since, however, the court relied on the fact that the object code was in a *written* form, these comments may have less authority.

(5) *The Reproduction or Translation Issue*

The court appears to have relied on the following analysis, perhaps since the strongest case for the existence of copyright occurred in the written form of the programs in the Technical Manual. Section 3 gives the copyright holder the sole right to "reproduce the work. . . in any material form whatever. . ." and so a conversion to source code and then to object code would merely be a reproduction of the work permitted under the Act. Alternatively, the court might have seen the source code and object code versions as merely translations.

This analysis is an alternative basis on which copyright protection might be found in the more difficult case of object code, where a court struggles with the problem of whether or not the work requires to be humanly perceptible.

Madam Justice Reed's analysis does appear to indicate a willingness to find copyright in both source code and object code. Strictly speaking, it might be that the decision was based on the fact that there was a written form of both versions of the program in question. However it has provided the start of the conceptual framework within which the future of copyright protection for computer programs will be more closely defined.

In summary, copyright has certain advantages over patent protection and *might* become one viable protection mechanism

271. (1954), 20 C.P.R. 75 (S.C.C.).

for certain blatant types of “piracy”.²⁷² Copyright is suitable, as a legal protective method for those cases where the “pirate” merely copies the copyrighted program. This appears to be the most significant form of “piracy” in terms of the volume of illicit copies involved. However, copyright protection is not at all suitable where a competitor acquires not the form of expression of the computer program (presumably protected by copyright), but rather the concept, the algorithm, the creative leap which makes one program more attractive than another. The competitor may, so far as the *Copyright Act* is concerned, use that creativity with impunity and implement the ideas and algorithm in another form. This might easily be done through the use of another programming language or perhaps even though the use of significantly different routines in the same programming language. Copyright is not the appropriate form of protection for this particular problem as the *Copyright Act* was not intended to protect more than the form of expression of an idea.

Cases since *Spirale* have offered little additional to Madam Justice Reed’s reasoning. In *F & I Retail Systems Ltd. v. Thermo-Guard Automotive Products Canada Ltd.*²⁷³ Montgomery J. held, very broadly, that “copyright exists in the computer systems”, relying on *Spacefile* for this proposition. In *La Societe d’Informatique R.D.G. Inc. v. Dynabec Ltee*²⁷⁴ Justice Hannon, after hearing certain expert evidence on the process involved in writing computer programs, held that source code was protected as a literary work. Object code, he said, derived from “a treatment, an abstract or a summary of the software packages expressed in literate terms”. Hannon J. found support for his decision in *Spacefile, supra*, *Apple v. Franklin, supra*, and especially *Apple v. Computer Edge, supra*. Hannon J. used the same broad approach to interpretation seen in *Computer Edge* but also relied upon the *Interpretation Act*²⁷⁵, which provides for a fair, large and liberal

272. See C. Webber, *Computer Crime: What Has Not Been Considered* (1984), 2 C.C.L.R. 49 where the author questions the purpose of reform of the Criminal Code in respect of such “piracy”.

273. (1984), 1 C.P.R. (3d) 297 (Ont. H.C.).

274. Unreported August 14, 1984, (Que. S.C.); For a comment see B. Eischen, (1984), 1 C.C.L.R. 217.

275. R.S.C. 1970, C.1-23.

construction to be placed on federal enactments. As a consequence of his decision, on the copyright issue, Hannon J. granted an interlocutory injunction.

In *Canavest House Ltd. v. Lett*,²⁷⁶ as in *Dynabec*, a former employer attempted to restrain his former employees from infringing the copyright alleged to exist in its software. *Lett* was a case somewhat similar to *Rosenstein, supra*, except here Lett was characterized as an employee rather than as an independent contractor or consultant. Lett had been hired, without a formal employment agreement, to design and implement programs to assist in financial investment decision making. Lett admitted he did not have ownership of the copyright but claimed that it was a term of his employment agreement that gave him a right to a copy. Callon J. held that the programs in question were literary works protected by copyright.

He relied on the *Lieber Code, supra*, *Pitman v. Hine*,²⁷⁷ and *Spirale, supra*, to find that the programs were a form of language which could be protected by copyright. An interlocutory injunction issued. However, the defendant was entitled to keep his research and working notes under s.17(2) *Copyright Act*, the fair dealing provision which deals with sketches, plans, models or studies. Since the injunction had issued the plaintiffs were protected. It would be too great a burden to deprive the defendant of the skill and expertise that the notes represented. Callon J. said:

One would expect that research notes and copies of previous programs would indeed assist the programmer in creating completely new programs. They are, in a sense, what a hammer and a saw are to a carpenter.

In *Apple Computer Inc. v. Macintosh Computers Ltd.*²⁷⁸ the uncertain state of copyright protection in Canadian Courts was highlighted. In that case, Cullen J. denied the application for an interim injunction since the Court was not satisfied that

276. Unreported November 29, 1984 (Ont. H.C.); For a comment see J. Kreindler, (1985), 2 C.C.L.R. 95.

277. (1884), 1 T.L.R. 39 (Q.B.), a case which found telegraph code to be copyprotected.

278. Unreported January 17, 1985 (F.C.T.D.) For a review of this case and other current developments, see J. F. Mann, (1985) 2 C.C.L.R. 79.

there was a strong case for the existence of copyright in computer programs.²⁷⁹ While this decision has been criticised,²⁸⁰ I submit that it appears Cullen J. was only applying the higher standard of proof required by the Courts before extraordinary relief is granted that was set out by the House of Lords in *American Cyanamid Co. v. Ethicon Ltd.*²⁸¹ Some justices dealing with cases before *Macintosh* would appear, with respect, to have been satisfied by a much lower standard than *American Cyanamid* would appear to provide.²⁸²

There are no Canadian Appellate level decisions on the suitability of copyright protection for computer programs but the weight of the decisions to date, scanty as it is, appears to lean towards the viability of this theory of protection for computer programs. This trend is also supported by the international case law²⁸³ indicating that copyright might exist in the non-human readable object code. Some of these authorities are based on *Copyright Acts* generally similar to Canada's *Copyright Act* but not so similar to provide a confident basis on which to predict the development of this theory of the protection of computer programs. The situation in the United States offers much greater promise for copyright protection, especially with decisions such as *Apple Computer Corporation v. Franklin Computer Inc.*²⁸⁴ It must be remembered that the Americans have had the advantage of amendments to their *Copyright Act* which has ended the

279. In dispute were Apple's AUTOSTART and APPLESOFT programs and the defendant's programs. The evidence appears to indicate that of 12,288 bytes of Apple's programs, only 11 differed in the defendant's programs.

280. See G. E. Fisk, (1985), 2 C.C.L.R. 85 who argues that the requirement to make out a strong case for copyright is higher than normally required in interlocutory proceedings.

281. (1975), A.C. 396 (H.L.).

282. For a current review of the law relating to Anton Piller Orders and other such extraordinary relief, see G. Takach, *Exploring the Outer Limits*, (1985), 23 Alta. L.R.

283. United States: By specific enactment; South Africa: *Northern Office Micro Computers (Pty) Ltd. v. Rosenstein*, (1982), 9 F.S.R. 124 (S.C.S.A.); England: *Sega Enterprises Ltd. v. ALCA Electronics*, (1982), 9 F.S.R. 516 (C.A.); *Sega Enterprises Ltd. v. Richards* 9 F.S.R. 73 (Ch D); *Systematica Ltd. v. London Computer Centre Ltd.*, (1983), 9 F.S.R. 313 (Ch D); Australia: *Apple Computer Inc. v. Computer Edge Pty. Ltd.*, (1984), 11 F.S.R. 481 (Federal Court of Australia); France: *Babolat Maillot Witt S. A. v. Pachot*, (1984), E.C.C. 282 (Paris C.A.).

284. *Id.*

specific technology limitations of our own Act. All the Canadian cases to date have been decided at the interlocutory stage where the plaintiff need only prove a *prima facie* case that copyright exists. Most of these cases have relied upon the presumption of copyright on the registration of the program with the copyright department. However, as can be seen in the Australian Court of Appeal, there are serious issues to be determined before copyright is finally determined to extend to computer programs in both source and object code versions.

(k) *White Paper on Copyright*

As mentioned earlier the present *Copyright Act* was enacted at a time when computers were not even a gleam in the eye of science fiction writers much less the draftsmen of the Act. Over the last sixty years there have been numerous studies and reviews of the Act but no substantial reform has been carried out. The latest in the long line of proposed reforms is the White Paper "From Gutenberg to Teildon" (1984). This paper proposes truly revolutionary changes in the *Copyright Act* in respect of computer programs. It is not the purpose of the author's present paper to examine the proposals in this White Paper in detail.²⁸⁵ However, some general observations follow below.

The White Paper would recognize copyright in source code as a literary work. Somehow the draftsmen see object code as very distinct and detachable from source code. It is proposed that object code will only be protected for a period of five years. If this were law today then the copyrights upheld by the majority in *Apple Computer Inc. v. Computer Edge* would not have been protected under Canadian law if they had been written here. Since the United States makes no such arbitrary distinction and does not expropriate the creativity of the copyright holder after five years one might speculate that Canada could lose a significant portion of its software development industry if the proposed White Paper were enacted. Of course, the universal copyright convention would mitigate this disaster to some degree.

285. For a more detailed review and excellent critique see B. Eischen, *Proposed Revisions to Canada's Copyright Act* (1984), 1 C.C.L.R. 157.

A publication of a machine readable form of a computer program would include a sale, lease, license, trade, offer to sell, license or trade of that program. It is proposed that all such published works be marked with a "c". This is the symbol that is required under the Universal Copyright Convention. A date and the name of the owner of the copyright is also to be provided. It appears that these markings would be relevant in an application for an additional period of protection, say, on a modification or update, although it does not appear clear whether or not only the update would qualify for the additional protection.

One must question the entire concept behind this White Paper. Many works are copyright protected and yet no oppressive monopoly has developed by authors of more conventional literary works. Why is it assumed that this would occur in the software industry if copyright protection was formally and, presumably intelligently, available for computer programs? If the case law develops at the appellate level along the lines suggested by the majority in *Apple v. Computer Edge, supra*, then some of the underlying assumptions behind this White paper have become obsolete. This paper addresses the policy issues behind proposed reforms in a later section. Suffice it to say at this point: what overriding public interest does the state have to wish to expropriate the intellectual property of Canada's creative software developers in this manner?

VIII. *Common Law Protection of Computer Programs*

1. *Protection in Equity*

The law of Equity developed out of the King's inherent right to do justice in any dispute between his subjects. In time the Equity courts, exercising this jurisdiction, developed a number of doctrines which provided flexible discretionary remedies otherwise unavailable under the common law. In 1873 and 1875²⁸⁶ the two branches of English law, common law and equity, were combined and are now available through one court.

Several equitable doctrines and several equitable remedies

286. The *Judicature Act, 1873* and the *Judicature Act, 1875* fused the procedure of both systems.

are of direct interest to the subject matter of the present discussion. In particular, the law of trade secrets, the law of trusts, and the law of confidence. The theoretical basis for the particular uses of the doctrines that will be discussed is much the same for all of these doctrines. The equitable maxims, "Equity looks on that as done that ought to be done" and "Equity imputes an intension to fulfill an obligation" are an indication of the underlying principle that a person who puts himself in such a position that others rely on him, ought to fulfill the trust or confidence that others have on him. The court of equity is very concerned with conscience. If you are in a position where others have placed trust or confidence in you then you may be bound by that trust or confidence.

2. *Trade Secret Protection*²⁸⁷

(a) *Introduction*

The law of trade secrets is based on a relationship between two or more parties in which there is an express or implied obligation of confidentiality as pertains to certain information. The action for breach of confidence finds early roots in such famous cases as *Prince Albert v. Strange*²⁸⁶ and *Morison v. Moat*.²⁸⁹ Unlike the law of patent or copyright, the law of trade secret acts *in personam*, that is between the parties, and not against all the world. There are two such relationships that will be the focus of this analysis: (1) Employee/Employer and (2) Vendor/Consumer.

In Canada, trade secret law, like the law of trusts and most of the law of equity, comes within the exclusive jurisdiction of the provincial governments under s.92(13) *B.N.A. Act*²⁹⁰ by analogy with *MacDonald v. Vapor Canada*.²⁹¹ It has already been shown that the law of copyright does not overlap with the law of trade secrets or equitable doctrines of confidence, even though their protection might overlap. In the United

287. An earlier version of this section was published in (1984), 1 C.C.L.R. 219 (Part One) which dealt with the law, and (1984), 1 C.C.L.R. 231 (Part Two) which dealt with a detailed analysis of several license agreements and confidentiality clauses.

288. 18 L.J. Ch. 120 (1849).

289. 20 L.J. Ch. 513 (1851).

290. Constitution Act, 1867.

291. (1976), 66 D.L.R. (3d) 1 (S.C.C.).

States, the law of trade secrets, as with other areas of law, has developed along somewhat different lines from the law in England and Canada. Constitutionally, in the United States, there is presently some debate whether the federal copyright provisions preempt the availability of trade secret protection.²⁹² This consideration is not applicable in Canada.

(b) *Elements of a Trade Secret*

There are many definitions of a trade secret corresponding to the very extensive protection this branch of law provides. Basically, trade secret law protects *ideas*, unlike copyright or patent law. Here, the “know how” itself can be protected. This very much broader protection has resulted in making trade secret protection, in conjunction with contractual provisions, the widest form of legal protection used to protect computer programs.²⁹³ A widely used definition is that of the United States *Restatement of Torts* which indicates 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 who do not know or use it.

The subject matter of a trade secret must be secret. . . so that, except by use of improper means, there would be difficulty in acquiring the information. An exact definition of a trade secret is not possible. Some factors to be considered in determining whether given information is one’s trade secret are (1) the extent to which the information is known outside of his business; (2) the extent to which it is known by employees and others involved in this business; (3) the extent of measures taken by him to guard the secrecy of the information; (4) the value of the information to him in developing the information; . . . (6) the ease or difficulty with which the information could be property acquired and duplicated by others.²⁹⁴

The law of trade secrets has not seen such an attempt at codification in England or Canada and so appears to be

292. See discussion of this issue from the Computer Conference out of Wayne State University, LAW:FORUM.

293. Palmer & Resendes, *supra*, at 92 discussing Miller’s 1974 and 1977 surveys *The CONTU Software Protection Survey* (1978), 18 *Jurimetrics J.* 354.

294. *Restatement of Torts* s. 757, comment b (1939).

somewhat more flexible though courts generally take into account the same considerations. The underlying theme of trade secret protection was summed up by Lord Denning in *Seager v. Copydex, Ltd.*²⁹⁵ where he quotes Roskill J. in *Cranleigh Precision Engineering Co. Ltd. v. Bryant*.²⁹⁶

the essence of this branch of law, whatever the origin of it might be, is that a person who has obtained information in confidence is not allowed to use it as a springboard for activities detrimental to the person who made the confidential communication, and springboard it remains even when all the features have been published or can be ascertained by actual inspection by any member of the public

Lord Denning then sums it up:

The law on this subject does not depend on any implied contract. It depends on the broad principle of equity that he who has received information in confidence shall not take unfair advantage of it. He must not make use of it to the prejudice of him who gave it without obtaining his consent. The principle is clear enough when the whole of the information is private. The difficulty arises when the information is in part public and in part private. . . . When the information is mixed. . . . then the recipient must take special care to use only the material which is in the public domain.

Information to qualify for trade secret protection need not be novel or original. Most software does not contain the degree of novelty required for patent protection. In fact, most software consists of different arrangements of well-known programming techniques. So long as the arrangement gives the program a competitive edge it will qualify for trade secret protection.²⁹⁷ The fact that programs exercising the same functions “vary in speed, accuracy, cost, flexibility, ease of use, and above all, commercial feasibility”²⁹⁸ will have the “unique logic and coherence”²⁹⁹ to qualify for trade secret protection.

295. (1967), 2 All E.R. 415 (C.A.) at 417.

296. (1956), 3 All E.R. at 301,302.

297. *Telex v. I.B.M.* 367 F.Supp 258 at 323 (N.D. Okla. 1973), *affirmed on the trade secret issue* 510 F.2d 894 (10th Circuit) *certiorari dismissed* 423 U.S. 802 (1975) (U.S.S.C.).

298. Davidson, *supra*, at 396.

299. *Com-Share, Inc. v. Computer Complex, Inc.* 338 F.Supp 1229 (E.D. Mich. 1971).

The elements of the action for breach of confidence were stated by Justice Megarry in *Coco v. A. N. Clark (Engineers) Ltd.*³⁰⁰

First, the information itself, in the words of Lord Greene M.R. in the *Saltman* case on page 215, must 'have the necessary quality of confidence about it'. Secondly, that information must have been imparted in circumstances importing an obligation of confidence. Thirdly, there must be an unauthorized use of the information to the detriment of the party communicating it.

Of course, the plaintiff has the burden of proving the elements necessary to sustain the action. It would appear that while the normal civil standard would apply, the Court seeks evidence which is clear and unequivocal.³⁰¹ These elements will be examined in the context of the development or use of computer programs.

(A) *Quality of Confidence*

This requirement means that the material is not in the public domain. A computer program, to qualify for trade secret protection, must contain concepts that, when the program is considered as a whole, has qualities that are outside the area of public knowledge.³⁰² The developer of the program must not be disclosed to the public in some way. For example, the "Freeware" discussed earlier has been released to the public domain without any checks, protection or controls. It would not qualify for trade secret protection.³⁰³

The case of *O. Mustad & Son v. Allcock & Co. Ltd.*³⁰⁴ provides some concern if patent protection is sought. On publication of the specifications the trade secret protection is

300. (1969), R.P.C. 41 at 47.

301. See, for example, *Chevron Standard Ltd. v. Home Oil Co. Ltd.* (1982), 3 W.W.R. 427, 35 A.R. 550 (Alta. C.A.); and *West Coast Claim Savers Inc. v. Glaswegian Enterprises Inc.* (1983), 75 C.P.R. (2d) 200 (B.C. S.C.).

302. *Talbot v. General Television Corporation Pty. Ltd.*, (1980), V.R. 224 (Australia).

303. For example, where a competing product was developed using information available to the public: *Half Court Tennis Pty. Ltd. v. Seymour* (1980), 513 F.L.R. 240 (Queensland S.C.); *O'Brien v. Komesaroff* (1982), 56 A.L.J.R. (Australian H.C.) and *Molnar Lithographic Supplies Ltd. v. Sikatory* (1974), 12 C.P.R. (2d) 197 (Ont. C.A.).

304. Decided June 18, 20 1928 and Reported in (1963), 3 All E.R. 416.

lost.³⁰⁵ However, this requirement for secrecy is not total. Limited publication might still qualify for trade secret protection. In *Cranleigh Precision Engineering Ltd. v. Bryant*³⁰⁶ the plaintiff had hired the defendant as a managing director and applied for a patent of one of the defendant's inventions through the agency of the defendant. The patent agents told the defendant of a rival patent. The defendant did not tell the other directors but stripped the plaintiff of tools and supplies, quit and went to work for the competitor. The defendant then acquired the rival patent.

In response to the plaintiff's claim of trade secret protection, the defendant answered that since the rival patent was made public it was no longer secret. The court held that the plaintiff was entitled to claim confidential advances over the rival patent³⁰⁷ and granted an injunction to restrain the defendant or competitor from using these trade secrets.

The court distinguished *O. Mustad's* rule: if a master published the secret to the whole world then the servant is no longer bound by his promise not to publish the same secret. Here, however, it was a third party, outside this relationship of confidence, who published the patent. An implied term of the employment agreement was found requiring no release of confidential information and the publication did not release the defendant from his duty to the plaintiff. Any other result would be rewarding the defendant for his dishonesty.³⁰⁸

A Canadian case, *Polyresins Ltd. v. Stein-Hall Ltd.*³⁰⁹

305. See also *Franchi v. Franchi* (1967), R.P.D. & T.M. Cas. 149 (ch. D.) where the court found that applying for a patent begins a process which would inevitably lead to disclosure of the patented information to the plaintiff's competitors.

306. (1964), 3 All E.R. 289 (Q.B.).

307. Enhancements over the patented design that would have taken time and effort to duplicate.

308. *Cranleigh* has been criticized on this distinction. It has been argued that the fact of publication through issuance of a patent, destroys secrecy regardless who publishes the program. See Braithwaite, *Trade Secrets: The Springboard Upsprung* (1979), 42 Mod. L. Rev. 94 at 95-96; English Law Commission, Law Commission No. 110, *Breach of Confidence* (1981), Cmd. 8388, part 111 para 4:29; T. S. Bishop, *Legal Protection of Computer Programs in the United Kingdom* (1983), 5 Northwestern J. of International L. & Bus. 269 at 281. The distinction, it is argued, is that in *Cranleigh* the duty arose not from trade secret law but from his duty as a *fiduciary* to the company by virtue of the position as managing director.

309. (1971), 25 D.L.R. (3d) 152 (Ont. H.C.).

provides further refinement of the meaning of the secret and confidential requirement. This case involved an employee's misuse of certain formulae and industrial processes by assisting a competitor to develop a rival product. The court looked to the circumstances of the discovery of the new process. It was done under a research project, in a very competitive industry. Justice Galligan stated

it appears obvious to me that when private corporations involved in highly competitive commercial enterprises carry out product research and development projects, they are doing so for their own private benefit to improve their products so that their competitive position in the industry is improved or maintained. Processes resulting from such research which give them new products or which improve existing ones for the purpose of maintaining or improving their competitive position in the market generally must be trade secrets.³¹⁰

In circumstances where the employees know or ought to know that the discovery gives the employer a competitive edge, it appears the necessary quality of confidence will be implied.

Further considerations in determining if the necessary quality of confidence exist were noted in *Ansell Rubber Co. Pty. Ltd. v. Allied Rubber Industries Ltd.*³¹¹ A large circulation of the program might make it unreasonable to expect that secrecy can be obtained. In such cases where a wide distribution of a product is anticipated, licence agreements are commonly used to create a contractual duty of confidence.³¹² There is presently considerable debate whether, in fact, such broadly available programs³¹³ have the necessary quality of confidence that is a precondition to trade secret protection.³¹⁴

There are cases which have found the existence of the quality of confidence despite a very large distribution of the product.

310. *Id.* at 154.

311. (1967), V.R. 37 (Australia).

312. *Saltman Engineering Co. v. Campbell Engineering Co.* (1948), (1963) 3 All E.R. 413, 65 R.P.D. & T.M. 203 (C.A.) illustrates that the duty can originate under a contract.

313. Such as, for example, many of the programs for micro computers LOTUS 123, WORDSTAR, etc.

314. Bishop, *supra*, at 285, suggests that the situation under such "multiple license agreements" results in a question of degree in determining whether disclosure has destroyed the quality of confidence.

In *Data General Corporation v. Digital Computer Controls, Inc.*³¹⁵ maintenance diagrams which were available to approximately 6,000 people were protected since adequate protective measures were taken to protect the confidential nature of the diagrams. The court stated "Dissemination is not significant if in confidence".³¹⁶ This follows a similar finding in *Board of Trade v. Christie*³¹⁷ a decision of the United States Supreme Court. Here, it was sought to protect quotations of grain futures which were communicated in confidence to many of the Board's clients. The court stated

The plaintiff does not lose its rights by communicating the results to persons, even if many, in confidential relations to itself under a contract not to make it public, and strangers to the trust will be restrained from getting at the knowledge by inducing a breach of trust, and using knowledge obtained by such a breach³¹⁸

The proposition that relative, rather than absolute secrecy, is sufficient to maintain trade secret protection has further support. In *Vulcan Dentinning Co. v. Assam*³¹⁹ the court held that a process was confidential despite the fact that it was known by two foreign companies.³²⁰ This case was cited with approval in *Franchi v. Franchi*³²¹ where Justice Cross, in a *dictum*, observed

Clearly a claim that the disclosure of some information would be a breach of confidence is not to be defeated simply by proving that there are other people in the world who know the facts in question besides the man as to whom it is said that his disclosure would be a breach of confidence and those to whom he has disclosed them.³²²

315. 357 A.2d 105 (Del. Ch. 1975).

316. *Id.* at 114.

317. 198 U.S. 236 (1905) (U.S.S.C.).

318. *Id.* at 250-251.

319. 185 A.D. 399 (N.Y. Appeal Div. 1918).

320. See also *Morris Ltd. v. Gilman (B.S.T.) Ltd.* (1943), 60 R.P.D. & T.M. Cas 20 (Ch. D.) information also known by people in Germany; and *Exchange Telegraph Ltd. v. Central News Ltd.*, (1897) 2 Ch. 48 where it was sufficient that a significant group remained (after disclosure to a large interested group) unacquainted with the information and yet would have an interest in obtaining the information.

321. (1967), R.P.D. & T.M. Cas. 149 (Ch. D.).

322. *Id.* at 152.

If the present practice of licencing computer programs with superadded conditions of confidentiality are found to be valid contracts³²³ then the broad distribution of such material under contractual relationships which express a requirement of confidence might still be capable of trade secret protection.

(b) *Obligation of Confidence*

There must be a relationship between the parties which expressly or impliedly creates an obligation of confidence. This duty of confidence may be created by a contractual relation and this is, in fact, the most common method used to expressly state the limits of the confidence. Different considerations arise in the case of employee/employer relationships and vendor/client relationships and so these will be treated separately below.

(i) *The Employee/Employer Relationship*

It has long been an implied term in the employment agreement that the employee has a duty of fidelity to the employer.³²⁴ This contractual obligation of fidelity may prevent a skilled employee from giving his assistance to a competitor despite the fact that the assistance is provided on the employee's own time and despite the fact no confidential information might have been disclosed to the employee in confidence. Basically, the employee can not put himself into a position where he can injure the employer,³²⁵ such as by competing with the employer or by assisting a competitor. *Hivac Ltd. v. Park Royal Scientific Instruments Ltd.*³²⁶ is an example of this.

Five of Hivac's employees, in their off hours, assisted a competitor to get established. There was no proof of use of any confidential information. The court found that it was inevitable that some confidential information would be used by the workmen. It was unrealistic to expect them to compartmentalize their minds. The court then went on to discuss the limits on restrictions that might be put on an employee.

323. There are problems of adhesion and consideration in many of these cases.

324. See Lord Greene M. R. in *Robb v. Green*, (1895) 2 Q.B. 315 at 320.

325. *Wessex Dairies, Ltd. v. Smith*, (1935) 2 K.B. 80.

326. (1946), 1 Ch. D 169 (Ch. D).

The law does not want to impose restrictions on a *manual worker* the effect of which would prevent him from utilizing his spare time to his own advantage. However, where the employee is of a different character³²⁷ one may find a different obligation. It would be deplorable if an employee could, consistent with his duties to the employer, knowingly, secretly and deliberately set himself up to use his spare time in activities which inflict great harm on the employer. Here, there was no express term imposing a duty of confidence on the employees in their employment contract. The court found such a term to be implied.³²⁸

Hivac has sometimes been cited for the proposition that work done by an employee in his own time at his own expense belongs to the employer. Yet this would result in the illogical situation where a director of a company is permitted to compete with the company while an employee can not.³²⁹ This extension of *Hivac* makes even less sense where the work developed by the employee is unrelated to the work of the employer. The law relating to ownership of patentable inventions may be more appropriate. Blanco White³³⁰ writes:

It may be noted that a director of a company is necessarily in a fiduciary relationship to the company, and will not ordinarily be entitled to make use for his own profit of knowledge acquire by him when acting as director. In this respect, his duty to hand inventions over to his company is probably higher than that of a mere employee, however senior.

Hivac is often distinguished by the fact it was a wartime case and also that the extension of the principle does not flow necessarily from the judgment.

327. The court uses the example of a law clerk.

328. As was also the case in *Cranleigh Precision Engineering Ltd. v. Bryant*, (1964), 3 All E.R. 289 (Q.B.). See, however, *Chevron Standard Ltd. v. Home Oil Co. Ltd.* (1982), 3 W.W.R. 427, 35 A.R. 550 (Alta. C.A.) which noted that such a confidentiality obligation was not a covenant restricting post-employment competition with the employer.

329. See T. E. Cain, *Company Law* (10th London: Stevens & Sons 1972 at 267; V. Powell-Smith, *The Law and Practice Relating to Company Directors*, (London: Butterworths, 1969) at 139.

330. T. A. Blanco White, *Patents For Inventions* (4th) London: Stevens & Sons, 1974) at 352.

The obligation of an ex-employee to his ex-employer is more restricted. Justice Brightman, in *United Sterling Corporation Ltd. v. Felton and Mannion*³³¹ discusses the range of these duties

A man may work for a competitor of his former employer save so far as he is restrained by a valid restrictive covenant. Apart from a restrictive covenant, the ex-employee may be under an obligation not to make use of or disclose information imparted to him in confidence by his former employer. . . it is not clear whether this obligation is based on an implied term of his contract of employment which exists after the employment has ended, or whether it is based on principles of equity independently of contract. . .

There is no fundamental impossibility. . . in implying in a contract of employment, in suitable circumstances, an obligation on the employee not to abuse, after his employment has ended, confidences imparted during the course of his employment.

Here no confidential information had been given to the employee in question so the action could not be maintained. This may be contrasted with *Kent Drug Ltd. v. Kronson*³³² where employees appear not to have used confidential information in developing a competing computerized drug information system. Huband J. A., speaking for the Court, said at p. 266:

In the *W. J. Christie v. Greer*³³³ decision this court commented on the freedom of an "ordinary employee" to compete with a former employer. It seems to me that the following quotation is applicable to the Kronsons in the present case:

There is nothing to prevent an ordinary employee from terminating his employment, and normally that employee is free to compete with his former employer. The right to compete freely may be constrained by contract. It would be improper, too, for an employee to purloin trade secrets or confidential information, including customer lists.³³⁴

The scope of this duty not to disclose trade secrets or confidential information is limited by public policy

331. (1974), R.P.C. 162. (1973)d F.S.R. 409 (Ch. D) at 167.

332. (1983), 78 C.P.R. (2d) 260 (Man. C.A.).

333. (1981), 59 C.P.R. (2d) 127, 121, D.L.R. (3d) 472, (1981), 4 W.W.R. 34 (Man. C.A.).

334. At 133 C.P.R.

considerations in favour of not overly limiting the possibility of an ex-employee to practice his skill in the field of his choosing. As a result a distinction is drawn between (a) information which can be regarded as a

separate part of the employee's stock of knowledge, which a man of ordinary honesty and intelligence would recognize to be the property of the employer and not his own to do as he likes with³³⁵

and (b) general information

inevitably acquired by an employee in the ordinary course of his employment as part of the sum total of his experience with that employer, not distinguished by any particular badge of confidence, which the employee will inevitably carry away in his head as part of his general stock of knowledge³³⁶

This distinction is often difficult to draw.³³⁷ A common practice is the execution of a separate agreement with an employee which specifies which information is regarded as confidential by the employer. This will result in three advantages. First, the employee will be on notice that some aspects of his work are sensitive and ought not to be disclosed. Secondly, an express term provides more certainty of the existence of the confidential relation and makes it somewhat easier to prove, later, at trial. Finally, the express agreement provides certainty, if properly drafted, of the extent of the confidential relationship, and what information is included. However, as noted by the British Columbia Court of Appeal, in *Moore International (Canada) Ltd. v. Carter*³³⁸ and the Alberta Court of Appeal in *Chevron Standard Ltd. v. Home Oil Co. Ltd.*³³⁹, merely signing such an agreement will not preclude post-employment competition by the employee.

335. *Printers & Finishers Ltd. v. Holloway*, (1965), 1 W.L.R. 1 (1964), 3 All E.R. 731 at 735.

336. *United Sterling Corporation Ltd. v. Felton and Marrian*, (1974), R.P.C. 162 at 172.

337. O'Leary J., in *Monarch Messenger Services Ltd. v. Houlding* (1984), 56 A.R. 147 (Alta. Q.B.) examined this distinction and found that special knowledge was acquired.

338. (1984), 1 C.P.R. (3d) 171.

339. (1982), 3 W.W.R. 427, 35 A.R. 550.

(i) *Contractual Confidentiality Clauses*

There are a number of disadvantages in relying on an implied duty of confidence or fidelity. First, there is no absolute certainty that any given court will imply the duty in the particular fact situation. Secondly, if such a duty is implied, then the scope of its reach will be uncertain. Both these factors can be eliminated by the execution of an agreement between the employee and the employer. Such agreement ought to provide some increased certainty of these factors. A number of locally used contracts will be analyzed in an effort to ascertain the extent to which these benefits are achieved.

The contracts or clauses shown relate to a variety of employment or pseudo-employment situations. Contracts A and B deal with the typical employee/employer relationship. Contract C deals with an independent contractor hired to do specific work for the employer. Contracts D(1) and D(2) deal with joint venture agreements involving computer software. Contracts E(1) and E(2) deal with duties of confidence that the employer places on himself and on his employees through the acquisition of another's program materials. It is noted that in this latter case, there is no contractual relationship between the outsider and the employee. Either the employer relies on the implied duty or has executed an agreement, similar to Contracts A or B, with the employee, to provide the protection he has undertaken to give to the outsider.

Contract A:

Whereas Employee, in connection with his employment, has or will become familiar with X's activities and may in the course of his employment make inventions and improvements pertaining to these activities;

And Whereas Employee is or desires to be employed by X in a capacity in which Employee may receive or contribute to confidential information, which information may or may not be patentable;

And Whereas X develops, directly or indirectly, and uses such confidential information, which it may wish to protect either by patents or by keeping it confidential;

Now, Therefore, in consideration of Employee's employment, this agreement being a condition thereof and ancillary thereto and not purporting to set forth the terms of such employment, it is agreed as follows:

1. Unless Employee shall first secure X's written consent, Employee shall not disclose at any time, either during or subsequent to said employment, any secret or confidential information, whether patentable or not, of X of which the Employee becomes informed during said employment, whether or not developed by Employee, except as required in Employee's duties to X.

2. Employee shall disclose promptly to X or its nominees any and all inventions, discoveries and improvements, whether patentable or not, conceived or made by Employee during the period of employment and related to X's activities. . .

These obligations shall continue beyond the termination of employment with respect to inventions, discoveries and improvements, whether patentable or not, conceived or made by Employee during the period of employment, and relating to X's activities, and shall be binding upon Employee's assigns, executors, administrators and other legal representatives.

3. Upon termination of said employment, Employee shall promptly deliver to X all drawings, blueprints, manuals, letters, notes, reports, and copies thereof, and all other materials of a secret or confidential nature relating to X's business and which are in the possession or under the control of employee³⁴⁰

A number of comments are appropriate in regard to these clauses. The recitals certainly establish the informative effect, in indicating that (a) a relationship exists in which the employee will have access to the employer's secrets, and (b) the secrets are of value to the employer. The final paragraph in the recitals indicates that this is a collateral contract to the main contract of employment and that the consideration is the fact of being employed. This agreement might not, therefore, be effective if executed by someone who is already employed. In such a case, a separate consideration might be wise.

Clause 1. lists the basic duty of nondisclosure that would otherwise be implied in the employee/employer relationship. Clause 2. requires disclosure of developments to the employer. Here, it is uncertain what period of time is covered. The clause might cover only the time the employee is actually working for the employer each day or might cover any and every development within the time from the starting day to the

340. Source withheld by request.

finishing day of the employment. A second limitation is placed on the developments that must be disclosed. Only those developments that relate to the employer's activities must be disclosed. It might be argued that an employee who independently developed an unrelated invention in his own time would have no obligation to disclose this to the employer. Finally, the clause makes the disclosure provision binding on the employee's estate. This is an expansion of the protection available under trade secret law. Trade secret is fundamentally based on the *relationship* between the individuals and so when the employee dies, the obligation would end.

Clause 3. provides for delivery up of certain materials, of a confidential or secret nature, to the employer on termination of the employment. While this is a good idea, the materials which have the "secret or confidential nature" are not specified. It would be far better to specify which materials are expressly considered to have such a confidential nature. This would avoid any possible dispute about these materials. A general delivery clause would then provide the general, but weaker, protection for other unlisted materials.

Contract B:

Whereas the parties to this agreement have agreed that the contractor shall undertake a study. . .

Now Therefore the parties agree as follows: . . .

3. The contractor agrees that all communications between X, his employees, agents or assigns and the contractor which occur during the term of this agreement or any extension thereof shall be treated as confidential both during and following the term of this agreement, and the contractor shall obtain the prior written approval of X before divulging such communications or other data or information obtained from X, his employees, agents or assigns during the term of this agreement or any extension thereof.

5. The contractor agrees that all copyright, patents, or trade secrets in any of the work performed as a result of this agreement. . . is the property of X.³⁴¹

This agreement purports to extend to all information received by the contractor and deem it confidential. Public policy might limit the effect of clause 3. to the specific information, rather

341. Source withheld on request.

than the general information, acquired during the course of the work, as in *United Sterling*. Clause 5. clears up the problems that the employer in *Northern Office Micro Computers (Pty) Ltd.*³⁴² faced in not having the copyright in the program. Here, it appears the employer has the copyright as well as the use rights. The clause would appear to cover computer programs whether protected by copyright, patent or trade secret law.

In such a case, where a computer programmer is paid to prepare a specific program for the hirer or employer, a confidential relationship might be implied. The hirer or employer will likely have to supply the programmer with confidential details of the workings of his business. The programmer will have to supply his special skills. Thus both parties will stand in a confidential relationship with the other.³⁴³ This agreement starts to expressly define these mutual obligations, but only from one side. Contracts D(1) and D(2), dealing with two joint venture agreements, shows more development of this theme.

Contract C:

1. In consideration of my employment with X in a capacity in which I may make new contributions, new improvements and inventions of value to X and in consideration of the sum of one (\$1.00) dollar, the receipt of which is hereby acknowledged, I agree as follows:

I hereby assign and agree to assign to X. . . all my rights to inventions relating to the business or interests of X or resulting from tasks assigned to me that I may make, alone or jointly with others, during the period of my employment.

I agree to promptly and fully disclose such inventions and possible inventions to X. . .

I agree that I will not, except as required in the conduct of X's business or as authorized in writing by X during the term of my employment and thereafter, publish or disclose or authorize anyone else to publish or disclose any secret or confidential knowledge concerning any inventions or other matter relating to X's business which I might acquire by reason of my employment by X.

This agreement shall be binding on my heirs, executors, administrators and other legal representatives.

342. (1982), 8 F.S.R. 124 (S.C.S.A.).

343. Gary M. Cohen, *Computer Programs - Does the Law Provide an Adequate Protective Mechanism?* (1982), Australian Law J. 219 at 231.

2. I represent that the inventions described in the attached papers comprise all the unpatented inventions which I have made or conceived prior to my employment by X that I desire to have excluded from the terms and conditions of this agreement.

(Notice given to employees)

During his employment, an employee may acquire records, data and information through his own efforts and from the efforts or disclosures of other employees which he should under no circumstances disclose to outsiders, and which should not be used after the termination of his employment. There are other types of information which the employee may acquire which can be disclosed or used without detriment to X. X may have no objection, by experts the employee to obtain permission in each case.³⁴⁴

This contract has been set up as a collateral contract in consideration of \$1.00 and employment. Unless the \$1.00 is actually paid, this portion of the clause is meaningless. The consideration of employment might be valid consideration so that the agreement, itself, exists if executed on the hiring of the employee. Clause 1. covers much the same ground as contract A, above. Clause 2. adds an interesting variation. It requires the employee to expressly exclude those discoveries which the employee wishes to retain. This might be argued to put the onus on the employee to restrict the claims he might later be able to make and so would have a practical effect of placing the employer in a stronger position. Clause 1. has the same potential problems in the definition of the period covered and limits the scope of the employer's right to developments to those "related to" his business or "tasks" assigned to the employee. This limits the effect of the onus in Clause 2.

Contract D(1):

In consideration of the mutual covenants and agreements herein set forth, the parties agree as follows:

During the term of this agreement or thereafter:

1. Any information concerning programs, products, contracts, business information or procedures (but not limited to computer software, electronic device specifications, cost estimates and potential clients) belonging to X and obtained by Y during the term of this

344. Source withheld by request.

agreement shall be treated always as confidential, and shall not be disclosed or made known to any other person, except with prior approval.

2. Similarly, any information concerning programs, products, business information or procedures (but not limited to computer software, electronic device specifications, cost estimates and potential clients) belonging to Y and obtained by X during the term of this agreement shall be treated always as confidential, and shall not be disclosed or made known to any other persons.³⁴⁵

This joint venture agreement basically repeats the general rule in regard to trade secret protection, but does have the advantage of specifying certain items which are specifically covered. Here, computer programs would be expressly covered under this agreement. Where specific information will be disclosed by one party to the other and that information is capable of being described, it would be advantageous to include it specifically as one of the materials protected.

It is noted that such a joint venture business arrangement might also imply a duty of confidence even if one is not expressly included in the agreement. In *Coco v. A. N. Clark (Engineers) Ltd.*³⁴⁶ Justice Megarry stated that a confidential relationship might arise “where information of commercial or industrial value is given on a businesslike basis and with some avowed common object in mind.”³⁴⁷

Contract D(2):

4.01 The Participants shall promptly and without charge make available to the Authority the Prior Technical Information. . .

4.02 Subject to Articles 4.03 to 4.07 inclusive, the Authority shall keep confidential all Prior Technical Information and all other technical information made available to it by the Participants.

4.03 The Authority is entitled to disclose Prior Technical Information to its agents and contractors, and to Alberta Government agencies and departments, provided that each of said recipients agrees in writing to keep such technical information confidential. Alberta Government agencies and

345. Source withheld by request.

346. (1969), R.P.C. 41.

347. *Id.* at 48.

departments shall be entitled to disclose on a confidential need-to-know basis Prior Technical Information in conjunction with any part of the Project Technical Information to others to the extent necessary for the design, engineering, construction, operation and maintenance of the facilities of said agencies and departments using the Project Technical Information, and such others shall be entitled to use such technical information but only to assist in the design, engineering, construction, operation and maintenance of said facilities.

4.04 The Participants hereby grant to the Authority an immunity from suit by each of them or their respective affiliates for disclosing Prior Technical Information in conjunction with any part of Project Technical Information to any potential licensee on a limited non-confidential "look-see" basis to enable said potential licensee to decide whether to enter negotiations for a license under this Technology Agreement.

4.05 The Authority is entitled to disclose Prior Technical Information in conjunction with any part of Project Technical Information to its Licensees, provided that each such Licensee agrees beforehand in writing to keep such technical information confidential. . . .

7.02 The Authority shall keep confidential all Project Technical Information, except as is required to be disclosed in patenting Project Inventions.³⁴⁸

This is a short excerpt from a "Technology Agreement" between two or more joint venturers. It clearly establishes the importance of confidence as the agreement is fundamentally a vehicle for the exchange of the parties information for the purpose of jointly creating new 'know-how'. The agreement specifies the information each party brings to the agreement, how it is to be dealt with and how the jointly developed information will be dealt with. This specificity ought to be of assistance in case a breach of confidence action must be brought. The agreement provides for the circumstances under which disclosure might be made. These factors would tend to make the agreement the basis for a better joint working relationship as each party would be better aware of its and the other's rights and obligations.

This agreement shows the results of years of experience in dealing with confidential information in these circumstances.

348. Elma K. Spady *Part Three, New Frontiers in Resource Technology - A Legal Overview*, (1980) 19 Alta. L. R. 16 at 23, 24.

Additional terms and information can be seen in (1980) 19 Alta. L.R. 1 at 20 to 33.³⁴⁹

Contract E(1):

The Software House, its employees and associates undertake not to divulge or communicate to any person, firm or company any confidential information howsoever acquired which refers to the Client without first obtaining the written consent of the Client.³⁵⁰

This clause considers the relationship from another perspective. The employer might have undertaken a duty of confidence toward someone else's computer programs (as in the joint venture clause above). This clause purports to establish the duty, but like most of the clauses, does not specify what materials the duty might apply to. In fairness, this clause could be coupled with another clause which would describe the scope of the confidential information protected.

Contract E(2):

All information or data passed by the Client to the Software House shall be treated as confidential by the Software House and shall not knowingly divulged to any third party without the Client's prior consent³⁵¹

Morgan points out that this clause is not as strict as E(1) in "(a) limiting the confidentiality to information expressly passed, (b) in expecting unknowing breach of confidence, and (c) in not stipulating that any consent to a waiver of this clause should be in writing"³⁵²

These clauses or contracts might assist in establishing the confidential relationship and, in some cases, assist in determining the scope of that relationship. *Paczy v. Haendler & Natermann G.m.b.H.*³⁵³ is an excellent illustration of the point that this clause or agreement must be considered within the context of the entire agreement. Here, an express agreement provided for the disclosure of confidential information and

349. Sections deal with prior and current patent rights, warranties and representations and the licensing rights of the parties.

350. Richard Morgan, *Computer Contracts* (London: Oyez Publishing Ltd., 1979) at 60.

351. *Id.* at 61.

352. *Id.*

353. (1979), 5 F.S.R. 420 (Ch. D).

imposed a duty to keep that information confidential even after the expiry of the agreement. Problems arose when the defendant continued using the information without paying the royalties after a dispute had occurred. The contract contained an arbitration clause to handle “any dispute arising out of” the agreement. The plaintiff sued for breach of confidence. The proceedings were stayed since the claim for misuse of confidential information fell within the terms of the arbitration clause. The plaintiff would have to resolve his dispute in front of the arbitrator.

(ii) *The Vendor/Client Relationship*

There is generally no implied relationship of confidence where one party sells or licences, at arms length, to another. As a result, a duty of confidence must arise out of the contractual relation or some other relationship between the parties. It is the external client that most technical protection schemes are designed to deal with. Trade secret protection assists such technical protection by supplementing its effect with legal protection. The technical protection can be characterized as establishing the quality of confidence or secrecy necessary before trade secret protection can exist. It is important, especially when dealing with the external client, to ensure that adequate internal controls are in place.

One mechanism commonly used in the computer industry is the issuance of licences to use software rather than the sale of the software. A licence might entitle a client to a preferential rate on updates of the program and provides the vendor with a continuing source of income. The major, non-economic, advantage of such a licencing arrangement is the ability to maintain legal control over the use of the software.³⁵⁴ Gilburne and Johnston have reviewed the restraints that are typically imposed on clients receiving copies of software.³⁵⁵

- (i) Prohibition on copying other than for archival or backup purposes;

354. There might be problems of anti-trust or restraint on alienation if conditions are put on a sale of the software.

355. Miles R. Gilburne & Ronald L. Johnston, *Trade Secret Protection For Software Generally and in The Mass Market* (1982), III Computer/Law J 211 at 225.

- (ii) No disclosure except to the customer's employees in the course of their employment as necessary to utilize the software;
- (iii) Requirement that employees of the customer receiving access to the software sign confidentiality agreements directly enforceable by licensor;
- (iv) Limitation on the use to single central processing unit;³⁵⁶
- (v) Restriction on the processing of third party data;
- (vi) Requirement that the customer notify the licensor of unauthorized use or disclosure, and requirement that the customer take legal action against third party who gains access to software and is using it on an unauthorized basis as a result of the customer having failed to comply with the contractual restriction; and
- (vii) Requirement that distributors of software obtain license agreements from customers containing nondisclosure restriction.³⁵⁷

A number of locally used licence agreements are outlined below. They show different approaches to gaining different levels of trade secret protection through the contract. It is noted that all of these agreements of clauses are designed for a small specialized market as opposed to the mass market. It is often easier to maintain the secret or confidential character of the information when one deals with a smaller number of clients.

Contract A:

This software product, including the documentation manual, is copyrighted by X. You may not copy or otherwise reproduce any part of this software except as expressly permitted in this license.

The ABC software package is licensed to non-profit educational institutions for educational, promotional, research and development purposes within the institution. It is not licensed for commercial use, including preparation for a fee of material for any third party.

The holder of this license is permitted to make one or more back-up copies of the diskette solely for protection against loss or damage to the original, provided that all copyright notices and other proprietary legends are reproduced on such copies. The license holder *may not* distribute copies of the software to others.³⁵⁸

356. A "CPU" is another term used to describe the elemental computer.

357. Gilburne & Johnston, *supra*, at 225.

358. Source withheld by request.

This package purports to be protected by copyright and has minimal emphasis, if any, on nondisclosure of the programs to others. As a result, one would have to look to the circumstances of the relationship between the vendor and the clients to see if it might be possible to imply a duty of confidence. Certainly the documentation would be protected by copyright. Unfortunately, at this time, it can not be firmly stated whether the computer program would be protected by copyright.

Contract B:

The Licenced Program is licenced for use on computer model Z-1 and serial no. 0000 installed at 000 - 000.

2.(a) Subject to the terms and conditions of this agreement, X hereby grants to Customer a non-exclusive licence to use the Licenced Program on Customer's computer specified on the face of this Program Product Sub-Licence. . .

(b) The licence granted herein is restricted to use by Customer solely for its own internal operation to process its own data. . . and not for processing the data of others for hire. Customer shall also have the right to use the Licenced Materials to instruct its staff in the operation of the Licenced Program, but shall not have the right to copy the Licenced Materials.

(c) Customer is authorized to use the Licenced Program on a back-up computer when the Designated Computer is inoperable, until operable status is restored and processing on the back-up computer is completed.

3. Upon payment by Customer of the Licence Fee. . . X shall make available to customer one copy of the Licenced Materials. Any additional copies of the Licenced Materials as are reasonably necessary for the use of the Licenced Program shall be provided by X to Customer at X's current charges.

6.(a) The term of the licence granted hereunder shall commence upon the payment by Customer of the Licence Fee specified. . . and shall extend for a period of 10 years unless terminated earlier as provided under this agreement.

13.(d) It is recognized by the parties that the confidentiality of Licenced Program and Materials is of great and central importance to the business of X. The parties therefore, agree that if Customer shall breach any term contained in Schedule A, attached hereto, then X shall have the right, at its election, to terminate this agreement forthwith without notice.

14.(a) Upon termination of this agreement. . . Customer shall return the Licenced Program and Materials and any

copies thereof to X and shall certify, under the hand of a duly authorized officer of Customer, that the original and all copies of the Licenced Program and Materials have been given up to X, all records or copies of the Licenced Program or Materials in computer memory have been destroyed, and that no copies of any part of the Licenced Program or Materials, in any form, remain in the possession or control of Customer.

Schedule A

(b) Customer, as a result of this licence, will have access to then become familiar with various trade secrets and confidential information consisting of computer software, algorithms, formulas, patterns, programs, software processes and compilations of information and other trade secrets of the Developer.³⁵⁹ . . . Customer agrees not to remove from any copies of the Licenced Program, any statements appearing therein concerning copyright and proprietary rights. The Customer further agrees to take such other reasonable steps as Developer or X may request from time to time in order to protect Developer's rights and X's rights in the software. The customer may not sell, lease, transfer, assign, licence, or disclose the contents of the Licenced Program to any third party without prior written permission from X.³⁶⁰

This agreement goes much farther than Contract A in specifying the client's rights in using the software. It also provides a mechanism for termination of the agreement. It is submitted that the termination procedure assists in giving this agreement the legal character of a licence where Contract A might have the legal character of a sale. Also, this agreement specifically establishes the importance of secrecy or confidence and then specifies some of the materials to which this confidence attaches.

Contract C:

4. X agrees that future release of software licenced under this agreement will be available to Customer, with Customer agreeing to pay the cost of the diskette, postage and handling, and 20% of the then current licence fee. . .
5. Customer understands that unauthorized reproduction of copies of the software and/or unauthorized transfer of any

359. X holds a licence from the developer and this is a sub-licence agreement, pursuant to the terms of the licence agreement.

360. Source withheld by request.

copy may be a serious crime, as well as subjecting Customer to damages and attorney fees. Customer, may not transfer any copy of software to another person without prior written approval of X.

8. A licence may be terminated at any time, provided that the licence shall not be considered terminated until the Customer either returns or certifies the destruction of the licenced software.³⁶¹

This set of clauses appear to provide very uncertain protection. The vendor discusses a “serious crime” but it is not indicated what constitutes such a “serious crime”. The provision dealing with attorney fees is likely descriptive and so not binding on the parties. From the drafting it would appear that “unauthorized reproduction” of the original licenced software might not constitute the “serious crime”.

The agreement does not attempt in any serious way to establish that the computer programs are considered secret and confidential and of value to the licensee. As a result a court would have a difficult time finding that a duty of confidence existed as a result of this agreement. If so, then the vendor is left with very uncertain copyright protection.

Contract D:

The Licensee hereby agrees:

(i) that the Package is the sole property of the Licensor and that the Licensee will take all reasonable precautions to maintain the confidentiality of the Package, its programs and documentation;

(ii) that it will not assign, transfer, mortgage pledge or sublet any of its rights or obligations under this agreement;

(iii) to make no copies or duplicate the Package or any part or parts thereof by any means or for any purpose whatever (except as may be necessary for normal security storage) without the prior consent in writing of the Licensor;

(iv) to use the Package solely at the installation described in the Schedule hereto;

(v) to instruct all its staff from time to time having access to the Package not to copy or duplicate the Package or any part or parts thereof or to make any disclosure relating thereto to any third party;

(vi) to effect and maintain adequate security measures to safeguard the Package from theft or access by any person

361. Source withheld by request.

other than employees of the Licensee in the normal course of their employment;
 (vii) in any event that any of the programs comprising the Package or any part or parts the associated documentation should come into the hands of a third party through the Licensee or any employee or former employee of the Licensee, the licensee shall forthwith pay to the Licensor the price for the entire Package ruling for the time being as would be charged such third party for a License to use the Package.³⁶²

This series of clauses put a considerable onus on the Licensee of the software to instruct its staff on the confidential nature of the software. It also makes the Licensee liable for the cost of the copied programs. This latter provision might have the effect of ensuring that the Licensee is more vigilant in its protection of the software but it is also likely that it might discourage disclosure of any unauthorized copying. On the whole it is quite a secure series of clauses and provides the certainty of the existence of the duty of confidence as well as some specificity as to its scope.

It should be relatively easy to obtain such licence agreements from most larger users of computing resources who will understand the concern to protect the rights in the computer programs. However, the advent of the micro computer market and mass marketed software has created problems. Some mass marketed software contains an obvious notice, on the sealed package, that breaking the seal is deemed acceptance of the terms of the licence agreement. Some software distribution houses have each customer execute a nondisclosure agreement. Some software suppliers provide for a right to obtain updates on the registration of the software and acceptance of the licence agreement.

As was discussed earlier, cases such as *Board of Trade v. Christie*³⁶³ and *Data General Corporation v. Digital Computer Controls, Inc.*³⁶⁴ provide that trade secret protection ought not be related to the size of the market but rather to the measures taken to protect the secret or confidential nature of the computer programs.

362. Morgan, *supra*, at 63.

363. *Id.*

364. *Id.*

A final caution: since these duties of confidence arise under contracts it is not clear if they will also likely fall when the contract falls. It may be that the contract merely raises the knowledge which binds the person's conscience and so the legal effect of the contract may be irrelevant. However, to be safe, it is doubly important in such cases to ensure that the contract is valid and that its early termination does not prejudice any rights in the computer programs.

It is noted that software licencing agreements will differ in one significant way from other trade secret licencing agreements. In the licencing of trade secrets to some party, it is implicit that the secret information will be passed from the holder to the other party for the purposes of the agreement. With software licences, on the other hand, the holder of the secrets, generally, does *not* want the secrets to pass to the user. This, coupled with availability of the program only in object code, ought to make it somewhat easier to maintain the degree of secrecy required.

(C) *Disclosure Resulting in Detriment*

Even if there is a quality of confidentiality in the computer programs and there is a duty not to disclose it appears that the program rights holder will have to show a detriment as a result of the disclosure. This detriment will consist, in most cases, of the threatened loss of trade secret protection for the computer programs through public disclosure. Loss of the competitive edge will be another, major, source of injury to the program rights holder. Additional types of detriment that might be shown are loss of market and therefore loss of the ability to recover the research and development investment.

On the whole, it does not appear to be difficult to show the requisite detriment to establish trade secret protection. In *Seager v. Copydex Ltd.*³⁶⁵ Lord Denning M.R., in an *obiter dicta*, indicates that the requirement might not be necessary. However, this *dicta* does not appear to have been followed in any significant way.³⁶⁶

365. (1967), 2 All E.R. 415 (C.A.).

366. See for example, *Ridgewood Resources Ltd. v. Henuset* (1981), Alta. D. 1014-01 March 16, 1981 (Alta. Q.B.) where an alternative reason the plaintiff's action failed was failing to prove such detriment.

(3) *Advantages of Trade Secret Protection*

Trade secret protection protects the ideas and not just the form of expression of ideas, as in the case of copyright, or the physical manifestation of the idea, as with patent protection. As such, the scope of trade secret protection is directed towards the major concern of the software developer. It will protect the creative leap or creative combination that makes the developer's program unique and successful. It protects against improper disclosure through the enforcement of the duty of confidence on the user.

Another advantage of trade secret over copyright is the test for infringement. Since copyright law only protects the form of expression, the court must find a copy to be "substantially similar", yet in trade secret law one must show that the underlying concept or other confidential information was appropriated, regardless of the form in which this was done.³⁶⁷

Trade secret protection, in combination with contractual protection, is a flexible mechanism of protection. It is also the most widely used mechanism of protection in the software development industry.

(4) *Disadvantages of Trade Secret Protection*

While trade secret protection is most widely used, it also has limitations. These arise from its origins in the law of equity. Equitable remedies act *in personam*, between the parties involved. The law of trade secrets acts by binding a person's conscience so that that person is ordered, in equity, not to disclose another's trade secrets. The protection of trade secret law extends only so far as a Court of Equity can bind a person's conscience.

A person's conscience will be bound if that person is under a duty or obligation of confidence in relation to some subject matter. That duty of confidence affects the employee working for the software developer and it may affect the client of the vendor of software under a properly drafted licence agreement. This duty does not affect those persons who, in good faith, acquire the software from a rogue employee or client without any notice of the breach of confidence. While this defence of Bona Fide Purchasor for Value Without Notice exists, its

367. Davidson, *supra*, at 399.

operation has been limited or ignored in several major trade secret cases where it was raised.

At present it is uncertain to what extent the defence is available.

On one side are cases such as *Cooksley & Anor v. Johnson & Sons*³⁶⁸ where Justice Edwards, in an *obiter dicta*, states:

Information, on the other hand, is as a general rule public property. The affairs of life could not be carried on if it were incumbent upon every person to whom information has been communicated to enquire before he acted upon it whether or not there are facts which give the other person a right of property in that information. No cases has ever gone, nor do we think that any case is likely ever to go, to this length.³⁶⁹

Since this comment, the world has undergone radical changes and in our present information age many cases have gone to this length and beyond.

*Polyresins Ltd. v. Stein-Hall Ltd.*³⁷⁰ shows the typical operation of the trade secret protection and the limits to this defence. Here, the defendant company lured employees away from the plaintiff company and those employees were aware of the plaintiffs trade secrets. The court found that the individual defendants had clearly breached their duty of confidence to the plaintiff and so injunctions were issued to restrain further breach. As with the defendant company, who was not affected by the duty of confidence, Justice Galligan stated:

It is my opinion that an injunction will lie against a third person who has acquired information to which he is not entitled even assuming he does not have notice of a breach of duty on the part of the person who imparted it to him: *Fox on Canadian Patent Law*, 4th ed. (1969), p. 619; *Printers and Finishers Ltd. v. Holloway*, [1965] R.P.C. 239.³⁷¹

*Stevenson Jordon & Harrison v. MacDonald & Evans*³⁷² is another illustration of the modern tendency of the courts to limit the availability of this defence. Here, the employee quit and provided the defendant publishers with a book he had

368. (1905), 25 N.Z.L.R. 834 (N.Z. C.A.).

369. *Id.* at 852.

370. (1971), 25 D.L.R. (3d) 152 (Ont. H.C.).

371. *Id.* at 159.

372. (1951), R.P.D.T.M. Cases 190 (K.B.).

written in the course of his employment. The book contained confidential information relating to the plaintiff's systems of operation. The defendants did not know the material was subject to duty of confidence at the time they acquired it and so they claimed the defence of bona fide purchaser for value without notice to the claim for an injunction.

The plaintiff expressly disclaimed that the defendant was under a duty to know of the employee's duty of confidence to the plaintiff. The court relied on Lord Cottenham's judgment in *Prince Albert v. Strange*³⁷³ to support the proposition that later knowledge of the breach is sufficient to bind the defendant. Justice Lloyd-Jacob stated:³⁷⁴

The wrong to be restrained is not the entry into the contract to publish, but the act of publishing, and an innocent mind at the time of the former cannot overcome the consequences of full knowledge at or before the time of the latter.³⁷⁵

Similarly, Vice Chancellor Turner's judgment in *Morison v. Moat*³⁷⁶ was not seen as inconsistent with the court's jurisdiction to prevent disclosure if proceedings are commenced in time.³⁷⁷

A third party may not be successful in bringing the bona fide purchaser defence if the circumstances were such that he ought to have inquired as to the confidentiality of the information dealt off to him.³⁷⁸

The *Stevenson* case is analogous to a common situation that might arise with employee computer programmers. They are hired, in part, to complete some work. The employee quits and approaches another firm to produce the work that was substantially completed for the former employer. This case provides some arguable authority for the issue of an injunction against the other firm *before* they actually publish the confidential materials.

373. (1849), 1 Mac. & G. 25.

374. See also *Fraser v. Evans*, (1969), 1 All E.R. 415 Lord Denning M.R. at 417 or *London Joint Stock Bank v. Simmons*, (1892) A.C. 201 Lord Herschell at 215.

375. *Id.* at 195.

376. (1851), 9 Hare 241 at 263.

377. The *Morison* case provided the rule that a purchaser for value without notice of the obligation might be in a different position than a volunteer.

378. Jack Prothore, *Misuse of Confidential Information*, (1978) 16 Alta. L.R. 256 at 278 discussing *Chevron v. Tlapek* (1967) 26 O. & G. R. at 317.

A case from the Supreme Court of New South Wales Equity Division, *Wheatly v. Bell*,³⁷⁹ dealt squarely with the defence of bona fide purchaser for value without notice.³⁸⁰ In that case the plaintiffs had originated an idea for a franchise scheme. It was a good idea. The plaintiffs started setting the scheme into place. They disclosed the scheme to defendant X who had appeared interested in participating in the plan. The defendant X appeared disinterested and discussions ceased. In reality defendant X took the plan and started to implement it in Sydney, Australia. The defendant X carried on the scheme in an identical fashion to that that the plaintiffs had disclosed to him. It was clear that defendant X could be restrained, under the law of trade secret, from disclosing and using the plaintiffs scheme.

However, defendant X had disclosed the scheme to other defendants. Those defendants claimed the defence of bona fide purchaser for value without notice. There was no doubt that the idea was the idea originated by the plaintiffs. Chief Justice Helsham, sitting in the Equity Court, said:

There is a real question as to whether the injunction should go against the innocent defendants. . . defendants, in effect, claim that they are persons who should be likened to bona fide purchasers for value without notice. It is said that persons in that position are, in this field of confidentiality, free to make use of information which has come to them innocently; that they are in no way tainted with the breach of trust or quasi breach of trust that affects the person from whom they obtained the information, and that, therefore, there is no equity in the plaintiffs to obtain any relief of any sort against the innocent recipients of information, albeit that it comes through the hands of a person who is guilty of imparting it in breach of the duty of confidentiality that that imparter owes to the giver of the information.

I am satisfied that the analogy which has been drawn in some of the American cases and by some of the text writers, of the situation of the innocent defendants to a bona fide purchaser for value without notice, is not the correct way

379. (1984), F.S.R. 16, This case is reviewed by Sam Ricketson, *Recent Developments in the Australian Law of Breach of Confidence* (1984), 1 I.P.J. 66.

380. See also J. Stuckey, *The Liability of Innocent Third Parties Implicated in Another's Breach of Confidence* (1981), 4 U.N.S.W.L.J. 73.

of approaching the question of whether the injunction should go in the present circumstances or not.³⁸¹

The Learned Chief Justice Helsham observed that there was a distinction between the traditional use of the defence and its application to the misappropriation of confidential ideas. He continued:

The defence of bona fide purchaser for value is an equitable defence in relation to property rights. . . . But I believe that there are no property rights associated with the type of equity involved here; it is equity to restrain a person from acting in breach of confidence which is owed to another. . . .³⁸²

The Learned Chief Justice Helsham looked to Lord Denning M. R.'s decision in *Fraser v. Evans*³⁸³ to find that the Court has a jurisdiction:

The jurisdiction is based not so much on property or on contract as on duty to be of good faith. No person is permitted to divulge to the world information which he has received in good confidence, unless he has just cause or excuse for doing so. Even if he comes by it innocently, nevertheless once he gets to know it was originally given in confidence, he can be restrained from breaking that confidence.³⁸⁴

*Butler v. Board of Trade*³⁸⁵ was distinguished on the basis that appeared that the confidential information in that case had lost its character of confidence. Therefore, an interlocutory injunction was granted against the innocent defendants.

*Northern Office Micro Computers (Pty) Ltd. v. Rosenstein*³⁸⁶ has been discussed from the context of copyright protection previously. The case also considered the use of trade secret to enforce an obligation of confidence on the contractor employee who completed a computer program for the employer. The court found that the employee, in these circumstances, was the owner of copyright in the work. However, the program gave the employer a competitive edge

381. at 21, 22.

382. at 22.

383. (1969), 1 Q.B. 349.

384. at 361.

385. (1971), Ch. 680, per Goff J. at 690.

386. 1981, (4) S.A. 123, (1982) 8 F.S.R. 124 (S.C.S.A.).

and was found to be a trade secret of the employer. As a result, the copyright holder was enjoined from copying or permitting others to copy the programs. This case serves to illustrate the potential difficulties that might face an employer who does not expressly provide for ownership of the rights to a program. Yet the case also shows that when the contractual relationship might be defective, trade secret protection might still provide a legal solution.

Trade secret law would not prevent a person from acquiring a program available on the open market and discovering its unique logic through reverse engineering.³⁸⁷ It is not clear if the fact that one party was able to reverse engineer the computer program will affect the effectiveness of trade secret protection against another party who acquired the secrets through breach of confidence.³⁸⁸ In the United States, at least, if the secret is readily disclosed from an item out on the open market there may be no trade secret protection.³⁸⁹ This limitation is based on the theory that the secret gives the secret holder a competitive edge in the market and the extent to which competitors must go to duplicate these secrets is a measure of the quality of this competitive edge.

In the United States this has led to the “Head Start” Doctrine so that infringers of another’s trade secrets will be enjoined from using those secrets for a period of time as long as it would have taken them to independently develop it.³⁹⁰ This limitation might be contrasted with permanent injunctions commonly granted in the commonwealth cases. In both judicial systems the court considers the conduct of the infringer. . . defendants who have wilfully attempted to profit through violation of a confidential relationship need not be placed in as good a position as other, honest competitors.³⁹¹ The trend in the United States appears to be that once the other, honest competitors

387. Reverse engineering describes a process in which an item is examined in order to discover the methods by which it was created or designed.

388. Gilburne & Johnson, *supra*, at 233.

389. For Example *Colony Corporation of America v. Crown Glass Patent Trademark & Copyright* J. (BNA), Jan. 21, 1982 at A-13 (Ill. Appeal Court Dec. 16, 1981).

390. *Data General Corporation v. Digital Computer Controls, Inc.* 297 A.2d 433 (Del. Ch. 1971), *affirmed* 297 A.2d 437 (Del. 1972).

391. *Analog Corporation v. Data Translation, Inc.* 358 N.E.2d 804 (Mass. 1976).

would have made the discovery, then the trade secrecy is gone and that might be the limit of the injunction ordered. The courts may award the plaintiff damages as well so that the defendant is not advantaged by not having to incur the research and development expenses.³⁹² However, the defendant, if he seeks to limit the operation of the injunction, has the onus of proving that he could, in fact, have reverse engineered the program.³⁹³

The “spring board” doctrine has been recognized in commonwealth cases. In *Coco v. A. N. Clark (Engineers) Ltd.*³⁹⁴ where Justice Megarry defined the operation of this doctrine in English law. This was later qualified by Lord Denning M. R. in *Potters-Ballotini Ltd. v. Weston-Baker*³⁹⁵ where he indicated that although a man must not use confidential information as a springboard to get a head start over others, nevertheless that springboard does not last forever. The recognition of this doctrine as limited in time is also seen in *Harrison v. Project & Design Co. (Redcar) Ltd.*³⁹⁶ It appears clear that the injunctive relief available in commonwealth cases, as influenced by the *Potters-Ballotini* limitation, will be limited to the time that the “springboard” or “head start” is effective.

Trade secret law is fundamentally a creature of equity and so its protection is always at the discretion of the court. As a result such equitable defences as the plaintiff’s unclean hands or delay are available to the defendant. This is exemplified in the case of *International Scientific Communications Inc. v. Pattison*.³⁹⁷ Here a U.S. company hired the defendant as their agent in England and Europe to solicit advertising for the publication. The defendant compiled a list of advertisers and subsequently used this list in launching his own competing publication.

The court found that this was a breach of confidence and that the list embodied enough labour of composition, existence of the trade and practical utility to fall within the class of confidential trade information. The court then found there had

392. *Id.* at 808.

393. *Rego Displays, Inc. v. Fournier* 379 A.2d 1098 (R.I. 1977).

394. (1969), R.P.C. 41.

395. (1977), R.P.C. 202 (C.A.).

396. (1978), 4 F.S.R. 81 (Ch. D) at 87.

397. (1979), 5 F.S.R. 429 (Ch. D).

been a breach of confidence by the defendant. However the plaintiff's delay in prosecuting the action was such as to constitute licensing of the defendant's competition. The plaintiff had knowledge of the competition almost one year before they took action against it in a serious way. This case would seem to indicate that someone seeking trade secret protection ought to act in a reasonably prompt manner to take action to end the infringement or might face the defence of acquiescence.

Another major concern with trade secret protection is the reliance on contractual means to create the duty of confidence. If the secrets are disclosed to the public by the rights holder³⁹⁸ then the information may be public knowledge and might not be capable of trade secret protection. In such a case, the contractual terms will only give a remedy against the parties to the contract. Persons outside the contract will not be bound by its terms.

A further disadvantage in relying on trade secret law is that there will be a continuing cost to maintain some adequate security mechanisms to provide the quality of confidence in the computer programs.³⁹⁹ There is no such continuing cost incurred under a copyright protection scheme. On the other hand, the existence of the protective mechanism will provide the rights holder with much greater control over the programs. It should be easier to detect any misuse of the programs and therefore have the information about improper use. While a copyright system might cost nothing to maintain, it will be expensive to maintain some form of information network to discover whether infringement is actually taking place.

A further exception to the obligation of confidence has arisen in *Initial Services Ltd. v. Putterill*⁴⁰⁰ and was approved in *British Steel Corp. v. Granada Television Ltd.*⁴⁰¹ and has been

398. Such as through advertising, publication in trade journals, lax protective measures or disclosure without the duty of confidence.

399. An example of the type of continuing obligations that might be involved is given by J. S. Whitebrook and U. Tosi in *Protecting Computerland's Fragile Trade Secrets* (1982), California Lawyer 43 at 46.

400. (1968), 1 Q.B. 396, (1967), 3 All E.R. 145 (C.A.) per Lord Denning M.R.

401. (1981), A.C. 1096, (1980), 3 W.L.R. 774, (1981), 1 All E.R. 417 (H.L.).

refined in subsequent cases⁴⁰² that there “is no confidence as to the disclosure of iniquity”.⁴⁰³ While this will generally not be an issue in the type of disputes reviewed in this analysis, it does indicate that the law of trade secrets and confidence have the limitations naturally found in a discretionary system of law. Yet, perhaps ironically, it is precisely that discretionary aspect of the law which has permitted it to remain flexible and keep pace with the changes occurring in the very rapidly evolving high technology industries.

3. *Trust Law*

The law of trusts, like the law of trade secrets, is an equitable innovation and so many of the comments relevant to trade secret law will also be relevant to a discussion of trust law.

The law of trusts is based on the recognition that there may be legal interests and equitable interests in some object that is capable of being trust property.⁴⁰⁴ The law of trusts, like most equitable creations, is very flexible and might find application in the protection of computer programs. In some cases the relationship between the parties will be such that a remedy might be appropriate under this branch of law. But first, what is a trust?

Generally, a trust can be defined as:

A trust is an equitable obligation on one (who is called a trustee) to deal with property over which he has control (which is called the trust property), for the benefit of persons (who are called the beneficiaries), of whom he may himself be one, and anyone of whom may enforce the obligation, or for a charitable purpose, which may be enforced at the

402. See *Lion Laboratories Ltd. v. Evans* (1984), 2 All E.R. 417 (C.A.) dealing with disclosure of deficiencies in the “intoximeter” used by police in measuring levels of intoxication.

403. per Lord Fraser at p. 479 All E.R.

404. Note, however, that the courts of Chancery and the modern courts administering the law of trusts have not felt bound by the need to have both a legal and an equitable interest in the subject matter of the trust as a prerequisite to the ability to create a valid trust. This is of importance since a traditional analysis would reject a trust theory for any property in which such dual interests are difficult to visualize. However, in *Fletcher v. Fletcher* (1844), 4 Hare 67, 67 E.R. 564 the court recognized a trust in a chose in action, and in many cases to be sketched out later, courts have imposed trust remedies for misuse of information acquired while under a fiduciary obligation.

instance of the Attorney-General, or for some other purpose permitted by law though unenforceable.

There is a fiduciary relationship⁴⁰⁵ between the trustee and the beneficiary. The beneficiary appears to have both *in rem* and *in personam* rights notwithstanding the equitable origins of the trust.⁴⁰⁶

There are many different types of trusts that might be tangentially applicable to the present study but this discussion will be limited to the constructive trust.

(a) *Constructive Trusts*

A constructive trust is one which arises by operation of law irrespective of the intention of the parties. The trust fastens onto the trust property and requires that it be dealt with in a specific manner. There are basically three approaches to constructive trusts of interest in this study.⁴⁰⁷

(i) *American Approach*

In the United States the constructive trust is a remedial device based on the law of restitution. The person with title to the property is subject to an equitable duty to convey it to the plaintiff on the ground of unjust enrichment. This is outside the traditional concepts in Canadian trust law which does not impose a duty to convey but rather a duty to hold on trust for the plaintiff.

(ii) *Anglo-Substantive Approach*

This is the traditional approach to the constructive trust and looks to the substantive law of trusts for its roots. There are two elements essential to a claim under this head. First, the trustee must have the property vested in himself (ie. it has not passed to a third party) and, secondly, there must be a fiduciary relationship between the plaintiff and the trustee.

405. This is a relationship of very high confidence.

406. See *Baker v. Archer-Shee* (1927), A.C. 844 (H.L.) - Where a fixed sum due to be paid to the beneficiary was characterized as a right in the property for the purposes of the English *Income Tax Act*.

407. Suggested by Eileen Gillese, Professor of Law, University of Western Ontario.

(iii) *New Model*

Canadian courts have mixed the two concepts to find a unique type of constructive trust. At present it is a very flexible and also very uncertain remedy. It does appear clear that there must be at least three conditions satisfied before this type of constructive trust might exist.⁴⁰⁸

- (1) An enrichment of one
- (2) A corresponding deprivation of the other
- (3) An absence of any juristic reason for the deprivation
- (4) The circumstances are such that it would be unjust to allow the first one to retain the benefit
- (5) A casual connection between the enrichment and deprivation.

(b) *Constructive Trusts: Substantive Approach*

A fiduciary is in a relationship of confidence and is bound by the rule in *Keech v. Stanford*⁴⁰⁹ that a fiduciary can not make a profit for himself through the medium of his relationship even where the person for whom he acts might not be able to benefit. The rule was outlined by Mr. Justice Rand in a dissenting judgment in the case of *Midcon Oil Symbol & Gas Ltd. v. New Dominion Oil Co. Ltd. and Thomas*⁴¹⁰ where he states:

The doctrine as to purchases by trustees, assignees, and persons having a confidential character, stands much more upon general principle than upon the circumstances of any individual case. It rests upon this; that the purchase is not permitted in any case, however honest the circumstances; the general interest of justice requiring it to be destroyed in every instance; as no court is equal to the examination and ascertainment of the truth in much the greater number of cases.

And latter in the same case Mr. Justice Rand continued:

The rule of equity which insists on those, who by the use of a fiduciary position make a profit, being liable to account for that profit in no case depends on fraud or absence of bona fides; or upon such questions or considerations as

408. *Becker v. Pettkus* (1980), 2 S.C.R. 834 (S.C.C.) based on *Moses v. MacFerlan* (1760).

409. (1726), Sel. Cas. Ch. 61, 25 E.R. 223.

410. (1958), S.C.R. 314 (S.C.C.) at 337.

whether the profit would or should otherwise have gone to the plaintiff, or whether the profiteer was under a duty to obtain the source of the profit for the plaintiff, or whether he took a risk or acted as he did for the benefit of the plaintiff, or whether the plaintiff has in fact been damaged or benefited by his action. The liability arises from the mere fact of a profit having, in the stated circumstances, been made.⁴¹¹

The classes that might be bound by this rule include trustees of an express trust,⁴¹² executors or administrators,⁴¹³ or agents,⁴¹⁴ solicitors,⁴¹⁵ directors, officers and promoters of a corporation,⁴¹⁶ joint venturers⁴¹⁷ and sometimes other groups. However, employees, even sometimes senior employees, are generally not fiduciaries with respect to their employer.⁴¹⁸ The significance of this action is that if a person in such a fiduciary

411. *supra*, at 338 Mr. Justice Hope, Alberta Supreme Court, Trial Division quoted this passage with approval in *Beauchamp v. Muller* (1977), 2 A.R. 474. It is noted that Mr. Justice Rand states the rule somewhat more strictly than it has been held to be given such cases as *Holder v. Holder*, (1968), Ch. 353, 1 All E.R. 665 (C.A.) where the court found that the defendant was not acting in a fiduciary capacity at the relevant time. Further, the plaintiff's acquiescence had barred him any relief.

412. *Wright v. Morgan*, (1926), A.C. 788 (JC PC) See also in Canada *Crocker & Croquip Ltd. v. Tornroos*, (1957), S.C.R. 151 (S.C.C.).

413. *Holder v. Holder*, (1968), Ch. 353 (C.A.) See also in Canada *National Trust Co. Ltd. v. Osadchuk*, (1943), S.C.R. 89 (S.C.C.).

414. *Reading v. The King*, (1949), 2 K.B. 232 (C.A.) *affirmed* (1951) A.C. 507 (H.L.).

415. *Boardman v. Phipps*, (1967), 2 A.C. 46 (H.L.).

416. This is also known as the "corporate opportunity doctrine". *Regal (Hastings) Ltd. v. Gulliver*, (1942), 1 All E.R. 378 (H.L.); *Industrial Development Consultants Ltd. v. Cooley*, (1972), 2 All E.R. 162; *B. Love Ltd. v. Bulk Steel & Salvage Ltd.* (1982), 40 O.R. (2d) 1 (Ont. H.C.); *W. J. Christie v. Greer*, (1981), 4 W.W.R. 34; *Alberts v. Mountjoy* (1977), 36 C.P.R. (2d) 97 (Ont. H.C.); *Berkey Photo (Canada) Ltd. v. Ohlig* (1984), 76 C.P.R. (2d) 121 (Ont. H.C.).

417. *McLeod v. I* All E.R. 378 (H.L.). See also in Canada *Peso Silver Mines Ltd. v. Cropper*, (1966), S.C.R. 673 (S.C.C.), or *Canadian Aero Service Ltd. v. O'Malley* (1973), 40 D.L.R. (3d) 371 (S.C.C. *Sweezey* (1944), S.C.R. 111 (S.C.C.)).

418. See *Chervon Standard Ltd. v. Home Oil Co. Ltd.*, (1982), 3 W.W.R. 427, 35 A.R. 550 (Alta. C.A.) a senior employee, a geologist, was not a fiduciary; *Kent Drug Ltd. v. Kronson* (1983), 78 C.P.R. (2d) 260 (Man. C.A.) two employees described as "directors" were not fiduciaries; However, in *Mansard Developments Pty. Ltd. v. Tilley Consultants Pty. Ltd.* (1981), W.A.R. 161 (West Australian S.C.) a company manager was a fiduciary. See *Berkey Photo (Canada) Ltd. v. Ohlig* (1983), 76 C.P.R. (2d) 121 (Ont. H.C.) for a review of other cases at 135-136.

relationship absconds with the computer program then an action in trust might be brought as well as an action in trade secret law. It offers the court two theories under which relief might be granted. This is because the fiduciary is already in the relationship of confidence and so if the computer programs have the quality of confidence (ie. not public) then a trade secret action might be maintained. An advantage of the trust remedy is that the court might characterize the program as property⁴¹⁹ and therefore give the injured party a constructive trust (a property right) in the computer programs. The injured party would then be entitled to property remedies such as all the sums earned during the wrongful use of the programs.

*Pre-Cam Exploration & Development Ltd. v. McTavish*⁴²⁰ provides an illustration of the use of this doctrine. The defendant was hired to inspect certain mineral claims staked by a company who wanted the plaintiff to do the exploration work. The defendant took readings and was able to determine from them that the mineralized zone was partly outside the claimed area. The defendant staked the claim to this area himself after quitting his employment for the plaintiff.

The plaintiff sought to compel the defendant to transfer the claims to the owner of the other claims. The Supreme Court of Canada held that the information acquired by the defendant was highly confidential and the purpose of acquiring the information was obvious, so as to acquire connecting claims. Neither the plaintiff nor the defendant could acquire these outside claims against the interest of the original claim holder. The court found it was a term of the defendant's contract of employment that he could not use information obtained for his own advantage.

The court imposed a constructive trust because "of the mere use of confidential information for private advantage against the interest of the person who made the acquisition of the information possible".⁴²¹ It appears as though the court might have found that the information was trust property and through the uncited application of the *Keech v. Stanford* rule made the defendant hold the trust property and all that derived from

419. See the next section for a discussion of the contentious issue whether or not information might be property.

420. (1966), S.C.R. 551 (S.C.C.).

421. *Id.* at 555.

the use of the trust property for the benefit of the original claim holder.

It will not matter if the defendant is no longer in a fiduciary position at the time of the hearing so long as he was a fiduciary at the critical time, the time of the profit making.⁴²²

(c) *Constructive Trust: New Model*

This approach might be used to maintain the trust action in circumstances where it is not possible to characterize the relationship as a fiduciary relationship. It is a newly evolving area of law and might be looked on as a last resort until more certainty is established as to the use of this remedy.

IX. *Remedies Available to Enforce Protection*

There are basically two types of remedies available for breach of either patent, copyright, trade secret or contractual protection of computer programs. These are damages or an injunction. Different considerations apply to an award of damages or the issue of an injunction. These differences relate, first, to the fact that the remedies accomplish different tasks and, second, to the fact that the injunction is an equitable remedy and damages are of common law origin.

1. *Injunctive Relief*

An injunction is an order of the court directing a party to do or to refrain from doing a specified act. The general rule is that, in equity, an injunction is only available where damages are an inadequate remedy. Breach of an injunction is a contempt of court and could result in a charge of civil contempt⁴²³ or criminal contempt.⁴²³

There are a number of types of injunctions which all serve different purposes. Briefly stated, these are:

Permanent or Final Injunction — This order binds the party for the life of the party.

422. See for example, *Abbey Glen Property Corp. v. Strumborg* (1976), 2 W.W.R. 1 (Alta. S.C.T.D.) affg (1978) Alta. D. S.C./App. Div. App 10813 April 19, 1978 (Atla. S.C.A.D.).

423. Enforced through the payment of a fine.

424. Enforced through committal to a prison term as in *Tilco Plastics Ltd. v. Skuriat* (1966) (Ont. H.C.).

Interlocutory Injunction — This is an order that is granted before or during a trial of the main issue. This is very commonly sought in these type of cases since it will usually be intended to prevent further possibility of infringement.

Quia Timet Injunction — This is an injunction that is granted to restrain an anticipated harm. It is very rarely issued.⁴²⁵

Prohibitory Injunction — This is the most common form of an injunction. It is a court order restraining the party from doing some specified act.

Mandatory Injunction — This type of injunction orders the party to do some positive act.

The Mareva and Anton Piller order are a combination of a prohibitory and mandatory injunction. These are very powerful orders and will be discussed in more detail below. Injunctions issued by a court exercising an equitable jurisdiction are discretionary remedies. A court will weight the conduct of both parties and the harm involved before it will grant such a serious order.

A permanent injunction might be available where (1) damages are an inadequate remedy⁴²⁶ (2) the equities of the parties are in favour of the issue, and (3) the basic conditions showing infringement of the appropriate rights have been satisfied. Additional considerations arise when an interim or interlocutory injunction is sought. Since this injunction is sought before or during the trial of the main action, it is not yet known if the plaintiff will be entitled to a permanent injunction. As a result this is an extraordinary remedy and the plaintiff must show:

1. A *prima facie* case for the final injunction⁴²⁷

425. Such an injunction was granted in *Apple Computer Inc. v. Computer Edge Pty. Ltd. and Suss*, (1984), 11 Fleet Street Reports 481 (Federal Court of Australia).

426. Damages may be inadequate where (i) one could not prove damages, (ii) the defendant had very poor records, or (iii) the defendant might not be able to survive to pay damages. See *I.B.M. v. Spirale*, *Id.*

427. See *I.B.M. v. Spirale* (1984), 80 C.P.R. (2d) 187 (F.C.T.D.) for an example of how this might be done.

2. That without the injunction he will suffer both substantial and irreparable loss⁴²⁸
3. That on the balance of convenience the injunction should be granted⁴²⁹
4. An undertaking in damages is usually required to make up for any loss in the event it is later held that the plaintiff was not entitled to the final injunction.

(a) *Anton Piller Orders*

An Anton Piller order is an exceptional remedy that allows the plaintiff to go into the defendant's premises or place of business and seize specific materials and orders the defendant to deliver up specified materials.⁴³⁰ In *EMI Records Ltd. v. Kudhail*⁴³¹ the English Court of Appeals held that an Anton Piller order could be made *ex parte* against a representative class provided that there was a *prima facie* common interest or link between the members of the class and that any member of that class could, subsequent to the order issuing come forward and show why it should not apply to him.

The order is named for the type of order granted in the case of *Anton Piller K.G. v. Manufacturing Processes Ltd.*⁴³² This has come to be a common request in computer program protection actions. It was discussed in the Canadian case of *Nintendo of America, Inc. v. Coinex Video Games Inc.*⁴³³ The Federal Court of Appeal reviewed the conditions under which an Anton Piller order will be issued. These are as stated by Lord Justice Ormrod⁴³⁴

428. The court appears to consider the relative size of the contestants in making this determination and their respective financial strength. In *Apple Computers, Inc. v. Computermat* (1983), 75 C.P.R. (2d) 281 this was considered. Note however *I.B.M. v. Spirale, Id.* where the computer giant I.B.M., was not refused an interim injunction on the basis that without it I.B.M. would face "death by 1000 cuts".

429. The courts appear to consider the market effect of the grant of the injunction: See *I.B.M. v. Spirale, Id.*

430. This type of order is not only available in intellectual property disputes. See *Emanuel v. Emanuel* (1982), 12 Family Law 62 for application in a domestic conflict.

431. (1985), 12 F.S.R. 36 (C.A.).

432. (1976), 1 Ch D 55.

433. (1983), 69 C.P.R. (2d) 122 (Fed. C.A.).

434. In the *Anton Piller* case at 62.

First, there must be an extremely strong prima facie case. Secondly, the damage, potential or actual, must be very serious for the applicant. Thirdly, there must be clear evidence that the defendants have in their possession incriminating documents or things and that there is a real possibility that they may destroy such material before any application inter partes can be made.

The remedy is very exceptional and is only issued in the proper case where all these preconditions are met.⁴³⁵ An Anton Piller order will not be granted where it is only being used to find out what claims the plaintiff must make in a subsequent statement of claim.⁴³⁶ *K-Flex Systems Ltd. v. Bi-Line Conveyor System Ltd.*⁴³⁷ outlines that a standard of reasonable frankness is required in the applicant's disclosure for an *ex parte* Anton Piller type order. A negative judicial reaction has developed where too liberal use has been made of this extraordinary remedy without the exceptional circumstances to support its use.⁴³⁸ In *Thermex Ltd. v. Schott Industrial Glass Ltd.*⁴³⁹ Justice Browne-Wilkinson stated

As time goes on and the granting of *Anton Piller* orders becomes more and more frequent, there is a tendency to forget how serious an intervention they are in the privacy and rights of defendants.⁴⁴⁰ One is also inclined to forget the stringency of the requirements as laid down by the Court of Appeal (in *Anton Piller K. G. v. Manufacturing Processed Ltd.* (1976) 1 ch. 55)⁴⁴¹

435. *Chin-Can Communications Corporation v. Chinese Video Centre Ltd.*, (1983), 70 C.P.R. (2d) 184, 19 A.C.W.S. (2d) 2 (F.C.T.D.) where only an interim injunction was issued because all of the elements above were not shown.

436. See *Hytrac Conveyors Ltd. v. Conveyors International Ltd.*, (1983), 9 F.S.R. 63 (C.A.) leave to appeal to House of Lords refused.

437. (1984), 1 C.P.R. (3d) 139 (Ont. H.C.).

438. See *Systematica Ltd. v. London Computer Centre Ltd.*, (1983) 9 F.S.R. 313 (Ch D) where the judge expresses concern at p. 316.

439. (1981), F.S.R. 289.

440. In *General Nutrition Ltd. v. Pattni*, (1984), 11 F.S.R. - documents seized could only be used for the purposes of the order and could not be handed over to the police.

441. This comment was quoted with approval in *Midway Manufacturing Co. v. Bernstein* (1982), 67 C.P.R. (2d) 112 (Fed. Ct. T.D.) at 118.

An example of the *form* of an Anton Piller type order can be seen in *Hazel Grove Music Company Ltd. v. Elster Enterprises*,⁴⁴² a case of copyright infringement

That each of the Defendants do forthwith:

(i) Deliver up to the Plaintiffs' Solicitors any relevant documentation in their respective power possession custody or control and within the jurisdiction of this Court PROVIDED THAT it shall not be a breach of this injunction not to deliver up any document which the person serving this Order agrees in writing need not be delivered up.

(ii) Delivery up to the Plaintiffs' Solicitors any cabinet or drawer in their respective power possession custody or control and within the jurisdiction of this Court which the person serving this Order reasonably believes or suspects may contain relevant documentation the contents of which he is unable to inspect by reason of the said drawer or cabinet being locked or otherwise.

(iii) Deliver up any key or other thing necessary to open such drawer or cabinet.⁴⁴³

Examples of Anton Piller orders relating to the computer industry may be found in *Gates v. Swift*⁴⁴⁴ and in *Nintendo of America, Inc. v. Coinex Video Games Inc.*⁴⁴⁵ *Chin-Can Communications Corp. v. Chinese Video Centre*⁴⁴⁶ is a case involving a claim of copyright infringement. An industrial design case is *Bardeau Ltd. v. Crown Food Services Equipment Ltd.*⁴⁴⁷

The practice of using an Anton Piller type injunction appears to be well entrenched in Canada⁴⁴⁸ and has received considerable acceptance in the Commonwealth. In *Thorm EMI Video Programmes Ltd. v. Kitching and Busby*⁴⁴⁹ the New Zealand High Court considered the circumstances under which

442. (1983), 9 F.S.R. 379 (Ch D).

443. at 379.

444. (1981), 7 F.S.R. 57 (Ch D) copyright infringement.

445. (1983), 69 C.P.R. (2d) 122 (Fed. C.A.).

446. (1983), 70 C.P.R. (2d) 184 (F.C. T.D.).

447. (1983), 66 C.P.R. (2d) 183 (Ont. H.C.) An undertaking in damages was required.

448. For an excellent review of the Anton Pillr order in Canada see G. Takach, *Exploring the Outer Limits* (1985), 23 Alta. L.R.

449. (1984), 11 F.S.R. 342.

the order was available. The English Courts continue to refine the law applicable to this extraordinary remedy⁴⁵⁰

(b) *Mareva Injunctions*

A Mareva injunction is an exceptional order that is available to prevent a party from disposing of assets or removing them from the jurisdiction and is an exception to the general rule that such orders will not be made in an interlocutory injunction. It may be available on an *ex parte* basis.⁴⁵¹ To qualify for such an injunction the claimant must show:

1. A strong *prima facie* case on the merits.
2. A full and frank disclosure of all material facts.
3. Particulars of the claim with points both for and against the defendant.
4. Grounds for believing the defendant has assets in the jurisdiction, and identification with precision.
5. Grounds for believing there is a genuine risk that the assets being removed before the judgment or award is satisfied.
6. An undertaking in damages.⁴⁵²

*Chitel v. Rothbart*⁴⁵³ reviews the current requirements of the Mareva injunction. This must be read in conjunction with *Aetna Financial Services Ltd. v. Fiegleman*⁴⁵⁴ where the Supreme Court reviewed the availability of this injunction. The Court held that a Mareva injunction was, as a matter of law, available in Manitoba, but, under the particular circumstances the injunction should be set aside.

Estey J., speaking for the Court, said:

The gist of the *Mareva* action is the right to freeze exigible assets when found in the jurisdiction, wherever the defendant may reside, providing, of course, there is a cause between

450. See, for example, *WEA Records Ltd. v. Visions Channel 4 Ltd.*, (1983), 2 All E.R. 589 (C.A.) dealing with the nature of information before the judge; and *Wardale Fabrics Ltd. v. G. Myristis Ltd.*, (1984), 11 F.S.R. 263 (Ch. D.) dealing with the effect of the order while in force and penalty for breach.

451. *Bank Mellat v. Nikpour*, (1983), 10 F.S.R. 79 (C.A.) provides observations on applications for the grant of an *ex parte* Mareva or Anton Piller injunction. A

452. *Nimemia Maritime Corp. v. Trave Schiffahrtsgesellschaft mbH & Co. KG*, (1984), 1 All E.R. 398 (C.A.) would apply the general test: whenever it appears to the Court just and convenient to do so.

453. (1983), 69 C.P.R. (2d) 62 (Ont. C.A.).

454. Unreported January 31, 1985 Supreme Court of Canada.

the plaintiff and the defendant which is justiciable in the Courts of England. However, unless there is a genuine risk of disappearance of the assets, either inside or outside the jurisdiction, the injunction will not issue. This generally summarizes the position in this country. . .⁴⁵⁵

This injunction is not yet common in computer program protection cases but has found some application in the restrictive covenant and covenant not to compete cases.⁴⁵⁶ It should not be granted where its effect would be substantially to interfere with a third party's freedom of action generally, or his freedom to trade.⁴⁵⁷

2. Damages

Damages may be awarded where, in the circumstances, the requirements of an injunction are not satisfied under *Lord Cairns Act 1858* now enacted in s.32(1)(b) of the *Judicature Act*⁴⁵⁸ or may be awarded in addition to injunctive relief. The *quantum* of the damages awarded will vary with the severity of the infringement and its effect on the claimant's ability to compete or continue to sell the program. In *Seager v. Copydex*⁴⁵⁹ the damages in effect were the amount of the sale price the invention would have brought to inventor. Lord Denning M. R. awarded damages in lieu of an injunction in the particular circumstances of the case. This appears to have been due to the plaintiff's unsophistication⁴⁶⁰ and possible complications arising out of the defendant's acquisition of a patent on the plaintiff's idea.

The basis for the assessment of damages was the subject of *Seager v. Copydex Ltd. (No. 2)*⁴⁶¹. Lord Denning M. R. held that damages were to be assessed at the value of the information which the defendant wrongfully acquired. This is analogous to

455. A brief overview of this decision may be found in W. Monopoli, *Recent Decision Limits 'Mareva' Injunction*, National March 1985 at 23.

456. As in *Sask-Workware Inc. v. Ollinik*, (1983), 1 W.W.R. 631 (Sask. Q.B.).

457. *Galaxia Maritime S.A. v. Mineralimportexport*, (1982), 1 All E.R. 796 (C.A.); and *Nelson Burns & Co. v. Gratham Industries Ltd.* (1981), 59 C.P.R. (2d) 113 (Ont. H.C.).

458. R.S.A. 1980, c.J-1.

459. *Id.* in the trade secret discussions.

460. He was unrepresented by council.

461. (1969), 2 All E.R. 718 (C.A.).

conversion since the idea, once damages were paid, became the property of the defendant.

The value of the confidential information depends on the nature of the information. If there was no inventive step, something not very special, but the sort of information you could get if you hired a consultant, then the measure of damages would be the fee a consultant would charge for it.

If, however, there was an inventive step, something that was very special, then its value is much higher. The measure of damages is the price of willing buyer, desirous of obtaining the information, would pay for it. This is not merely a consultant's fee.

In this case, there was a real inventive step. The court considered the plaintiff's loss due to the defendant's competition and found, in these circumstances, that the plaintiff would have received a royalty payment for the idea. The value of that royalty payment was capitalized and the result was, when the damages were paid, that the defendant purchased the idea outright.

Lord Justice Winn, in a concurring judgment, added that where there were damages awarded on a tortious basis and there was any doubt about two possible versions of assessment, then the general principle *OMNIA PRAESUMUNTUR CONTRA SPOLIATOREM*⁴⁶² should apply.

X. *Property in Information?*

The development of information as a valuable commercial commodity has led to some debate about finding property rights in information. One view is that

information ought to be free. Programs should be published in source code. Hackers should be able to get at problems and fix them with a minimum of paperwork and fuss and permissions⁴⁶³

462. "All things are presumed against a despoiler or wrongdoer." *Black's Law Dictionary* (5th ed. St. Paul: West Publishing Co. 1979) at 980 and *Mozley & Whiteley's Law Dictionary* (9th ed. London: Butterworths & Co., 1977).

463. *On The Road: Hackercon and COMDEX*, BYTE March 1985 at 313 relating to hacker's viewpoint at the hacker's convention at Fort Cronkhite, California.

Others write about the dangers of private rights in information leading to monopolies on information and the need for a state role in the control of information.⁴⁶⁴ Ultimately we, as a society, will have to determine whether or not we wish to encourage creativity in the sciences as we do in the arts and, if so, what method is used to provide real and flexible encouragement for such creativity.

The advantage of a property right of some kind in information would be the availability of property remedies to enforce that right. Thus, information could be traced through the hands of a wrongdoer and into the hands of an innocent third party. This was seen in the limitation of the defence of bona fide purchaser for value without notice in some of the trade secret cases.

On the other hand, information is quite unlike our conventional understanding of property. It is a thing which one person can share with others and yet not lose. In fact, very many people can acquire the information and yet the original “owner” still has it. The commercial value of the information may, in some circumstances, go up the more people have it.⁴⁶⁵

Information is also something which, once given, cannot be taken back. As a result, typical property remedies such as detinue or replevin would not make sense since the original “owner” still has the information and it is impossible for the new “holder” to give it up.⁴⁶⁶ The method used to prevent increased dissemination of information is to seek an injunction fixing the new “holder’s” conscience and enforceable with the threat of a contempt of court conviction.

None the less, there is some case authority to suggest that there might be a qualified property right in information of a specific type. These have already been seen in the area of trade secret law and trust law in cases such as *Normalec v. Britton*.⁴⁶⁷ Here the plaintiff company sold electrical goods throughout Yorkshire. The defendant, an employee of the plaintiff, quit

464. See for example, Grant Hammond, *Quantum Physics, Econometric Models and Property Rights to Information* (1981), 27 McGill L. Rev. 47.

465. Advertising information might be an example.

466. Barring some fantastic scheme in the field of psychology or psychiatry.

467. (1983), 9 F.S.R. 318 (Ch D).

and set up a rival business taking over 55% of the plaintiff's sales through his deception.

The plaintiff claimed breach of a fiduciary duty in enticing customers away from the plaintiff, use of confidential information for gain and breach of a restrictive covenant.⁴⁶⁸ The court relied on the rule in *Keech v. Sandford*⁴⁶⁹ that no person standing in a fiduciary position is entitled to make a profit in circumstances where his duty and interest conflict.

Here the defendant was using information that was wrongfully derived from the plaintiff. The court stated that, in equity, the whole of the defendant's business belonged to the plaintiff. The defendant was ordered to disgorge.⁴⁷⁰ The information was improperly used and so the plaintiff was entitled to the property right of the benefits of the information, not just a mere accounting which one might expect when dealing with *in personam* rights.

An Ontario Court of Appeal decision has expressly found that certain types of information is property and is, therefore, capable of being stolen. In *R v. Stewart*⁴⁷¹ a self-employed consultant was contracted by someone associated with a union seeking to form a bargaining unit in a large hotel complex employing approximately 600 people. The union needed the names and addresses of the employees in order to solicit support for their cause. This information was considered strictly confidential by the management of the hotel and was stored in the hotel's computer. The computer and the printout of personnel files was protected by the hotel's security system.

Stewart contacted a security worker at the hotel and offered to pay him \$2.00 for each employee name and address that the worker could provide. Stewart suggested that the worker acquire the confidential information without removing or affecting the hotel's records. The security worker turned in Stewart who was charged with the charge of counselling theft.⁴⁷²

468. This contract was not drawn by a solicitor but was characterized by the court as *INTER RUSTICOS*, resulting in problems of interpretation.

469. (1726), 2 W. & T. L. C. 648 as restated in *Bray v. Ford*, (1896), A.C. 44 (H.L.) and *Phipps v. Boardman*, (1967), 2 A.C. 46 (H.L.).

470. *Id.* at 323.

471. (1983), 42 O.R. (2d) 225 (Ont. C.A.) See also the comments by Paul M. Amos (1984), 1 I.P. J. 77 and G. F. Henderson (1983), 1 C.C.L.R. 17.

472. s.283(1) *Criminal Code* in Part VII of the *Code* entitled "Offences Against Rights of Property".

The issue before the court was whether confidential information could be the subject of theft.

The trial judge correctly concluded that there must be property in a thing if it can be the subject of theft. He found that there was no property in confidential information.

The Court of Appeal addressed itself to the issue whether, in these circumstances, there was a property right in the confidential information. Justice Houliden found that

While clearly not all information is property, I see no reason why confidential information that has been gathered through the expenditure of time, effort and money by a commercial enterprise for the purpose of its business should not be regarded as property and hence entitled to the protection of the criminal law

He relied on certain cases from civil law⁴⁷³ to support the proposition. In fact these authorities are largely *obiter dicta* comments of numerous courts finding property in information in certain circumstances.⁴⁷⁴ *Boardman v. Phipps*⁴⁷⁵ is the most recent significant authority to deal with this issue. There the lawyers of a trust had obtained confidential information concerning a company in which the trust had large holdings. The lawyers used this information to make themselves a considerable profit. All of the five House of Lords judges considered the issue.

Justice Houliden summarized their decisions:

Viscount Dilhorne, who dissented, appears to have been of the opinion that some information and knowledge can properly be regarded as property. However, he concluded that the particular information was not trust property since the trust had no intention of acting on it and, thus, the information was of no value to the trust (see pp. 89-90). Lord Cohen was of the view that information was not

473. As contrasted with criminal law. NOTE: Copyright, Patent, Trade Secret, Trust and Contract law are all part of the civil law.

474. *Exchange Telegraph Co. Ltd. v. Gregory & Co.*, (1896), 1 Q.B. 147 - property in quotations from the London Stock Exchange; *Exchange Telegraph Co. Ltd. v. Central News, Ltd.*, (1897), 2 Ch. 48 - property in information relating to horse races; *The Exchange Telegraph Co. Ltd. v. Howard* (1906), 22 T.L.R. 375; *Board of Trade v. Christie* (1905), 198 U.S. 236 (U.S.S.C.) - property in grain quotations (This case is discussed in the trade secret section); *Hung v. New York Cotton Exchange* 205 U.S. 322 (U.S.S.C.).

475. (1967), A.C. 46 (H.L.).

property in the strict sense of the word (see p. 102). Lord Hodson expressly dissented from the view that information was not property; he was of the opinion that the confidential information acquired by the solicitors was properly regarded as property of the trust (see p. 107). Lord Guest was also firmly of the view that the information was trust property (see p. 115). Lord Upjohn, who with Viscount Dilhorne dissented, was equally firm in the view that information was not property (see pp. 127-29).⁴⁷⁶

Boardman shows the split in legal circles on this issue.⁴⁷⁹

Justice Houlden found that the civil authorities mentioned were sufficient to support a property right in certain types of information. He reasoned that if something could be property for the purposes of civil law, then it was also property for the purposes of criminal law.

Justice Cory agreed with Justice Houlden, recognizing the importance of information labouriously gathered to business in today's world. Justice Lacouriere dissented taking the traditional view of confidential information as enforceable only if there was a relationship of confidence. Such protection arises out of the obligation of good faith or on a fiduciary relationship.⁴⁷⁸

At present one cannot rely on a property right in information as a method of protecting computer programs. Whether such rights will be found to exist in certain types of confidential information is yet to be seen.⁴⁷⁹ However, it seems clear that the information contained on a computer program would fall within Justice Houlden's definition.

It has been suggested that

The foundation of proprietary rights is the expenditure of labour and money. . . . Therefore, where the commercial value of an entity, whether tangible or intangible, has been brought about by the expenditure of time, effort, labour or money,

476. *Id.* at 23.

477. For a current review and perspective on the American law in this area, see *United States Golf Association v. St. Andrews Systems, Data-Max, Inc.* 749 F.2d 1028 (1984 3rd Circuit).

478. Grant Hammond, *Quantum Physics, Econometric Models and Property Rights to Information* (1981), 27 McGill L. Rev. 47.

479. Of course, the information might have to be developed to some meaningful degree. See *Fraser v. Thames Television Ltd.*, (1983) 2 All E.R. 101 (Ch.D.).

the person who created that commercial value has a proprietary right to its commercial exploitation.⁴⁸⁰

Perhaps it is time for us, as a society, to re-evaluate our understanding of these concepts and try to recognize those activities that we wish to protect and encourage as we move into a new age where information and information processes become increasingly important.

XI. *The Policy Background*

Reform in the law is necessary in order to recognize the realities of the new, more complex world in which we live. Some form of legal protection may now be evolving.⁴⁸¹ But mere reform, for the sake of appearing to make some effort, is not enough. It is submitted that any legislative scheme that is put into place *must* recognize the volatile nature and explosive growth in the high technology industries. Canada's ability to compete in the international market, and, therefore, the long term economic prosperity of our nation, depends on the nature of the protection that is provided.

There are basically two viewpoints about the direction that a protective mechanism could take. These viewpoints, characterized in an extreme form, which are discussed further below, diverge in their basic philosophical approach to man and his interactions with other men in a society. Quite naturally, then, these approaches reflect a profound debate which is presently underway in our entire society.

1. *The Decentralist Approach*

This approach sees the development of a better world through individuals taking more responsibility for their own actions and decisions. This basic perspective affects the way in which transactions are to be dealt with. The decentralist would prefer for individuals to pursue their own problems and the legal

480. D. F. Libling, *The Concept of Property: Property in Intangibles* (1978), 94 L. Q. Rev. 103 at 119.

481. See for example Protection of Trade Secrets, Institute of Law Research and Reform, Edmonton, Alberta Report No. 1 February 1984 which advocates a state role through a "Trade Secrets Protection Act", Grant Hammond, the main inspiration behind the Institute Reported, offers a summary of the perceived advantages in *Reform of the Law of Trade Secrets* (1985), 2 C.C.L.R. 48.

system would provide the basic framework in which this could be done. The debate is well summarized by Bertrand Russell:

The greater part of human impulses may be divided into two classes, those which are possessive and those which are constructive or creative. Property is the direct expression of possessiveness; science and art are among the most direct expressions of creativeness. Possessiveness is either defensive or aggressive; it seeks either to retain something against a robber, or to acquire something from a present holder. In either case, an attitude of hostility to others is of its essence.

The whole realm of possessive impulses, and of the use of force to which they give rise, stands in need of control by a public neutral authority, in the interests of liberty no less than that of justice. Within a nation, this public authority will naturally be the state; in relations between nations, if the present anarchy is to cease, it will have to be some international parliament. But the motive underlying the public control of men's possessive impulses should always be the increase of liberty, both by prevention of private tyranny, and by the liberation of creative impulses. If public control is not to do more harm than good, it must be so exercised as to leave the utmost freedom of private initiative in all ways that do not involve the use of private force. In this respect, all governments have failed egregiously, and there is no evidence that they are improving.

The creative impulses, unlike those that are possessive, are directed to ends in which one man's gain is not another man's loss. The man who makes a scientific discovery or writes a poem is enriching others at the same time as himself. Any increase in knowledge or good-will is a gain to all who are affected by it, not only to the actual possessor. Force can not create such things, though it can destroy them; no principle of distributive justice applies to them, since the gain of each is the gain of all. For these reasons, the creative part of a man's activity ought to be as free as possible from all public control, in order that it may remain spontaneous and full of vigor. The only function of the state in regard to this part of the individual life should be to do everything possible towards providing outlets and opportunities.⁴⁸²

This passage illustrates the recognition that *all* human progress has been made by the creative people among us. This, it is submitted, is true both in the sciences and in the humanities.

482. Bertrand Russell, *Individual Liberty and Public Control* (1917), Reprinted in "Highlights From 125 Years of *The Atlantic*" 1977 Edited by Louise Desaulniers, *The Atlantic Monthly Co.* at 271.

The focus of the decentralist view would be to encourage that natural and constructive creativity, which benefits all members of society. The type of legal protection under this orientation would likely set out the type of interests that one might have in a trade secret, for example, and what remedies might be available to pursue someone who interfered with those interests in an unjustified way. The parties involved, the software producers, marketers, distributors and consumers could, as much as possible determine the rules of the game they want to play. The legislation would have provided certainty as to the existence and scope of the elements which can be protected in a legal manner.

2. *The Centralist Approach*

The centralist, on the other hand, raises classical utilitarian arguments in an effort to control the existence and exchange of rights and obligations between the parties. The goal, here, is a perception of "the public good". Not all men are born with the ability to be creative. Ought not the weak be allowed to share in the benefits of the creator's work? Under a typical scheme a central regulatory authority would monitor and control activities in the computer programming industry. This central agency would likely develop policy based on its analysis of the industry's activities and move to intervene in the computer programming industry where it was deemed to be for the public good.

The centralist view could result from either federal⁴⁸³ or provincial⁴⁸⁴ actions in this area. For the sake of example the following discussion will assume a federal centralist scheme. The centralist scheme might be likely to involve the state in any abuse of computer programs. This would likely be done under a Criminal Code amendment⁴⁸⁵ or under a separate

483. The White Paper on Copyright Reform and the Proposed Amendments to the Criminal Code are examples of federal action.

484. The Institute Report on Trade Secrets is an example of provincial action.

485. Note that this paper does not address the problems appearing in the existing proposals. However, for a brief introduction to the present proposal for reform of the Criminal Code see J. L. Finley, *Proposed Amendments to the Criminal Code to Include Provisions for Computer Crimes* (1983), 1 C.C.L.R. 1 and J.L. Finley, R. Conway *Problems With the 'Property' Concept in Computer Crime Legislation* (1984), 1 C.C.L.R. 182.

enactment with similar effect. The state is now the policeman in disputes between the parties.⁴⁸⁶

It is submitted, that this orientation is partially backwards and fails to recognize the most basic nature of the problem. The problem may be that B has taken a copy of A's creative work and A wants to have his work restored to him so far as is possible. A criminal provision will *never* solve A's problem since the focus is on the punishment and rehabilitation of B rather than on the loss that A has suffered.⁴⁸⁷ It is noted that, on the other hand, the centralist enforcement provisions might provide some deterrent effect against unauthorized tampering or misuse of data.

A second problem with the centralist solution is that it will tend to create a bureaucracy studying and managing the problems related to computer abuse. This in itself would not be a problem.⁴⁸⁸ The problem would arise out of the inherent need for bureaucracies to justify their continued existence, usually through interventionist actions in the particular industry concerned.⁴⁸⁹ In the past we have seen great uncertainty result from the implementation of ill-conceived and ill-implemented policies.⁴⁹⁰ It is submitted that in most cases, the aggrieved parties will be in the best position to resolve their

486. See the excellent discussion by C. Webber *Computer Crime: What Has Not Been Considered* (1985), 2 C.C.L.R. 49 of proposed reforms of the Criminal Code.

487. Note however that a creative sentence may have a positive effect on B. In *R v. Woods* Unreported March 22, 1984 Madame Justice Veit imposed a community work probation order on the defendant found guilty of stealing computer equipment from the University of Calgary. A follow up by the probation officer indicated that the requirement of 30 hours work in the Department of Computing Science appeared to have a very positive effect on the defendant.

488. See, for example, the system set up to protect the copyrights of Quebec writers on June 12, 1984. This system, it appears, will provide some compensation to Quebec copyright holders for the copying of their works in Quebec's Cégeps (junior colleges). See Quill & Quive August, 1984.

489. See, for example, the White Paper on Copyright which proposes arguably needless radical reform on Canada's Copyright law and might, if implemented in its present form, serve to seriously injure Canada's software development industry.

490. See, for example, the proposed amendments to the Criminal Code. As presently drafted, every unauthorized use of a computer system would be a criminal offence. There would appear to be no limit on this rule. As a result a wide range of civilly wrong conduct has become criminalized.

problems once they know what the legal rights and obligations are.

A third problem with the centralist solution is the fact that it will tend to expose the vulnerability of a particular party (such as a bank) to computer related abuse. It is quite likely that there will be circumstances where the aggrieved party may wish to solve the problem in a less public forum. There is always a greater risk of disclosure when the aggrieved party is not in control of the action, as in a criminal case. It is possible that a party who feels particularly vulnerable might not wish to pursue any legal remedies. The decentralist solution would provide the flexibility that the parties might, as in any civil case, compromise their differences. The only option open to a vulnerable party, under a centralist type of solution, is not to inform the state authorities about the offence. It is submitted that this will, in fact, be the most common response to a criminal type computer crime provision. Few institutions can afford the public exposure of their vulnerability.⁴⁹¹ As a result, the enactment will not have accomplished its goal — to bring stability to the volatile computer industry — but rather will ensure that the computer industry continues to operate without real legal protection.

It is anticipated that the actual subject matter of the violation, the secret that was taken, will not be disclosed as is the practice in present trade secret litigation.⁴⁹² As a result, loss of the secret itself ought not be a deterrent to the reporting of crime to the state authorities.

The decentralist solution has a problem in that it is possible that some situations might arise where the aggrieved party is not financially able to pursue the wrongdoer through legal means. It is submitted that in such cases the ethical obligations of the legal profession to the society ought to be able to provide some assistance.

491. Of course, it may be that precise details of a confidential nature would be protected. For example, in *Printers and Finsihers Ltd. v. Holloway*, (1964) 3 All E.R. 54 (Ch.D.) Note: on a call for particulars, disclosure to an independant expert was sufficient. Alberta's Rules of Court provide for such protection in civil actions, see R.200.

492. *Polyresins Ltd. v. Stein-Hall Ltd.* (1971), 25 D.L.R. (3d) 152 (Ont. H.C.) as an example.

In summary, if Canada's common law does not evolve in a appropriate manner to deal with the new problems of computer abuse in all its manifestations, then certainly legislative intervention will be required. However, this intervention needs to be very well thought out and not merely a narrow response to one perceived problem. Rather, the challenge facing our legislatures and Parliament is to determine what types of creativity they wish to encourage and set in place a broadly thought and defined and intelligently implemented system to accomplish that aim. The risks of a poorly implemented or poorly defined solution are, firstly, the loss of many of Canada's bright and creative high technology innovators, likely forever, and secondly, the loss of the economic growth and stimulation that these new industries could provide to Canada.