The Law of Copyright and Computer Software

PROTECTION OF COMPUTER SOFTWARE

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In today's age of technology, with every day witnessing a new application, it is probably the computer, in all its manifold forms, which increasingly affects our daily lives to a greater extent than any other technological skill which human ingenuity has devised in this century. In the home, in the office, in the factory, in the shop, on the ground, in the air, and over the seas, the computer enables us to perform functions in a flash which formerly took an age or could not be performed at all. Like all brilliant advances the concept on which computer technology rests is simple: it processes information, which of course is what human judgement and reason has been doing for all time; but by combining the use of electricity and the electron with the simple logic of a binary system, the process takes place at the fastest speed known to man - i.e. the speed of light.

2. Whether a computerised system be large, such as those used for operating a worldwide system of air traffic seat reservations, or a miniaturised system controlling the functioning of a digital watch, the system consists of two parts - in the jargon of the technology, the hardware and the software. The hardware consists of the circuits through which the activating currents pass; the discs, the tapes and the other physical devices which hold or carry the information to be processed recorded thereon in the form of electro-magnetic impulses; and the peripheral equipment for presenting the results in a form perceivable by human beings, such as words, figures, symbols or pictures, displayed on a screen or printed on paper. The software consists of the instructions which cause the hardware to process information in such a way as to produce the desired result. In concept, the software is intangible, just as the command of a sergeant-major to his platoon is intangible, but to be effective the software must be expressed in some form which is readable by the hardware.

3. In relation to intellectual property law, computer technology gives rise to three important questions:

(i) Where the information processed by a computer consists of a work protected by copyright, is the use of that work by the computer under the control of the copyright owner, and if not, should it be?

(ii) Where a computer has been used to process information in such a way as to produce a work of a kind normally protected by copyright - for example, the processing of statistics so as to produce them in tabulated form designed to serve a particular purpose, or the use of a "synthesiser" to produce music - who is to be regarded as the "author", and hence the copyright owner, of the resulting literary or musical work?

(iii) Is the software, often the product of great intellectual creativity (backed by considerable financial investment) protected against unauthorised use by others under any existing legal system such as patent law, copyright, breach of confidence, trade secrets, and so on; and if not, should it be, and if so, under what kind of system?

This memorandum addresses only question (iii); but for the sake of completeness the following two paragraphs contain a brief account of the answers to questions (i) and (ii).

4. For the last two decades all three questions have been the subject of extensive, and intensive, study both nationally and internationally; and there has been general agreement as to what the answers to questions (i) and (ii) should be. These studies have disclosed no significant dissent from the view that the use by means of a computer of a work protected by copyright should be subject to the control of the copyright owner and, more specifically, that the input of the work into a computer system resulting in its being held in the data base of the system for subsequent processing, should be an act restricted by copyright. This view forms part of the conclusions of a Committee of Governmental Experts from thirty states at a meeting convened by the World Intellectual Property Organisation (WIPO) and UNESCO in Paris in June 1982 to consider copyright problems arising from the use of computers for access to, or the creation of, works[1]. In some countries the existing law of copyright is regarded as already providing the recommended protection; and in others specific amendments have been made to put beyond doubt that the protection exists. For example, in the United Kingdom the Committee under the chairmanship of Whitford J. appointed by the Government in 1974 to review the Law of Copyright and Designs, recommended that an appropriate amendment be made[2]; and in 1984 by the enactment of a Private Member's Bill, supported by the Government, provision was made that

> "References in the Copyright Act 1956 to the reduction of any work to material form, or to the reproduction of any work in a material form, shall include references to the storage of that work in a computer."[3]

5. Question (ii) was also considered by the Committee of Governmental Experts at the meeting convened by WIPO and UNESCO in Paris in 1982, and their findings may be summarised as follows: no matter how sophisticated a computer may be, it is only a tool, and the author of a work produced by the aid of a computer is the person who conceived the product which the computer was used to bring into being, and who gave the programmer and the technician the instructions to take the steps necessary to bring about the result conceived by him. Neither the programmer who designed the program needed to operate the computer for the purpose of producing that work, nor the technician who operated the computer when carrying out the task, would be regarded as the author or a joint author; save that where the work of the programmer amounted to collaboration with the originating creative person to such an extent that the programmer contributed creatively in settling the form of the final product, he might be regarded as a co-author. From this analysis the Committee concluded that no change to either the copyright conventions or national laws appeared to be necessary. At the national level in the United Kingdom the question was addressed both by the Whitford Committee[4] and by the Government in its 1986 White Paper -Intellectual Property and Innovation[5], and the same conclusion - i.e. that no change in the law was necessary, was reached, though perhaps not quite by the same analytical reasoning on which the WIPO/UNESCO Committee based its conclusions.

6. Before examining question (iii) in detail, it may be helpful to emphasise, even at the cost of some repetition, the dimensions of the subject matter with which the question is concerned.

7. Today the computer is an indispensable tool in the life of modern society, whether it be an industrial or a developing country. It is vital to the efficient operation of industry; to the functioning of modern financial institutions - banking, insurance, stock exchanges; to the accounting, stock holding and market activities of commerce; to the production and distribution of newspapers, journals and books, including the provision of efficient library services; it is essential for the operation of railway systems and airlines. In addition to its indispensability to large scale operations, in miniaturised form through integrated circuits and micro-chips, the computer is an essential component in mini-calculators, word processors, video games, digital watches, automobiles, ovens, telephones, radios, television sets, washing machines, and a host of electronic and other

apparatus in every day use. In short, the computer in one form or another, is an integral part of virtually every section of the infrastructure of contemporary society.

8. Computers need programs to operate them; programs also come in myriad forms, but essentially they constitute a set of instructions devised by human beings capable of activating a computer so as to produce a desired result. In the Copyright Act 1976 (as amended) of the United States, a computer program is defined as

> "... a set of statements of instructions to be used directly or indirectly in a computer in order to bring about a certain result."[6]

In Australia the statutory definition is somewhat more detailed but differs little in meaning from the US one

> "Computer program means an expression, in any language, code or notation, of a set of instructions (whether with or without related information) intended, either directly or after either or both of the following:
> a) conversion to another language, code, or notation;
> b) reproductions in a different material form,
> to cause a device having digital information processing capabilities to perform a particular function."[7]

9. The swift advance of the computer technology and its ever widening scale of application has led to an enormous, and growing, investment of resources, human and financial, in the production of computer programs. In the United Kingdom the Computing Services Association estimated that the annual revenue of its 216 members for 1984/85 was £1,149m, and the number of persons employed by the member companies totalled 34,147[8]. These statistics do not include the "in-house" computer departments of industrial and commercial companies. The United Kingdom Government Statistical Service estimated that the value of computer services production for trade by all firms for 1984 was £2,300m[9]. The diversity of computer programs is infinite. A program for a simple task may take only a few minutes to formulate and express in a suitable computer language; and its cost - and commercial value - will be correspondingly modest. But a program for the control of a complex commercial operation may require hundreds of man-hours of creative activity by systems analysts and programmers involving large financial investment. The programs for the computer system used for the clearance of incoming cargo at London Airport consist of 250,000 instructions in 800 separate modules, with associated documentation in 35 volumes held in 180 binders; the development cost of which exceeded £1m[10].

10. There is universal agreement that those who have contributed intellectually, and those who have invested financially, in the production of this new form of human creativity, should be protected against the unauthorised and unfair use of their product by others. Although the case for protection is probably manifest, it should be stated. In the first place, it rests on common justice; just as society has recognised for centuries that if an author writes a book, and a publisher invests in producing and distributing copies, it cannot be fair that others, without the permission of either author or publisher, should reproduce that book and sell it for profit. Similary with a computer program; it cannot be fair that the programmer who has devoted his professional time and talents in devising a program, or the business enterprise which has invested in employing or commissioning a programmer to produce a program, should be unable to control the use of it by others, or at very least, is not to be paid for such use. In the second place, and just as important, if not more so, talented individuals will not be attracted to the profession of programming, and business enterprises will be deterred from investing in the production and application of computer software, if they are not protected against unauthorised appropriation by others; with the end result that the public interest which benefits from the development and application of technology, will suffer.

11. For at least the last two decades this question of protecting computer software has been the subject of detailed examination and discussion in many countries and at many international meetings. The examination of this subject, principally organised by WIPO, sometimes in association with UNESCO, began effectively in 1970 and continued up to the present, involving governments as well as representatives and experts from the private sector; the principal meetings, and the relevant reports, are listed in Appendix 1 to this memorandum. By 1985 not only had a general consensus emerged that, subject to some qualification, protection should be given to computer software under the copyright system, but in a number of countries this view was being implemented in practice, either through judicial decisions or by specific legislative enactment. This consensus is recorded in the report of the meeting of a Group of Experts on the Copyright Aspects of the Protection of Computer Software, convened by UNESCO and WIPO in Geneva in February/March 1985. In addition to the nine experts invited by UNESCO/WIPO, those attending and participating in the meeting included representatives of 39 states, both industrial and developing; the representatives of 6 intergovernmental organisations; and observers representing 26 non-governmental organisations. The report of the meeting, together with the working document produced by the WIPO/UNESCO Secretariats for the meeting summarise the situation in almost all the countries where the computer/software industry is in a developed state, and the two documents can fairly be regarded as reflecting contemporary informed thought and opinion on this subject.[11] The following paragraphs of this memorandum present a brief account of the 1970-1985 studies; a summary of the consensus which had emerged by 1985, illustrated by examples from several countries; and a brief set of comments on the suitability of copyright for computer software protection.

The 1970-1985 Studies

12. Initially, the principal participants in these studies were almost exclusively from the computer industry itself, and more particularly from the hardware section. For this reason, perhaps, the discussions focused at first on the possible application of patent protection, with which the computer hardware industry would be familiar, and the possibility of copyright protection did not initially receive detailed consideration.

13. Prima facie, there are attractions in the idea of protecting computer software by the grant of a patent. A patent gives its proprietor a monopoly: the exclusive right, for a limited period of years, to use his invention; it is a property right and, like other forms of property, may be sold, licensed, mortgaged or given away; and the proprietor may attach whatever terms he chooses to any of these transactions so that, during the life of the patent, he may exploit it commercially and thus generate income and capital. At the end of the life of the patent, the invention falls into the public domain and anyone is free to use it. In Abraham Lincoln's words - "The patent system added the fuel of interest to the fire of genius".

14. Although there is no worldwide patent treaty, similar to the Berne Union or the Universal Copyright Convention, creating a more or less harmonised network of national laws with standard provisions, there are three principles which are common to most systems. To be patentable, an invention must normally satisfy three criteria -

(i) novelty
(ii) inventiveness
(iii) capability of industrial application

Illustrating these criteria by reference to the current law of the United Kingdom, the Patent Act 1977 (which was drafted so as to conform to the European Patent Convention), "novelty" means, under s.2(1), that the invention does not form part of the "state of the art" which in turn is defined in s.2(2) "to be all matter which has at any time before the priority date been made available to the public either in the United Kingdom or elsewhere". Thus a program

seeking patent protection would have to be tested for novelty against all products, processes, information about products or processes, and anything else that has been made available to the public anywhere in the world either orally or in writing. In practice, most programs would fail this test because, no matter how clever or sophisticated they might be, they would normally not be new but would be regarded as simply applying existing technical knowledge. Moreover, the administrative work required of the Patent Office in examining the application to ensure that it met this criterion, would be considerable involving costs and delays that would be unacceptable.

15. The "inventiveness" criterion is defined by s.3 of the United Kingdom Act, as a step which is not obvious to persons skilled in the art. Thus, a program seeking patent protection would be judged by asking the question whether a computer scientist or programmer skilled in the art of programming and with access to all the existing literature and information, would regard the design of the program as obvious or not; and it is apparently the view of those who are knowledgeable about the art of computer programming that "the great majority of programs contain nothing but obvious steps that would occur to any programmer skilled in the art"[12].

16. The third criterion is that the program be capable of industrial application, which by s.4 of the United Kingdom Act means that it shall be capable of use in any kind of industry, including agriculture. Whether "and kind of industry" includes commerce generally - e.g. creating the software for presenting a video game - is not entirely clear, but it is thought that the term "industrial" would be given a wide interpretation by the courts.

17. Although computer programs might generally meet the third criterion, it seems clear that few if any would satisfy the other two. In the United Kingdom, and indeed in Europe, the matter goes further than the mere inherent ineligibility of software programs for patent protection. The Report of the Banks Committee in 1970[13], which led to the enactment of the Patent Act 1977, made an unequivocal recommendation that a computer program should not be patentable in whatever form the invention is presented. Moreover, in Guidelines for the Examination of European Patents, issued pursuant to the European Patent Convention, there is a section dealing with "programs for computers" which, in effect, virtually excludes computer programs from patentability.

18. In addition to the considerations of impracticability and ineligibility described in the preceeding paragraphs, the procedure for seeking and granting a patent involves public disclosure which, in practice, has serious disadvantages. Once the details of a computer program are disclosed, before it has been clothed with protection, it is difficult to ensure that unauthorised use is not made of it.

19. During the 1970-1985 period, consideration was also given to the possibility of protecting computer software under the legal principles relating to breach of confidence and trade secrets. These related areas of law are not, to any significant extent, contained in statute, but have been developed by judicial decision, and the resulting jurisprudence may vary from country to country, or at least between groups of countries with different legal traditions. However, so far as the Commonwealth is concerned, it may be helpful to give a brief outline of the principles which appear to have been established in the United Kingdom. The underlying basic principle is that in certain circumstances, a person may bring an action for breach of confidence so as to restrain another person from using or disclosing information, or for damages where the offending use or disclosure has already taken place.

20. Where there is a confidential relationship between the parties the matter can be regulated by appropriate terms in the contract. Moreover, certain relationships carry implied terms imposing on the parties duties of confidentiality. Perhaps the most obvious case would be the relationship of employer and employee - e.g. the contract between a

software house and its employed systems analysts and programmers. Such a contract may, indeed, be adequately effective as between the parties, but the problem arises when the material, be it "know how", scientific data or details of a software package, comes into the hands of a person who is not a party to a contract with the person whose interests are at stake. It does, however, seem to be accepted law now that third parties may be subject to breach of confidence actions provided certain conditions exist. These are set out in a helpful analysis of the law in the judgment of Megarry J. in Coco v A.N. Clark (Engineers) Limited, (1969) RPC 41.

21. The first requirement is that the information or material must be confidential or, to use the term more commonly used in the United States, "a trade secret". There is no accepted definition of what, for the purposes of an action for breach of confidence, would be regarded as "confidential information"; the only guide is a negative one, that information which has already been disclosed to the public cannot be confidential. Consequently, a computer program which has been described in an article or a text book could not be protected against commercial exploitation under the principle of breach of confidence.

22. The second condition required to found an action for breach of confidence is that the defendant must have received the material under circumstances which clearly imported an obligation of confidence. Again, there is no established set of guidelines for determining whether such circumstances exist in any given case. The relationship between the parties would obviously be relevant; thus, as between employer and employee, or between principal and agent, information received by the latter in each case from the former relating to the former's business, would be regarded as having been imparted under a seal of confidence.

23. The third requirement is that the defendant has without the plaintiff's permission disclosed or used the confidential information, or there is evidence that he is about to do so.

24. While there is a body of case law demonstrating that actions for breach of confidence in respect of the unauthorised disclosure or use of confidential information or material have been successfully brought, the availability of the action in any given case may be difficult to determine with certainty; and this difficulty is aggravated when the offending act has taken place, or is threatened to take place, in a foreign jurisdiction. But quite apart from these shortcomings of this method of protecting those who have an interest in a computer program, the principal defect is probably that it is simply a negative or preventative form of protection; that is to say, it does not give the person who produced the program property rights as do the patent and copyright systems. The conclusion is, therefore, that a breach of confidence action is a useful supplementary measure available to producers of software, but it is inadequate as the principal means for protecting the legitimate interests of the producers of computer programs. Moreover, the protection of computer software by breach of confidence rules, or by specific contractual terms which treat it as a trade secret, approaches the problem in the wrong way. It is generally in the public interest that there should be as much disclosure as possible of information, consistent with the safeguarding of legitimate interests. This is best achieved by clothing software with a copyright-type of protection which does not need to rely on secrecy for its efficacy.

25. The considerations briefly outlined in the preceding paragraphs are more fully discussed and described in the reports of the First and Second Sessions of a Advisory Group of Non-Governmental Experts on the Protection of Computer Programs, organised by WIPO, which took place in Geneva in June 1974 and in June 1975[14], and also in the introductory commentary accompanying the Model Provisions on the Protection of Computer Software published by WIPO in 1978[19].

A Summary of the Conclusions by 1985

26. By 1985 the national and international studies of the need, and suitable measures, for protecting computer programs, had resulted in a general consensus which may be summarised in the following way:

(i) there was a need, which became more urgent each year, for effective protection of computer programs;

(ii) there was universal agreement that patent protection was not appropriate, and, in most cases, was expressly inapplicable under the terms of the relevant treaties and national laws;

(iii) while there was a body of opinion, held both by a number of governments as well as the secretariats of WIPO and UNESCO, that the special characteristics and needs of computer programs required a sui generis form of protection, the time which would be needed to establish a new international convention for this purpose and to draft and enact national laws, made this approach an impracticable one;

(iv) the only existing system which was currently available to provide the protection needed was the copyright system; and many countries had adopted this solution either by court decision or by specific amendments to the national copyright law.

27. The considerations which led to the general adoption of the copyright solution to the problem of providing protection for computer programs may be summarised as follows:

(i) The copyright system existed in almost all countries of the world and, through the membership by the majority of those countries, in either one or both of the two copyright conventions - Berne and the Universal Copyright Convention -there would be a large measure of uniformity of treatment within the network of national copyright legislation.

(ii) Although there has not emerged any general agreement that the expression "literary and artistic works" in the Berne Convention unequivocally includes computer programs, with the consequence that member states would be required to apply their copyright laws to computer programs, it appears to be accepted that the expression is flexible enough to permit a member state to treat computer programs as included if it decides, as a matter of policy, to do so. Thus, the United Kingdom, by providing by legislation that a computer program is to be treated as a literary work appears, by implication, to treat programs as within the ambit of the Convention; whereas France, by applying a regime of protection to programs which, in some respects, is not in accordance with Berne rules, appears to treat a program as not being within the Berne expression "literary and artistic works" (see para. 30(vi) below).

(iii) More specifically, courts (for example, in Australia, Canada and the United Kingdom, as well as in a number of non-Commonwealth countries), had specifically ruled that a computer program was a form of "literary work" and entitled to protection under national copyright law as such.

(iv) With one possible exception (see para. 28(v) below), the ambit of protection given to a work protected by copyright, was regarded as adequate to safeguard

the interests of those who produced computer programs; and this was the view generally held, and powerfully advanced, by the computer software industry itself.

(v) Because of the world-wide membership of one, or both, of the copyright conventions, not only would a large measure of standard treatment be achieved through the copyright system, but programs originating in a country which is a convention member would be automatically entitled to protection throughout the other states belonging to the convention; subject to the reservations mentioned in sub-para.(ii) above.

Appendix II contains a list of Commonwealth countries where it is known that copyright protection has been given to computer programs.

The Suitability of the Copyright System for Protecting Software

28. Notwithstanding the general agreement to use copyright for protecting computer programs, the copyright system does not appear in all respects to be entirely suitable for this purpose. First, there is a conceptual difficulty. A computer program is undoubtedly an example of intellectual creativity involving, very often, a high level of intelligence and imagination which, it may be argued, is equally characteristic of literature, music and art - the traditional subject matter of copyright protection. But there is a fundamental distinction between a computer program and the traditional categories of copyright protected works. Literary, dramatic, musical and artistic works are all forms of communication between one human being and another human being conveying information or ideas; a computer program is not a communication between two persons but an instruction from one human being directed to an electronic machine so that it activates the machine to carry out a desired function. The practical significance of this distinction will become apparent when some of the other features of copyright are considered in relation to computer programs.

(i) The Term of Protection

Under the Berne Convention the minimum term of protection (subject to exceptions in one or two special cases, such as photographs) is the life of the author plus 50 years; which in practice may mean that a work is protected for 100 years or more from the date when it was created; and, under some laws[16] where a work has not been released to the public before an author's death, it remains protected until the end of 50 years after the date of first release - which in effect means perpetual protection for unpublished works. In the computer field, most programs are out of date within 10 years or less; and the concept of "classics" common to literary works, music and drama, has no relevance to software. Many experts consider, therefore, that it is inappropriate for a computer program to be protected for such a long period and that 25 years from the date of its first practical application would be adequate.

(ii) Droit Moral

This is the right, established by Article 6 bis of the Berne Convention in the following terms:

"Independently of the author's economic rights, and even after the transfer of the said rights, the author shall have the right to claim authorship of the work and to object to any distortion, mutilation or other modification of, or other derogatory action in relation to, the said work, which would be prejudicial to his honour or reputation."

As computer programs are usually written with a particular functional objective, it would seem inappropriate that the author (ie. the programmer) should be able to invoke his moral rights so as to prevent a modification of his program in order to improve its efficient application. There is a view, therefore, that the unqualified operation of the author's moral rights in relation to computer programs is inappropriate.

(iii) Fair Dealing

This is the concept, in the United States known as "fair use", that there are certain situations where it would be "fair" for a work to be used without the necessity for obtaining the copyright owner's permission. The specific cases where this concept may be invoked vary somewhat from country to country but many national laws contain provisions that fair dealing with a literary, dramatic or musical work is permitted if it is for purposes of "research or private study", "criticism or review", or "reporting current events"[15]. There are no statutory definitions of "fair dealing" and little clear judicial guidance, so that the copyright owner and user are always uncertain what their respective rights are. In the case of computer programs produced by one software house, the use by a competing house of the program for "research" could be commercially prejudicial to the producer of the program; and it seems desirable that the law should be clear that the fair use exception should not apply to such situations.

(iv) Ownership

One of the general principles of copyright is that the ownership of a work protected by copyright vests initially in the author. In some countries there are exceptions to this general principle; for example, in certain cases copyright vests initially not in the author himself but in the employer of the author, or in the person who commissions an author[17]. Authors universally object to these exceptions, and they are not usually found in the laws of countries other than the United Kingdom, the United States, and certain Commonwealth countries which have modelled their laws on United Kingdom legislation. In the case of computer software, however, a high proportion of programs will be produced by employed programmers for specific functional objectives set by their employers; and in these cases it does not seem unreasonable that, in the absence of agreement to the contrary, the program should belong to the employer. But the incorporation in the general provisions of copyright law of such exceptions would set a precedent which could be prejudicial to authors of the traditional categories of works protected by copyright.

(v) Ambit of Control

The extent of the control which copyright gives to the author or his assignee covers:

(a) the reproduction of the work, ie. the making of copies, which may take the form of written or printed copies, or audio or visual copies on discs, tape, or film or other carriers;

(b) publishing the work - ie. issuing copies to the public;

(c) performing the work in public;

(d) communicating the work to the public, either by wireless means (ie. radio or television broadcasting), or by transmission via cable systems;

(e) making an adaptation of the work - ie. a translation, or the conversion of a play into a film, or the arrangement of a musical work.

It is another basic principle of copyright that the system does not prevent the use of ideas; it protects the form of expression by which an author

expresses his ideas, but not the ideas themselves. Thus, the author of a book of recipes may prevent anyone from making copies of his book, but not from using the recipes in it; and the ambit of control which the copyright system gives to the copyright owner is consistent with this basic principle. But in the case of a computer program, it is precisely its unauthorised "use" which requires protection and which, without specific modification, the copyright system does not expressly provide under the prescribed code of control described above.

29. The drafting and enactment of a comprehensive new intellectual property code, providing up-to-date copyright protection for all categories of works and other subject matter protected under the copyright and neighbouring right system, with a special code of protection for computer programs, inevitably requires the allocation by government of considerable resources, and would take considerable time - measured in years rather than months - to carry out. It is therefore understandable, and acceptable, as a stop-gap measure in order to provide the protection which is urgently needed, to apply existing copyright law by, for example, simply declaring computer programs to be a form of literary work; as has been done in Australia and in the United Kingdom. It is to be noted that in the case of Australia the Government expressly declared that the measure did not necessarily represent the Government's final decision on what was the best method to protect computer programs. Also as mentioned in para. 8 above, the Australian amending Act contains a definition of a computer program, as well as a special exception permitting the making of "back-up copies"; neither of which are in the United Kingdom Copyright (Computer Software) Amendment Act 1985. In the United Kingdom a comprehensive new copyright law is being prepared by the Government for introduction into Parliament in the late autumn of this year, and it had been hoped in most copyright circles that the opportunity would be taken to deal with computer programs by a special code carefully designed to meet the special characteristics and needs of this new form of human creativity, but the Government has apparently decided to perpetuate the simple treatment given by the Copyright (Computer Software) Amendment Act 1985 (see Chapter 9.5 of the 1986 White Paper).

30. The Australian and United Kingdom approach may be contrasted with that adopted by the French Government. In July 1985 a major copyright Act was passed in France supplementing the principal copyright law, the Act of 1957, by adopting new provisions on a range of matters, including in particular a special code of provisions governing the application of the copyright law to computer software. The salient features of this code are:

(i) the period of protection for computer programs is 25 years from the date of the creation of the program;

(ii) subject to an agreement to the contrary, when an author has assigned rights in software created by him, he may not exercise his moral rights subsequently so as to prohibit adaptation within the limits of the rights he has assigned, nor may he exercise any right to revise the program;

(iii) the author's rights in a computer program include not only control over the specific rights such as reproduction, but over "any use" of the program;

(iv) save for the making of a "back-up copy" by someone who has lawfully acquired access to a program, there appears to be no "fair dealing" exception to the copyright owner's right of control;

(v) where a computer program is created by an employee in the exercise of the duties of his employer, the copyright in the program belongs to the employer unless otherwise provided by contract;

(vi) the special protection in the code for computer programs created by French authors is extended to computer programs by foreign authors on the basis of reciprocity - ie. on condition that the law of the country of which the foreigner is a national or resident provides protection for the software created by the French nationals and residents; but this rule is expressly stipulated to be "subject to the international conventions". The effect of this proviso is unclear; as the duration of protection provided in these new provisions is less than that required by the Berne Convention, of which France is a member, it would appear that the French view is that the Berne Convention does not apply to computer software, and France is therefore free to adopt a special code of protection not necessarily in accordance with Berne rules.[18]

31. It is perhaps too soon to judge how well these provisions will work in practice. One initial comment is that it may prove to be difficult to establish the date of the creation of a program. Subject to these reservations, the code, especially tailored for computer software, seems a sensible package; and it is, in the writer's view, unfortunate that the United Kingdom Government has apparently decided not to provide protection for this most important category of intellectual property on similar lines.

32. The high technology of the 20th century is based upon more and more sophisticated use of computers. Countries with high technology industries are increasingly concerned about the security of, inter alia, the computer software needed for the use of technology when it is made available to other countries. Any country, particularly developing countries, wishing to establish or improve its industrial, commercial and communications infrastructure, must make use of modern computer technology, but will be hampered in attempts to do so if it does not provide adequate protection for computer programs.

33. It should therefore be a matter of high priority for the Government in each Commonwealth country to examine its intellectual property legislation and ensure that computer programs are adequately protected, and while the simple solution adopted in the United Kingdom must obviously be carefully considered, it would be prudent to examine also the specially designed solution adopted in France.

34. It may be of interest to mention that as a result of the reservations regarding the suitability of copyright protection voiced in a number of quarters during the 1970-1985 studies, the Secretariat of WIPO prepared a draft treaty for the special purpose of providing protection for computer programs on an international basis; and Appendix III reproduces the draft. Moreover, in 1978 WIPO published a set of model provisions for national legislation on the protection of computer programs[19]. However, for the reasons explained in para. 26(iii) above, these initiatives were not pursued.

35. This discussion paper has dealt with the protection of computer software in the form of a program as described and defined in para. 8 above. But the technology races ahead, and by 1985-1986 a new computer application has emerged - the integrated circuit or semiconductor chip. In the words of a draft directive issued in 1985 by the Commission of the European Economic Community

> "Integrated circuits and similar semiconductor products are formed from semiconducting, conducting and insulating material. These combine to form the transistors, diodes and other components required to make up an electronic circuit. The configuration of the various layers of an integrated circuit can be determined in several different ways, for example, by directing a pattern of light on to a photosensitive surface, which then permits specific areas of semiconductor material to be removed, and by "doping" the material with other substances. The pattern of light

is frequently determined by the use of masks which act much in the same way as stencils. Other examples of techniques in current use include direct writing with an electronic beam on semiconductor material.

Integrated circuits are playing an increasingly important role not only in the electronics industry itself, but in a broad range of industrial sectors from motor vehicles to machine tools. High levels of investment are required to develop new, improved integrated circuits, particularly those of a more complex kind. At the same time, a circuit can be copied at a fraction of the cost of developing it from scratch. These copied products can significantly reduce the return on the investment made by the original developer and consequently adversely affect his ability to continue to invest in innovation designs.

The legal protection available to the developer of new integrated circuits is in many cases far from clear. The degree of inventiveness to secure a patent may well be absent. Copyright or design protection seems not to be available in most jurisdictions both within and outside the Community, though copyright protection does appear to be available in at least the United Kingdom and Ireland and possibly also the Netherlands."

The text of the entire directive, including an explanatory memorandum, is reproduced in Appendix IV.

36. It would overburden this discussion paper to include in it an examination of the need for protecting this new manifestation of human ingenuity; but its importance is undoubted and a government would be failing in its duty if it did not address the question; so far the only country which has specifically legislated in this field is the United States, but the fact that it has done so, and the speed with which it has enacted legislation (by contrast with the inordinate gestation period which preceded the enactment of the 1976 Copyright Act) is an indication of the importance attributed in the United States to this matter. Appendix V contains the text of the US law; and this paper ends with two brief observations on this law. It is perhaps noteworthy that the protection devised in the United States for this new form of intellectual property has been established outside the copyright system; and secondly, that the provisions in the law under which protection may be extended to foreign integrated circuits and microchips is based on the principle of reciprocity, underlining the United States' concern that in this field an international umbrella of protection needs to be brought into existence.

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10. Legal Protection of Computer Programs by Bryan Niblett - Oyez Publishing Limited, p.4.

11. Report published in WIPO Journal "Copyright", April 1985, p.146. The Working Document "Legal Protection for Computer Programs - A Survey and Analysis of National Legislation and Case Law", prepared by Michael S Keplinger of the U.S. Patent and Trade Mark Office, Washington, is not included in the published report of the meeting, but copies can be obtained from WIPO or UNESCO.

12. Legal Protection of Computer Programs, p.29 (10.supra).

13. United Kingdom Report of the Committee to Examine the Patent System and Patent Law (Cmnd 4407), July 1970.

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15. For example -
Australia - Copyright Act 1968, ss.40, 41 and 42.
Canada - Copyright Act - Revised Statutes, ch. 32, s.17(2)(a)
Ghana - Copyright Act 1985, s.18.
India - Copyright Act 1957, s.52(1)(a)(b).
Trinidad and Tobago - Copyright Act 1985, s.35(2)(a)(b)(c).
United Kingdom - Copyright Act 1956, s.6(1)(2)(3).
U.S.A. - Title 17 of the United States Code - Copyright s.201(b).

16. For example -
Australia - Copyright Act 1968, s.33(3).
Canada - Copyright Act - Revised Statutes, ch.32, s.6.
India - Copyright Act 1957, s.24.
Trinidad and Tobago - Copyright Act 1985, s.9(a).
United Kingdom - Copyright Act 1956, s.2(3) proviso.

17. For example -
Australia - Copyright Act 1968, s.35(4)(5)(6).
Canada - Copyright Act - Revised Statutes, ch.32, s.12(2)(3).
Ghana - Copyright Act 1985, s.7.
India - Copyright Act 1957, s.17 Provisos (a)(b)(c).
United Kingdom - Copyright Act 1956, s.4(2)(3)(4).
U.S.A. - Title 17 of the Unites States Code - Copyright s.201(b)

18. France - Law on Author's Rights and on the Rights of Performers, Producers of Phonograms and Videograms and Audiovisual Communication Enterprises (no. 85-660 of 3 July 1985) - see article 2, para.v, and articles 45-51. The law in English is published in the WIPO Journal "Copyright", October 1985, p.326.

19. Model Provisions on the Protection of Computer Software - a WIPO publication No.814(E).

APPENDIX I

Principal International Meetings Concerning the Protection of Computer Programs

Convened By	Description of Meeting	Venue and Date	Report/ Document Reference	Issue of WIPO Journal "Copyright" in which report is published
WIPO	Advisory Group of Governmental Experts on the Protection of Computer Programs	Geneva 8-12/03/71	Report dated 12/03/71 AGCP 6.	1971 March, p.35
WIPO	Advisory Group of Non-Governmental Experts on the Protection of Computer Programs - First Session	Geneva 17-20/06/74	Report dated 14/07/75 AGCP/NGO/9	1974 September, p.226
WIPO	Second Session	Geneva 23-27/06/75	Report dated 14/07/75 AGCP/NGO/II/11	1975 September, p.183
WIPO	Third Session	Geneva 17-21/05/76	Report dated 21/05/76 AGCP/NGO/III/7	1976 July-August, p.16
WIPO	Fourth Session	Geneva 1-3/06/77	Report dated 7/06/77 AGCO/NGO/IV/7	1977 October, p.271
UNESCO/WIPO	Working Group on Copyright Problems Arising from the Use of Computers	Geneva 28-31/05/79	(a) Report dated 1/06/79 UNESCO/WIPO/GTO/8 (b) Report prepared for the meeting by Prof. Ulman - UNESCO/WIPO/GTO/2	1979 July-August, p.18
WIPO	Expert Group on the Legal Protection of Computer Software - First Session	Geneva 27-30/11/79	(a) Report dated 30/11/79 - LPSC/1/4 (b) Report by WIPO to the meeting - LPCS/1/2	1980 January, p.36
UNESCO/WIPO	Committee of Governmental Experts on Copyright Problems Arising from the Use of Computers for Access to or the Creation of Works	Paris 15-19/12/80	Report dated 20/02/81 UNESCO/WIPO/CEGO/I/7	1981 March, p.73

UNESCO/WIPO	Second Committee - as above	Paris 7-11/06/82	Report dated 13/08/82 UNESCO/WIPO/CEGO/II/7	1982 September, p.239
WIPO	Committee of Experts on the Legal Protection of Computer Software	Geneva 13-17/06/83	Report dated 17/06/83 LPCS/II/6	1983 September, p.271
WIPO	Working Group on Technical Questions Relating to the Legal Protection of Computer Software	Canberra 2-6/04/84	Report dated 30/04/84 LPCS/WGTQ/1/3	
UNESCO/WIPO	Group of Experts on the Copyright Aspects of the Protection of Computer Software	Geneva 25/02/85 - 01/03/85	(a) Report dated 8/03/85 UNESCO/WIPO/GE/CCS3 (b) Working Document prepared for meeting UNESCO/WIPO/GE/CCS/2	1985 April, p.146

APPENDIX II

Commonwealth Countries Which Expressly Protect Computer Programs Under Copyright Law

1.	Australia	The Copyright Amendment Act 1984, (No. 43 of 1984). See also judgment of Federal Court of Australia for New South Wales in Apple Computer Inc v Computer Edge Pty Ltd, 29 May 1984.
2.	Canada	Judgment of Federal Court of Canada in Toronto in International Business Machines Corp v Ordinateurs Spirales Inc, 26 June 1984. See also Recommendation 58 of the Sub-Committee of the Standing Committee of the House of Commons on Communications and Culture in its Report dated 10 October 1985 entitled "A Charter of Rights for Creators".
3.	India	The Copyright (Amendment) Act 1984 - s.2(c).
4.	Trinidad & Tobago	The Copyright Act 1985 - s.3(1) definitions of "computer software" and "literary work".
5.	United Kingdom	The Copyright (Computer Software) Amendment Act 1985 - sections 1 and 3. See also judgments in Sega Enterprises Ltd v Richards and Another, 1983 Fleet Street Reports 73 ; Thrustcode Limited and Another v W W Computing Limited, 1983 Fleet Street Reports 502.

NB

(1) Singapore: a Bill for a comprehensive new Copyright Act introduced in Parliament on 25 March 1985, protects a computer program as a form of literary work - see clause 7(1).

(2) It is probable that in other Commonwealth countries, especially those where the United Kingdom Copyright Acts 1911 or 1956 are still in force, computer software would be regarded by the courts as a form of literary work, following the decisions in the Sega Enterprises and Thrustcode Computing cases in the United Kingdom.

APPENDIX III

DRAFT TREATY
FOR THE PROTECTION OF COMPUTER SOFTWARE

Article 1
Definitions

For the purposes of this Treaty

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

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

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

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

(v) "proprietor" means the natural person who created the computer software or any other proprietor of the rights in the computer software in accordance with the applicable national law;

(vi) "Contracting States" means the States party to this Treaty;

(vii) "Organisation" means the World Intellectual Property Organisation;

(viii) "Director General" means the Director General of the Organisation.

Explanatory Notes on Article 1:

a. Items (i) to (iv) define the protected subject matter: "computer program", "program description", "supporting material" and "computer software". These definitions are the same as those appearing in the Model Provisions.

b. Item (v) defines the term "proprietor". This definition is necessary in order to determine the person who is entitled to the protection and whose authorisation in respect of certain acts is

relevant to establish whether the act is lawful or unlawful. It differs from the definition contained in Sections 1(v) and 2 of the Model Provisions. The definition of proprietor in the Model Provisions consists of two parts: first, it deals with the case where the software was created by a person who was not under any contractual obligation and, therefore, belongs to the creator; second, it deals with the case where the software belongs to the employer if it was created by an employee in the course of the performance of his duties and if the employment contract does not provide otherwise. For the purposes of the Treaty, such a provision could create difficulties in view of the differences between national laws as to the question in whom the right should originally rest where inventions or other creations are made by employees. It is, therefore, deemed preferable to leave this question to the "applicable national law".

c. Items (vi) to (viii) contain general definitions which follow the practice established for treaties concluded under the auspices of WIPO.

Article 2
Principle of Protection

(1) The Contracting States undertake to ensure that computer software is protected on their respective territories in conformity with the provisions of this Treaty.

(2) Subject to Article 6, the provisions of this Treaty shall not affect any more extensive protection provided for in national laws or in other international treaties.

Explanatory Note on Article 2:

This Article introduces a basic principle according to which the Contracting States are obliged to protect computer software in conformity with the provisions of the Treaty (paragraph(1)), without excluding a more extensive protection under national laws and other international treaties (paragraph (2)). The latter provision has been included in order to safeguard, in particular, more extensive protection that might possibly result from the Berne Convention for the Protection of Literary and Artistic Works (hereinafter referred to as "the Berne Convention").

Article 3
National Treatment

Each Contracting State shall grant to nationals or residents of other Contracting States the same protection that it grants to its own nationals with respect to computer software.

Explanatory Note on Article 3:

This Article provides that Contracting States must grant national treatment in respect of the protection of computer software, whatever the form of such protection may be.

Article 4
Protection Against Unlawful Acts

(1) Subject to paragraph (3), the Contracting States undertake to grant protection to computer software against the following acts:

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

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

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

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

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

(vi) using the computer program or a computer program produced as described in (iii), (iv) or (v) to control the operation of a machine having information-processing capabilities, or storing it in such a machine;

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

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

(2) Paragraph (1) does not apply in respect of any act which has been authorized by the proprietor.

Explanatory Note on Article 4:

Items (i) to (viii) list and define the acts against which the Contracting States are obliged to grant protection under the Treaty. Such acts are those referred to in Section 5 of the Model Provisions. If the

opinion in one of the replies to the questionnaire is followed, the provisions contained in (i) and (ii) could be omitted.

Article 5

Duration

The protection under Article 4 shall begin at the time when the computer software was created and shall continue at least until the expiration of 20 years calculated from the earlier of the following dates:

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

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

Explanatory Note on Article 5:

This Article is based on the provisions of Section 7 of the Model Provisions. It provides that the protection starts at the time of the creation of the computer software and continues at least until the expiration of 20 years calculated from the earlier of the dates specified it items (i) and (ii).

Article 6
Use of Computer Software Effected on
Land Vehicles, Vessels, Aircraft or Spacecraft

No Contracting State shall apply the provisions of Article 4(1)(vi) where the use of computer software is effected on a foreign land vehicle, vessel, aircraft or spacecraft, as long as that land vehicle, vessel, aircraft or spacecraft is temporarily or accidentally in that State's territory, waters or airspace.

Explanatory Note on Article 6:

This provision is based on the principle laid down in Article 5ter of the Paris Convention for the Protection of Industrial Property.

Article 7
Revision of the Treaty

(1) This Treaty may be revised from time to time by a Conference of the Contracting States.

(2) The convocation of any revision conference shall be decided by the General Assembly of the Organisation.

Explanatory Note on Article 7:

This Article follows the established practice for revision of treaties concluded under the auspices of WIPO.

Article 8
Becoming Party to the Treaty

(1) Any State member of the Organisation or of the United Nations may become party to this Treaty by:

(i) signature followed by the deposit of an instrument of ratification or

(ii) deposit of an instrument of accession.

(2) Instruments of ratification or accession shall be deposited with the Director General.

Explanatory Note on Article 8:

A State can become party to the Treaty if it is a member of WIPO or of the United Nations.

Article 9
Entry Into Force of the Treaty

(1) This Treaty shall enter into force three months after five States have deposited their instruments of ratification or accession.

(2) Any State which is not among those referred to in paragraph (1) shall become bound by this Treaty three months after the date on which it has deposited its instrument of ratification or accession.

Explanatory Note on Article 9:

This Article follows established practice.

Article 10
Denunciation of the Treaty

(1) Any Contracting State may denounce this Treaty by notification addressed to the Director General.

(2) Denunciation shall take effect one year after the day on which the Director General has received the notification.

Explanatory Note on Article 10:

This Article follows established practice.

Article 11
Signature and Languages of the Treaty

(1) (a) This Treaty shall be signed in a single original in the ... languages, all texts being equally authentic.

(b) Official texts shall be established by the Director General, after consultation with the interested Governments, in the ... languages, and such other languages as the General Assembly of the Organisation may designate.

(2) This Treaty shall remain open for signature at ... until ... .

Explanatory Note on Article 11:

This Article determines the languages of the original of the Treaty, the languages of official texts of the Treaty (which are languages other than the languages of the original of the Treaty) and the period of time during which the Treaty remains open for signature. The provisions of this Article are in conformity with established practice.

Article 12
Depositary Functions

(1) The original of this Treaty shall be deposited with the Director General.

(2) The Director General shall transmit two copies, certified by him, of this Treaty to the Governments of all States referred to in Article 8(1) and, on request, to the Government of any other State.

(3) The Director General shall register this Treaty with the Secretariat of the United Nations.

Explanatory Note on Article 12:

This Article follows established practice.

Article 13
Notifications

The Director General shall notify the Governments of the States referred to in Article 8(1) of:

(i) signatures under Article 11;

(ii) deposits of instruments of ratification or accession under Article 8(2);

(iii) the date of entry into force of this Treaty under Article 9(1);

(iv) denunciations received under Article 10.

Explanatory Note on Article 13:

This Article follows established practice.

The Council of the European Communities

Having regard to the Treaty establishing the European Community and in particular Articles 100 (and 113) thereof;

Having regard to the proposal from the Commission;

Having regard to the opinion of the European Parliament;

Having regard to the opinion of the Economic and Social Committee;

Whereas the functions of semiconductor products depend in large part on the topographies of such products and whereas the development of such topographies requires the investment of considerable resources, human, technical and financial, while topographies of such products can be copied at a fraction of the cost needed to develop them independently;

Whereas semiconductor products are playing an increasingly important role in a broad range of industries and semiconductor technology can accordingly be considered as being of fundamental importance for the European Economic Community's industrial development;

Whereas the topographies of semiconductor products are at present not clearly protected in all Member States by existing legislation and such protection, where it exists, has different attributes;

Whereas differences in the legal protection of semiconductor products offered by the laws of the Member States have direct and negative effects on the functioning of the common market as regards semiconductor products and such differences risk becoming greater as Member States introduce new legislation on this subject;

Whereas existing differences having such effects need to be removed and new ones prevented from arising, while differences not adversely affecting the functioning of the common market to a substantial degree need not be removed or prevented from arising;

Whereas the basis on which topographies of semiconductor products developed by nationals or residents of non-Member States or first commercially exploited on their territories should be protected within the Community should be such as to favour the extension of legal protection in those countries to topographies of semiconductor products developed by nationals and residents of the Member States or first commercially exploited on their territories;

Whereas the Community's legal framework on the protection of original topographies of semiconductor products can accordingly in the first instance be limited to certain basic principles by provisions specifying who and what should be protected; the exclusive rights on which protected persons should be able to rely to authorise or prohibit certain acts; and for how long the protection should last;

Whereas other matters can for the time being be decided in accordance with national law, in particular, whether Member States rely on copyright laws or on some specific form of protection and whether registration or deposit is required as a condition for protection;

Whereas however this flexibility in the Community framework for the time being needs to be balanced by provisions designed to prevent new obstacles arising to trade between Member States in semiconductor products, in particular, as regards marking of such products and, as soon as circumstances permit, a common registration and deposit procedure;

Whereas protection of original topographies of semiconductor products under copyright laws or some specific form of protection should be without prejudice to the application in appropriate cases of some other forms of protection;

Whereas further measures designed to facilitate reliance on laws granting protection to original topographies of semicon-

ductor products in the community can be considered at a later stage, while the application of common basic principles by all Member States in accordance with the provisions of this Directive is an urgent necessity;

Has adopted this Directive:

Section 1 – Definitions

Article 1

For the purposes of this Directive,

(a) a 'semiconductor product' means the final or intermediate form of any product comprising semiconducting material:

(a) having two or more layers composed of conducting, insulating or semiconducting material, the layers being arranged in accordance with a predetermined three-dimensional pattern; and
(b) intended to perform, exclusively or in part, electronic functions.

(b) the 'topography' of a semiconductor product means a series of related images, however fixed or encoded:

(a) representing the predetermined three-dimensional pattern of the layers of which a semiconductor product is composed; and
(b) in which series, the relation of the images one to another is that each image has the pattern or part of the pattern of the surface of the semiconductor product in its final or any intermediate form.

(c) 'commercial exploitation' of the topography of a semiconductor product means to sell or license or to offer for sale or licence the topography or a semiconductor product in which the topography is incorporated.

Section 2 – Protection of topographies of semiconductor products

Article 2

(1) The Member States shall protect the topographies of semiconductor products by granting exclusive rights in accordance with the provisions of this Directive.

(2) The exclusive rights may be granted either by national copyright laws or by provisions enacted for the specific purpose of protecting the topographies of semiconductor products.

(3) However, the topographies of semiconductor products shall not be protected unless they satisfy the condition that they be original or the condition that they be novel or both these conditions. (Where topographies of semiconductor products consist of elements that are known (in the semiconductor industry), they shall not be considered original or novel as the case may be unless the combination of such elements, considered as a whole, is original or novel.)

Article 3

(1) Protection shall apply in favour of the following persons:

(a) natural persons who are the creators of the topographies of semiconductor products and who are nationals or residents of a Member State; and
(b) natural persons who are creators of such topographies which are first commercially exploited in a Member State.

(2) However the Member States may provide that, where such topographies are created in the course of the creator's employment or under contract for a third party, the protection shall apply in favour of the creator's employer or the third party as the case may be.

(3) Member States shall extend protection to nationals or residents of other states who do not qualify for protection in accordance with the provisions of the preceding paragraph provided that the Council has decided that such states protect topographies of semiconductor products created by the nationals or residents of Member States or first commercially exploited in a Member State to substantially the same extent as provided in this Directive or to substantially the same extent as they protect topographies of semiconductor products created by their own nationals or residents or first commercially exploited on their territories. The Council shall adopt decisions under this paragraph acting by qualified majority on a proposal from the Commission.

(4) The successors in title of the persons protected in accordance with paragraphs 1, 2 and 3 shall benefit from the protection after the title has been transferred.

(5) The preceding paragraphs of this Article are without prejudice to Member States' obligations under international agreements.

Article 4

(1) The Member States may provide that protection shall apply to the topographies of semiconductor products only when one or both of the following conditions are fulfilled:

(a) the topographies of the semiconductor products have been registered with a public authority;
(b) material describing or exemplifying the topographies has been deposited with a public authority.

(2) Conditions prescribing the fulfilment of additional formalities shall not be admitted.

Article 5

(1) The exclusive rights referred to in Article 2 shall include the rights to authorise any of the following acts:

(a) reproduction of the topographies in whole or in part;
(b) the selling, offering for sale, distribution or importation of the topographies or of semiconductor products incorporating the topographies.

(2) However, the exclusive right to authorise reproduction of the topographies shall not apply to reproduction solely for the purpose of analysing, evaluating or teaching the concepts, processes, systems or techniques embodied in the topographies or the topographies themselves.

(3) The exclusive right to authorise the acts specified in paragraph 1(b) shall not apply to any such act after the topography or the semiconductor product has been put on the market in a Member State by the person entitled to authorise its marketing or with his consent.

Article 6

The exclusive rights to which reference is made in Article 4 shall come to an end in respect of a particular topography on a date at least ten years from the date on which the topography was first fixed or encoded and not later than ten years either from the date on which a semiconductor product incorporating the topography was first commercially exploited or, where registration is a condition for protection, from the date on which the topography was registered.

Article 7

The protection granted to the topographies of semiconductor products in accordance with Article 4 shall not extend to any concept, process, system or technique embodied in the topography other than the topography itself.

Article 8

Where the legislation of Member States provides that semiconductor products incorporating topographies may be distinctively marked, the mark to be used shall be a capital T in a circle as follows: Ⓣ.

Section 3 – Continued application of other legal provisions

Article 9

The provisions of this Directive are without prejudice to any legal provisions protecting the topographies of semiconductor products other than those referred to in Article 2(2).

Section 4 – Final provisions

Article 10

(1) Member States shall bring into force the laws, regulations or administrative provisions needed in order to comply with this Directive within 18 months of its notification.

(2) Member States shall ensure that they communicate to the Commission the texts of the main provisions of national law which they adopt in the field covered by this Directive.

Article 11

This Directive is addressed to the Member States.

Elements for an Explanatory Memorandum

I – Introduction

(1) Integrated circuits and similar semiconductor products are formed from semiconducting, conducting and insulating material. These combine to form the transistors, diodes and other components required to make up an electronic circuit. The configuration of the various layers of an integrated circuit can be determined in several different ways, for example, by directing a pattern of light on to a photosensitive surface, which then permits specific areas of semiconductor material to be removed, and by 'doping' the material with other substances. The pattern of light is frequently determined by the use of masks which act much in the same way as stencils. Other examples of techniques in current use include direct writing with an electronic beam on semiconductor material.

(2) Integrated circuits are playing an increasingly important role not only in the electronics industry itself, but in a broad range of industrial sectors from motor vehicles to machine tools. High levels of investment are required to develop new, improved integrated circuits, particularly those of a more complex kind. At the same time, a circuit can be copied at a fraction of the cost of developing it from scratch. These copied products can significantly reduce the return on the investment made by the original developer and consequently adversely affect his ability to continue to invest in innovative designs.

(3) The legal protection available to the developer of new integrated circuits is in many cases far from clear. The degree of inventiveness to secure a patent may well be absent. Copyright or design protection seems not to be available in most jurisdictions both within and outside the Community, though copyright protection does appear to be available in at least the United Kingdom and Ireland and possibly also the Netherlands.

(4) To provide clearer protection for the design of integrated circuits in the United States, a Semiconductor Chip Protection Act was enacted on 8 November 1984. This creates a new and specific form of protection for the design of integrated circuits and other semiconductor products (mask works). The protection is made available to US nationals and domiciliaries as well as to foreign citizens whose states have entered into a treaty affording protection to mask works to which the US is a party. However, by Presidential proclamation, protection can also be extended to citizens of countries which the President finds extend protection to US nationals either on substantially the same basis as such countries protect their own citizens or on substantially the same basis as the US law. In addition, a transitional provision has been included in section 914 of the Act permitting the Secretary of Commerce to extend protection to foreign producers for three years from the Act's enactment if he finds that the countries in question are making good faith efforts and reasonable progress toward entering into a treaty with the US on the subject, or enacting legislation of a kind on which the President could later rely to extend the protection of the US Act indefinitely.

(5) In 1985, the Japanese legislature also adopted a law creating a specific form of protection for integrated circuits. (To be completed.)

(6) Within the Community, in the majority of Member States, the legal protection available to integrated circuits is at best uncertain and it appears likely that a number of legislative initiatives will be taken in the near future, partly in response to the United States legislation.

(7) Representatives of the European electronics industry have already expressed their concern about the situation to the Commission and have pointed out the disadvantages and risks that could flow from inadequate or insufficiently rapid adaptation of applicable legislation in the Member States. In the absence of clear protection in their countries of origin, semiconductor products developed in the Community will not be protected in the important American market. In addition, unco-ordinated responses at national level in the Community might pose new problems for electronics firms seeking to develop their activities on the basis of a single Community-wide market. Substantial differences in national laws could directly and adversely affect the functioning of the Community's internal market in integrated circuits and similar semiconductor products.

(8) At the international level, the World Intellectual Property Organization has just begun work intended to lead to a new international treaty on the protection of integrated circuits. A committee of experts will examine a draft treaty on the subject from 26 to 29 November 1985. At this stage, however, it is not clear whether such a treaty can be adopted in the near future.

Developments at Community level

(9) In these circumstances, the Commission considered it desirable that, as a matter of urgency, a proposal for a directive be made to ensure sufficiently convergent development of the laws of the Member States in this area. The preparation of such a proposal, together with a declaration by the Council of its intent to examine it with a view to its rapid adoption, would also create the conditions in which a petition could reasonably be made on the Community's behalf under section 914 of the United States law for transitional protection for Community semiconductor producers. Accordingly, on 19 June 1985, on the Commission's proposal, the Council adopted a resolution indicating its intention to examine the Commission's future proposal for a directive with a view to deciding on its adoption as rapidly as possible, subject to whatever amendments may be necessary, in particular, in the light of the Opinions of the European Parliament and the Economic and Social Committee. On the following day the Commission petitioned the United States authorities. (To be completed.)

II – The general approach of the Commission's proposal for a directive

(10) The Commission's proposal is designed to ensure that integrated circuits and similar semiconductor products are protected in every Member State in accordance with certain common basic principles, while at the same time it leaves the Member States considerable choice as to form and methods. This framework approach seems necessary since the legal starting points of the Member States are very different, while results need to be achieved quickly if the exercise is to achieve its objectives, in particular, continued protection for Community producers in the US and Japanese markets. A search for a uniform solution or even a relatively high level of harmonisation is likely to cause considerable delay which could be damaging to the

Community semiconductor industry. The proposed directive accordingly has a framework character similar to that of a number of existing international instruments in the industrial and intellectual property field including, for example, the Geneva Convention of 1971 for the Protection of Producers of Phonograms Against Unauthorised Duplication of their Phonograms and the Vienna Agreement of 1973 for the Protection of Type Faces and their International Deposit.

(11) In summary, the proposed directive seeks to specify what should be protected; who should benefit from the protection; which maximum formalities may be required to be fulfilled as a condition for obtaining protection; which acts should be considered infringements and which should not; and what limits should be respected as to the length of the protection. At the same time, Member States would be free to choose how they legislate for the protection, in particular, whether they rely on copyright or on some specific form of protection.

(12) In the longer term, consideration should also be given to the adoption of further measures designed to ensure that new and unnecessary obstacles to trade in semiconductor products do not arise within the Community. In particular, registration and deposit requirements in a number of Member States will clearly complicate the operations of semiconductor producers. The possibility of a single procedure, perhaps to be administered within the framework of the European Patent Organisation, should be addressed. The realisation of this objective is likely to take a considerable time. However, not least because of the need to agree on an extension of the European Patent Organisation's responsibilities, not only among Community Member States but also among the other members of the Organisation. Accordingly, it should be pursued separately from the discussion of the creation of a basic Community legal framework in the form of a directive. *A fortiori* the same applies to consideration of the adoption of a Community system for the protection of the topographies of semiconductor products or even for designs generally.

Legal basis

(13) Since divergent national legislation on the legal protection of integrated circuits and similar semiconductor products would adversely affect the functioning of the common market in those products, the appropriate basis for most of the directives is Article 100 EEC. In addition, given the reciprocity approach of the United States, it seems desirable to deal also with the question of protection for nationals from non-Member States. (Since such a provision has for its objective defining the conditions under which producers outside the Community will be entitled to protect products developed by them and accordingly has an intended effect on trade flows in such products across the external frontiers of the Community, Article 113 EEC also forms part of the proposed directive's legal basis.)

III – Particular provisions

Section 1 – Definitions

Article 1

(14) The first and second of these definitions specify the characteristics of the object to be protected, namely the 'topography' of a 'semiconductor product'. The definitions seek to be as specific as possible while at the same time not limiting the definition by reference to technical features that may soon prove to be outmoded.

(15) 'Topography' expresses the basic concept of images representing the physical configuration in three dimensions of a semiconductor product without being too closely founded on current techniques. It also appears to translate readily into most Community languages.

(16) 'Semiconductor' product is used rather than 'integrated circuit' so as to include items that are not in fact circuits because they are not complete circuits. The product must contain semiconducting material, have a particular form, and be intended to perform some electronic functions. Products also performing other functions, such as optical functions, are not excluded.

(17) 'Commercial exploitation' is defined for the purposes of Articles 3 (persons to benefit from protection) and 6 (term of protection).

Section 2 – Protection of topographies of semiconductor products

Article 2

(18) Article 2(1) contains the basic obligation of Member States to protect the topographies of semiconductor products by granting exclusive rights in accordance with the Directive's provisions. Article 2(2) provides that these rights may be granted in one of two ways: either by national copyright law or by provisions enacted for the specific purpose of protecting topographies of semiconductor products. Protection by other means, such as the generally applicable provisions of unfair competition law, will thus not satisfy the requirements of this Article, though they may continue to apply to protect topographies of semiconductor products in certain cases as is made clear by Article 9. The exclusion of unfair competition rules from Article 2 is explained by reason of their relatively undefined character at least as far as legislative provisions are concerned. In the present context, a higher degree of legislative precision and resulting certainty of application seems required.

(19) Article 2(3) in its first sentence excludes from protection topographies that do not fulfil certain conditions. Given the framework character of the Directive, these conditions have to be formulated in the alternative. Copyright systems will tend to rely on originality as the condition for the availability of protection. Specific forms of protection may rely either on originality or on novelty or on some combination of the two. A precedent for Article 2(3) is to be found in Article 7(1) of the Vienna Agreement on the Protection of Type Faces to which reference has already been made.

(20) The second sentence of Article 2(3) seeks nevertheless to ensure a convergent approach to topographies which consist only of elements that are known. Unless the manner in which the elements are combined can itself be said to be original or novel, protection will not be available whether under copyright or a specific regime. The simple combination of known elements is thus deemed unworthy of protection.

Article 5

(21) Article 3(1)(a) confirms the principle of national treatment to be applied by Member States to creators of topographies who are nationals or residents of another Member State.

(22) Article 3(1)(b) includes the further obligation to protect topographies first commercially exploited on a Member State's territory.

(23) Article 3(2) makes it possible for Member States to grant protection not to the creator but to the person, natural or legal, who employs him or for whom he contracted to produce the topography.

(24) Article 3(3) provides a mechanism whereby the Community will be able to promote the protection of the legal protection of topographies of semiconductor products in states which are not members of the Community by ensuring reciprocal protection for their producers within the Community's external frontiers.

(25) Obligations to protect topographies of semiconductor products arguably exist already as between certain states, though the issue may be controversial. The final paragraph of Article 3 is designed to ensure that the provisions in the Directive cannot

be used to support an argument denying the existence of international obligations in the field.

Article 4

(26) Laws enacted for the specific purpose of protecting topographies of semiconductor products may well provide for registration of claims for protection and for obligatory deposit of material describing or exemplifying the topography. This Article authorises Member States to make the availability of protection subject to conditions of this type. Whether, when and on what conditions the public should have access to deposited material is left to each Member State. In this connection, it should be borne in mind that under copyright systems in the Community there will be no obligatory deposit and *a fortiori* no disclosure of descriptive or exemplifying material.

(27) No further formalities as a condition for protection are admitted. Article 8 on marking concerns legal provisions that are facultative in character.

Article 5

(28) Acts which must be considered infringements are listed in Article 5(1). Reproduction of topographies in whole or in part of a semiconductor product covers reproduction in the form of a semiconductor product. Various means of qualifying 'in part', for example, by the addition of the word 'substantial', are possible, but it is doubtful whether they clarify the text and accordingly they have not been included. Article 5(1)(b) covers both traffic in semiconductors and in topographies as such.

(29) Article 5(2) concerns the difficult problem of so-called reverse engineering. The text as it stands permits reproduction of topographies for the purposes stated, but not the subsequent commercial exploitation of a topography including a reproduction in whole or in part of the topographies that have been analysed. (Whether to do so is a matter on which the views of government experts is particularly sought.)

(3) Article 5(3) applies the principle of Community exhaustion to the protection of topographies of semiconductor products.

Article 6

(31) Article 6 requires protection to last ten years from the time when the topography is first fixed to encoded, but not longer than ten years either from the first commercial exploitation of a product incorporating the topography or, where applicable, from the date of the topographies' registration. A bracket is thus established in which the Member States have a certain flexibility but which avoids substantial distortions resulting from widely varying terms of protection.

Article 7

(32) This Article makes clear that protection is limited to the configuration of the topography of the semiconductor product and does not extend to other possible features. If these are to be protected, the protection must have some other basis, such as patent law.

Article 8

(33) Member States may wish to provide for distinctive marking of protected semiconductor products, though marking cannot be made a condition for the availability of protection. Divergent marking requirements would constitute a nuisance better avoided. The prescribing of a common symbol for those states that wish to provide for one accordingly seems sensible.

(34) The same reasoning applies of course at the international level. The United States has opted in its law for an M in a circle, linked to the law's reliance on the concept of 'mask work'. However, given the likelihood of changing techniques in the future, the desirability of relying primarily on the concept of 'mask work' is doubtful. Consequently, the M symbol also seems questionable. The text therefore suggests a T symbol, but other possibilities also exist. If broad international agreement on a common symbol cannot be reached, another possibility would be for different symbols to be accepted on a reciprocal basis. To this end, the following might be added to the Article:

> However, as regards semiconductor products produced in states that are not Member States of the European Communities, the Council may decide that a different mark, to be specified in the Council decision, may be used. For the purposes of making such decisions, the Council shall act by qualified majority on a proposal from the Commission.

Section 3 – Continued application of other legal provisions

(35) This Article makes clear that laws protecting the topographies of semiconductor products other than copyright laws or laws enacted for that specific purpose continue to apply. Patent and unfair competition laws, each within its own field of application, are both examples of laws which may have a role to play.

IV – Matters not dealt with in the draft

(36) Certain matters have not been dealt with in the draft including innocent infringement through good faith possession of an infringing semiconductor product; temporary importation; remedies and compulsory licensing. These matters have been left to the Member States with a view to limiting the scope of the Directive and thereby increasing the chances of relatively rapid agreement on a basic legal framework at Community level. (Views of government experts on the advisability of including provisions on these or other matters are particularly sought.)

Semiconductor Chip Protection Act of 1984

(Title III of Public Law 98–620 of November 8, 1984)*

Short Title

Sec. 301. This title may be cited as the "Semiconductor Chip Protection Act of 1984."

Protection of Semiconductor Chip Products

Sec. 302. Title 17, United States Code,[1] is amended by adding at the end thereof the following new chapter.

Chapter 9—Protection of Semiconductor Chip Products

Sec.

§ 901. Definitions

(a) As used in this chapter—

(1) a "semiconductor chip product" is the final or intermediate form of any product—

(A) having two or more layers of metallic, insulating, or semiconductor material, deposited or otherwise placed on, or etched away or otherwise removed from, a piece of semiconductor material in accordance with a predetermined pattern; and

(B) intended to perform electronic circuitry functions;

(2) a "mask work" is a series of related images, however fixed or encoded—

(A) having or representing the predetermined, three-dimensional pattern of metallic, insulating, or semiconductor material present or removed from the layers of a semiconductor chip product; and

(B) in which series the relation of the images to one another is that each image has the pattern of the surface of one form of the semiconductor chip product;

(3) a mask work is "fixed" in a semiconductor chip product when its embodiment in the product is sufficiently permanent or stable to permit the mask work to be perceived or reproduced from the product for a period of more than transitory duration;

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* *Entry into force:* November 8, 1984.
Source: Communication from the United States authorities.
[1] Title 17 = Copyrights

(4) to "distribute" means to sell, or to lease, bail, or otherwise transfer, or to offer to sell, lease, bail, or otherwise transfer;

(5) to "commercially exploit" a mask work is to distribute to the public for commercial purposes a semiconductor chip product embodying the mask work; except that such term includes an offer to sell or transfer a semiconductor chip product only when the offer is in writing and occurs after the mask work is fixed in the semiconductor chip product;

(6) the "owner" of a mask work is the person who created the mask work, the legal representative of that person if that person is deceased or under a legal incapacity, or a party to whom all the rights under this chapter of such person or representative are transferred in accordance with section 903(b); except that, in the case of a work made within the scope of a person's employment, the owner is the employer for whom the person created the mask work or a party to whom all the rights under this chapter of the employer are transferred in accordance with section 903(b);

(7) an "innocent purchaser" is a person who purchases a semiconductor chip product in good faith and without having notice of protection with respect to the semiconductor chip product;

(8) having "notice of protection" means having actual knowledge that, or reasonable grounds to believe that, a mask work is protected under this chapter; and

(9) an "infringing semiconductor chip product" is a semiconductor chip product which is made, imported, or distributed in violation of the exclusive rights of the owner of a mask work under this chapter.

(b) For purposes of this chapter, the distribution or importation of a product incorporating a semiconductor chip product as a part thereof is a distribution or importation of that semiconductor chip product.

§ 902. Subject matter of protection

(a)(1) Subject to the provisions of subsection (b), a mask work fixed in a semiconductor chip product, by or under the authority of the owner of the mask work, is eligible for protection under this chapter if—

(A) on the date on which the mask work is registered under section 908, or is first commercially exploited anywhere in the world, whichever occurs first, the owner of the mask work is (i) a national or domiciliary of the United States, (ii) a national, domiciliary, or sovereign authority of a foreign nation that is a party to a treaty affording protection to mask works to which the United States is also a party, or (iii) a stateless person, wherever that person may be domiciled;

(B) the mask work is first commercially exploited in the United States; or

(C) the mask work comes within the scope of a Presidential proclamation issued under paragraph (2).

(2) Whenever the President finds that a foreign nation extends, to mask works of owners who are nationals or domiciliaries of the United States protection (A) on substantially the same basis as that on which the foreign nation extends protection to mask works of its own nationals and domiciliaries and mask works first commercially exploited in that nation, or (B) on substantially the same basis as provided in this chapter, the President may by proclamation extend protection under this chapter to mask works (i) of owners who are, on the date on which the mask works are registered under section 908, or the date on which the mask works are first commercially exploited anywhere in the world, whichever occurs first, nationals, domiciliaries, or sovereign authorities of that nation, or (ii) which are first commercially exploited in that nation.

(b) Protection under this chapter shall not be available for a mask work that—

(1) is not original; or

(2) consists of designs that are staple, commonplace, or familiar in the semiconductor industry, or variations of such designs, combined in a way that, considered as a whole, is not original.

(c) In no case does protection under this chapter for a mask work extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.

§ 903. Ownership, transfer, licensing and recordation

(a) The exclusive rights in a mask work subject to protection under this chapter belong to the owner of the mask work.

(b) The owner of the exclusive rights in a mask work may transfer all of those rights, or license all or less than all of those rights, by any written instrument signed by such owner or a duly authorized agent of the owner. Such rights may be transferred or licensed by operation of law, may be bequeathed by will, and may pass as personal property by the applicable laws of intestate succession.

(c)(1) Any document pertaining to a mask work may be recorded in the Copyright Office if the docu-

ment filed for recordation bears the actual signature of the person who executed it, or if it is accompanied by a sworn or official certification that it is a true copy of the original, signed document. The Register of Copyrights shall, upon receipt of the document and the fee specified pursuant to section 908(d), record the document and return it with a certificate of recordation. The recordation of any transfer or license under this paragraph gives all persons constructive notice of the facts stated in the recorded document concerning the transfer or license.

(2) In any case in which conflicting transfers of the exclusive rights in a mask work are made, the transfer first executed shall be void as against a subsequent transfer which is made for a valuable consideration and without notice of the first transfer, unless the first transfer is recorded in accordance with paragraph (1) within three months after the date on which it is executed, but in no case later than the day before the date of such subsequent transfer.

(d) Mask works prepared by an officer or employee of the United States Government as part of that person's official duties are not protected under this chapter, but the United States Government is not precluded from receiving and holding exclusive rights in mask works transferred to the Government under subsection (b).

§ 904. Duration of protection

(a) The protection provided for a mask work under this chapter shall commence on the date on which the mask work is registered under section 908, or the date on which the mask work is first commercially exploited anywhere in the world, whichever occurs first.

(b) Subject to subsection (c) and the provisions of this chapter, the protection provided under this chapter to a mask work shall end 10 years after the date on which such protection commences under subsection (a).

(c) All terms of protection provided in this section shall run to the end of the calendar year in which they would otherwise expire.

§ 905. Exclusive rights in mask works

The owner of a mask work provided protection under this chapter has the exclusive rights to do and to authorize any of the following:

(1) to reproduce the mask work by optical, electronic or any other means;

(2) to import or distribute a semiconductor chip product in which the mask work is embodied; and

(3) to induce or knowingly to cause another person to do any of the acts described in paragraphs (1) and (2).

§ 906. Limitation on exclusive rights: reverse engineering; first sale

(a) Notwithstanding the provisions of section 905, it is not an infringement of the exclusive rights of the owner of a mask work for—

(1) a person to reproduce the mask work solely for the purpose of teaching, analyzing, or evaluating the concepts of techniques embodied in the mask work or the circuitry, logic flow, or organization of components used in the mask work; or

(2) a person who performs the analysis or evaluation described in paragraph (1) to incorporate the result of such conduct in an original mask work which is made to be distributed.

(b) Notwithstanding the provisions of section 905(2), the owner of a particular semiconductor chip product made by the owner of the mask work, or by any person authorized by the owner of the mask work, may import, distribute, or otherwise dispose of or use, but not reproduce, that particular semiconductor chip product without the authority of the owner of the mask work.

§ 907. Limitation on exclusive rights: innocent infringement

(a) Notwithstanding any other provision of this chapter, an innocent purchaser of an infringing semiconductor chip product—

(1) shall incur no liability under this chapter with respect to the importation or distribution of units of the infringing semiconductor chip product that occurs before the innocent purchaser has notice of protection with respect to the mask work embodied in the semiconductor chip product; and

(2) shall be liable only for a reasonable royalty on each unit of the infringing semiconductor chip product that the innocent purchaser imports or distributes after having notice of protection with respect to the mask work embodied in the semiconductor chip product.

(b) The amount of the royalty referred to in subsection (a)(2) shall be determined by the court in a civil action for infringement unless the parties resolve the issue by voluntary negotiation, mediation, or binding arbitration.

(c) The immunity of an innocent purchaser from liability referred to in subsection (a)(1) and

the limitation of remedies with respect to an innocent purchaser referred to in subsection (a)(2) shall extend to any person who directly or indirectly purchases an infringing semiconductor chip product from an innocent purchaser.

(d) The provisions of subsections (a); (b), and (c) apply only with respect to those units of an infringing semiconductor chip product that an innocent purchaser purchased before having notice of protection with respect to the mask work embodied in the semiconductor chip product.

§ 908. Registration of claims of protection

(a) The owner of a mask work may apply to the Register of Copyrights for registration of a claim of protection in a mask work. Protection of a mask work under this chapter shall terminate if application for registration of a claim of protection in the mask work is not made as provided in this chapter within two years after the date on which the mask work is first commercially exploited anywhere in the world.

(b) The Register of Copyrights shall be responsible for all administrative functions and duties under this chapter. Except for section 708, the provisions of chapter 7 of this title relating to the general responsibilities, organization, regulatory authority, actions, records, and publications of the Copyright Office shall apply to this chapter, except that the Register of Copyrights may make such changes as may be necessary in applying those provisions to this chapter.

(c) The application for registration of a mask work shall be made on a form prescribed by the Register of Copyrights. Such form may require any information regarded by the Register as bearing upon the preparation or identification of the mask work, the existence or duration of protection of the mask work under this chapter or ownership of the mask work. The application shall be accompanied by the fee set pursuant to subsection (d) and the identifying material specified pursuant to such subsection.

(d) The Register of Copyrights shall by regulation set reasonable fees for the filing of applications to register claims of protection in mask works under this chapter, and for other services relating to the administration of this chapter or the rights under this chapter, taking into consideration the cost of providing those services, the benefits of a public record and statutory fee schedules under this title. The Register shall also specify the identifying material to be deposited in connection with the claim for registration.

(e) If the Register of Copyrights, after examining an application for registration, determines in accordance with the provisions of this chapter, that the application relates to a mask work which is entitled to protection under this chapter, then the Register shall register the claim of protection and issue to the applicant a certificate of registration of the claim of protection under the seal of the Copyright Office. The effective date of registration of a claim of protection shall be the date on which an application, deposit of identifying material, and fee, which are determined by the Register of Copyrights or by a court of competent jurisdiction to be acceptable for registration of the claim, have all been received in the Copyright Office.

(f) In any action for infringement under this chapter, the certificate of registration of a mask work shall constitute prima facie evidence (1) of the facts stated in the certificate, and (2) that the applicant issued the certificate has met the requirements of this chapter, and the regulations issued under this chapter, with respect to the registration of claims.

(g) Any applicant for registration under this section who is dissatisfied with the refusal of the Register of Copyrights to issue a certificate of registration under this section may seek judicial review of that refusal by bringing an action for such review in an appropriate United States district court not later than 60 days after the refusal. The provisions of chapter 7 of title 5[2] shall apply to such judicial review. The failure of the Register of Copyrights to issue a certificate of registration within four months after an application for registration is filed shall be deemed to be a refusal to issue a certificate of registration for purposes of this subsection and section 910(b)(2), except that, upon a showing of good cause, the district court may shorten such four-month period.

§ 909. Mask work notice

(a) The owner of a mask work provided protection under this chapter may affix notice to the mask work, and to masks and semiconductor chip products embodying the mask work, in such manner and location as to give reasonable notice of such protection. The Register of Copyrights shall prescribe by regulation, as examples, specific methods of affixation and positions of notice for purposes of this section, but these specifications shall not be considered exhaustive. The affixation of such notice is not a condition of protection under this chapter, but shall constitute prima facie evidence of notice of protection.

[2] Title 5 = Government Organization and Employees

(b) The notice referred to in subsection (a) shall consist of—

(1) the words "mask work", the symbol *M*, or the symbol M (the letter M in a circle); and

(2) the name of the owner or owners of the mask work or an abbreviation by which the name is recognized or is generally known.

§ 910. Enforcement of exclusive rights

(a) Except as otherwise provided in this chapter any person who violates any of the exclusive rights of the owner of a mask work under this chapter, by conduct in or affecting commerce, shall be liable as an infringer of such rights.

(b)(1) The owner of a mask work protected under this chapter, or the exclusive licensee of all rights under this chapter with respect to the mask work, shall, after a certificate of registration of a claim of protection in that mask work has been issued under section 908, be entitled to institute a civil action for any infringement with respect to the mask work which is committed after the commencement of protection of the mask work under section 904(a).

(2) In any case in which an application for registration of a claim of protection in a mask work and the required deposit of identifying material and fee have been received in the Copyright Office in proper form and registration of the mask work has been refused, the applicant is entitled to institute a civil action for infringement under this chapter with respect to the mask work if notice of the action, together with a copy of the complaint, is served on the Register of Copyrights, in accordance with the Federal Rules of Civil Procedure. The Register may, at his or her option, become a party to the action with respect to the issue of whether the claim of protection is eligible for registration by entering an appearance within 60 days after such service, but the failure of the Register to become a party to the action shall not deprive the court of jurisdiction to determine that issue.

(c)(1) The Secretary of the Treasury and the United States Postal Service shall separately or jointly issue regulations for the enforcement of the rights set forth in section 905 with respect to importation. These regulations may require, as a condition for the exclusion of articles from the United States, that the person seeking exclusion take any one or more of the following actions:

(A) Obtain a court order enjoining, or an order of the International Trade Commission under section 337 of the Tariff Act of 1930 excluding importation of the articles.

(B) Furnish proof that the mask work involved is protected under this chapter and that the importation of the articles would infringe the rights in the mask work under this chapter.

(C) Post a surety bond for any injury that may result if the detention or exclusion of the articles proves to be unjustified.

(2) Articles imported in violation of the rights set forth in section 905 are subject to seizure and forfeiture in the same manner as property imported in violation of the customs laws. Any such forfeited articles shall be destroyed as directed by the Secretary of the Treasury or the court, as the case may be, except that the articles may be returned to the country of export whenever it is shown to the satisfaction of the Secretary of the Treasury that the importer had no reasonable grounds for believing that his or her acts constituted a violation of the law.

§ 911. Civil actions

(a) Any court having jurisdiction of a civil action arising under this chapter may grant temporary restraining orders, preliminary injunctions and permanent injunctions on such terms as the court may deem reasonable to prevent or restrain infringement of the exclusive rights in a mask work under this chapter.

(b) Upon finding an infringer liable, to a person entitled under section 910(b)(1) to institute a civil action, for an infringement of any exclusive right under this chapter, the court shall award such person actual damages suffered by the person as a result of the infringement. The court shall also award such person the infringer's profits that are attributable to the infringement and are not taken into account in computing the award of actual damages. In establishing the infringer's profits, such person is required to present proof only of the infringer's gross revenue, and the infringer is required to prove his or her deductible expenses and the elements of profit attributable to factors other than the mask work.

(c) At any time before final judgment is rendered, a person entitled to institute a civil action for infringement may elect, instead of actual damages and profits as provided by subsection (b), an award of statutory damages for all infringements involved in the action, with respect to any one mask work for which any one infringer is liable individually, or for which any two or more infringers are liable jointly and severally, in an amount not more than 250,000 as the court considers just.

(d) An action for infringement under this chapter shall be barred unless the action is commenced within three years after the claim accrues.

(e)(1) At any time while an action for infringement of the exclusive rights in a mask work under this chapter is pending, the court may order the impounding, on such terms as it may deem reasonable, of all semiconductor chip products, and any drawings, tapes, masks, or other products by means of which such products may be reproduced, that are claimed to have been made, imported, or used in violation of those exclusive rights. Insofar as practicable, applications for orders under this paragraph shall be heard and determined in the same manner as an application for a temporary restraining order or preliminary injunction.

(2) As part of a final judgment or decree, the court may order the destruction or other disposition of any infringing semiconductor chip products, and any masks, tapes, or other articles by means of which such products may be reproduced.

(f) In any civil action arising under this chapter, the court in its discretion may allow the recovery of full costs, including reasonable attorneys' fees, to the prevailing party.

§ 912. Relation to other laws

(a) Nothing in this chapter shall affect any right or remedy held by any person under chapters 1 through 8 of this title, or under title 35.[3]

(b) Except as provided in section 908(b) of this title, references to "this title" or "title 17" in chapters 1 through 8 of this title shall be deemed not to apply to this chapter.

(c) The provisions of this chapter shall preempt the laws of any State to the extent those laws provide any rights or remedies with respect to a mask work which are equivalent to those rights or remedies provided by this chapter, except that such preemption shall be effective only with respect to actions filed on or after January 1, 1986.

(d) The provisions of sections 1338, 1400(a), and 1498(b) and (c) of title 28[4] shall apply with respect to exclusive rights in mask works under this chapter.

(e) Notwithstanding subsection (c), nothing in this chapter shall detract from any rights of a mask work owner, whether under Federal law (exclusive of this chapter) or under the common law or the statutes of a State, heretofore or hereafter declared or enacted, with respect to any mask work first commercially exploited before July 1, 1983.

[3] Title 35 = Patents

[4] Title 28 = Judiciary and Judicial Procedure

§ 913. Transitional provisions

(a) No application for registration under section 908 may be filed, and no civil action under section 910 or other enforcement proceeding under this chapter may be instituted, until 60 days after the date of the enactment of this chapter.

(b) No monetary relief under section 911 may be granted with respect to any conduct that occurred before the date of the enactment of this chapter, except as provided in subsection (d).

(c) Subject to subsection (a), the provisions of this chapter apply to all mask works that are first commercially exploited or are registered under this chapter, or both, on or after the date of the enactment of this chapter.

(d)(1) Subject to subsection (a), protection is available under this chapter to any mask work that was first commercially exploited on or after July 1, 1983, and before the date of the enactment of this chapter, if a claim of protection in the mask work is registered in the Copyright Office before July 1, 1985, under section 908.

(2) In the case of any mask work described in paragraph (1) that is provided protection under this chapter, infringing semiconductor chip product units manufactured before the date of the enactment of this chapter may, without liability under sections 910 and 911, be imported into or distributed in the United States, or both, until two years after the date of registration of the mask work under section 908, but only if the importer or distributor, as the case may be, first pays or offers to pay the reasonable royalty referred to in section 907(a)(2) to the mask work owner, on all such units imported or distributed, or both, after the date of the enactment of this chapter.

(3) In the event that a person imports or distributes infringing semiconductor chip product units described in paragraph (2) of this subsection without first paying or offering to pay the reasonable royalty specified in such paragraph, or if the person refuses or fails to make such payment, the mask work owner shall be entitled to the relief provided in sections 910 and 911.

§ 914. International transitional provisions

(a) Notwithstanding the conditions set forth in subparagraphs (A) and (C) of section 902(a)(1) with respect to the availability of protection under this chapter to nationals, domiciliaries, and sovereign authorities of a foreign nation, the Secretary of Commerce may upon the petition of any person, or upon the Secretary's own motion, issue an order extending protection under this chapter to such foreign nationals, domiciliaries, and sovereign authorities if the Secretary finds—

(1) that the foreign nation is making good faith efforts and reasonable progress toward—

(A) entering into a treaty described in section 902(a)(1)(A); or

(B) enacting legislation that would be in compliance with subparagraph (A) or (B) of section 902(a)(2); and

(2) that the nationals, domiciliaries, and sovereign authorities of the foreign nation, and persons controlled by them, are not engaged in the misappropriation, or unauthorized distribution or commercial exploitation, of mask works; and

(3) that issuing the order would promote the purposes of this chapter and international comity with respect to the protection of mask works.

(b) While an order under subsection (a) is in effect with respect to a foreign nation, no application for registration of a claim for protection in a mask work under this chapter may be denied solely because the owner of the mask work is a national, domiciliary, or sovereign authority of that foreign nation, or solely because the mask work was first commercially exploited in that foreign nation.

(c) Any order issued by the Secretary of Commerce under subsection (a) shall be effective for such period as the Secretary designates in the order, except that no such order may be effective after the date on which the authority of the Secretary of Commerce terminates under subsection (e). The effective date of any such order shall also be designated in the order. In the case of an order issued upon the petition of a person, such effective date may be no earlier than the date on which the Secretary receives such petition.

(d)(1) Any order issued under this section shall terminate if—

(A) the Secretary of Commerce finds that any of the conditions set forth in paragraphs (1), (2), and (3) of subsection (a) no longer exist; or

(B) mask works of nationals, domiciliaries, and sovereign authorities of that foreign nation or mask works first commercially exploited in that foreign nation become eligible for protection under subparagraph (A) or (C) of section 902(a)(1).

(2) Upon the termination or expiration of an order issued under this section, registrations of claims of protection in mask works made pursuant to that order shall remain valid for the period specified in section 904.

(e) The authority of the Secretary of Commerce under this section shall commence on the date of the enactment of this chapter, and shall terminate three years after such date of enactment.

(f)(1) The Secretary of Commerce shall promptly notify the Register of Copyrights and the Committees on the Judiciary of the Senate and the House of Representatives of the issuance or termination of any order under this section, together with a statement of the reasons for such action. The Secretary shall also publish such notification and statement of reasons in the Federal Register.

(2) Two years after the date of the enactment of this chapter, the Secretary of Commerce, in consultation with the Register of Copyrights, shall transmit to the Committees on the Judiciary of the Senate and the House of Representatives a report on the actions taken under this section and on the current status of international recognition of mask work protection. The report shall include such recommendations for modifications of the protection accorded under this chapter to mask works owned by nationals, domiciliaries, or sovereign authorities of foreign nations as the Secretary, in consultation with the Register of Copyrights, considers would promote the purposes of this chapter and international comity with respect to mask work protection.

Technical Amendment

Sec. 303. The table of chapters at the beginning of title 17, United States Code, is amended by adding at the end thereof the following new item:

Authorization of Appropriations

Sec. 304. There are authorized to be appropriated such sums as may be necessary to carry out the purposes of this title and the amendments made by this title.