Other ways of protecting computer software — what are the viable alternatives to copyright?

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Introduction

The regime for protection of intellectual property is a regime that was developed before the advent of the digital age.

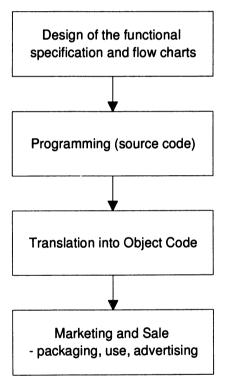
This fact has been the lament of many commentators, and provided fertile ground for argument and many discussion papers on proposed changes to accommodate for the deficiencies of the intellectual property regime. However, the task remains to attempt to protect software under the traditional heads of intellectual property protection.

Outside the copyright regime, of the other types of intellectual property that may be available to protect computer software from pirating and unauthorised copying, the most comprehensive type protection available is patent protection. availability of patent registration for computer software, and the incidence of patenting for computer software has rapidly increased since the decision of Burchett J. of the Federal Court in IBM v The Commissioner of Patents. Given the lack of specific provision for computer software, in the course of developing computer software, from design of functional specifications, to compiling the language and to marketing software products, awareness of interoperation of the different species of intellectual property is necessary to ensure maximum protection.

The purpose of this paper to is to examine the application of patent law to computer software, and the effectiveness of other forms of intellectual property in protecting computer software.

1. Locating "Intellectual Property" in Software

Sale of a computer program from concept development to market may involve many steps, many people and the interaction of many intellectual property rights. For the purposes of this paper the process of development is simplified to the following rudimentary steps:



Copyright protection is available to protect source code and object code (pursuant to the definition of computer program and in the Copyright Act 1968² and the decision in AutoDesk Inc v Dyason³). What about the design stage prior to the expression of the program in language? Arguably, it is at this stage when maximum innovation is involved and the subsequent translation of the design into programming language is relatively routine in comparison. Unlike the

European Directive on Computer Software⁴, the definition of a computer program in the Copyright Act does not include the program at the design phase. Of course, copyright will extend to the functional specifications and flow charts, being categorised either as literary or artistic works for the purposes of the Copyright Act 1968. Realistically, the erstwhile infringer access to functional specifications and flow charts will not retain evidence of copying of these articles. Perhaps the only copyright protection available for copying of the "program" at this stage is resort to the doctrine of non-literal copying⁵.

Other than resort to copyright protection and its attendant difficulties in application to software, the program, even at the design stage may be patentable subject matter, and it is recommended that any program of commercial potential be protected by taking out a provisional specification if possible. The advantage of patent protection is that, unlike copyright which protects expression of ideas, patents protect ideas and methods.

2. Patentability of Computer Software

Until recently the common perception was that hardware was patentable but software was not patentable but protected by copyright. Of course, this distinction begs the question of how do you distinguish the subject matter that is neither hardware or software and appears to fall between two stools (for example, the Widget C in the AutoDesk v Dyason case). The line drawn for dealing with this problem was, until relatively recently, if the invention was able to be implemented on a general purpose computer it had to be software and therefore, was not patentable.

The origin for this approach was a prohibition on patenting mathematical algorithms. This prohibition is the state of the law in Europe⁶, United Kingdom⁷ and the United States⁸. The rationale was that no person should be entitled to a monopoly over a mathematical algorithm or formula, and software that merely applied an algorithm or formula could not be considered a method of manufacture of some vendible product.⁹

The basic elements required for an invention to be patentable are:

- (a) a manner of manufacture;
- (b) novelty;
- (c) utility; and
- (d) inventiveness10.

The current state of the law in Australia following the IBM decision follows a line of authority of patent law developed to distinguish between two types of ways that patent claims were drafted for inventions, one being patentable and one not patentable. The early UK case of *Burrough's Application*¹¹ describes a patentable claim as follows:

"If a claim, whatever words are used, namely, whether the claim is, for example, for a "method of transmitting data ...", "a method of controlling a system of computers ..." or "a method of operating or programming a computer ...", is clearly directed to a method involving the use of apparatus modified or programmed to operate in a new way, as the present claims are, it should be accepted." 12

The more general conclusion of Graham J of the Patents Appeal Tribunal was that computer programs which have the effect of controlling computers to operate in a particular way, where such programs are embodied in physical form, are proper subject matter for letters patent.¹³

Put even more simply, the distinction is as follows. Patentable software affects the operation of the machine, so that a new machine is invented by the change the operation of the

machine, or the software has a technical effect. By comparison, a program that is merely the reproduction of a known intellectual process on a machine (eg a standard accounts package that comprises known accounting principles, albeit performed at a much faster rate) is not patentable.

The invention in Burroughs' case was a program that coordinated transmission of data from a central processor and remote data terminals. The terminals were linked to the processor by coded addresses. The main object of the invention was to allow selective distribution of data to a selected addressee terminal. The claims were couched in terms of a method for enabling this procedure to take place. The Tribunal found that the Examiner had erred in finding this invention unpatentable on the basis that it was not a manner of new manufacture, because the end product of the method was intellectual information, and remitted the matter to the patent office for reconsideration.

The software could be patented to the extent that claims could be framed as a method that results in "an improved or modified apparatus operating in a novel way, with consequent economic importance or advantageous in the field of the useful, as opposed to the fine arts".

3. Computer Patentability in Australia

The Freeman-Walter-Able test originated in the US as an amalgamation of the principles derived through three US cases¹⁴. The test may briefly summarised as follows:

- 1. A claim that recites and wholly preempts an algorithm is unpatentable.
- 2. If a mathematical algorithm exists in the claim, the claim as a whole must be further analysed and if the algorithm is applied to physical elements of the apparatus or limits steps in the process claims rather than merely calling for a solution of the algorithm, it is patentable.

In plain language, the focus in the second part of the test is on the end product of the algorithm - if the end product is a number or algorithm there is no invention, as opposed to a physical phenomena (the example used is a seismic trace from an American case).

In the IBM case, the delegate of the Commissioner of Patents found that the IBM invention for generating a smooth curve by computer was unpatentable. The invention in essence was for a method producing a visual representation of a curve image from a set of control points which define the curve computed by a set of scaled vector co-efficient integers. The main claim was for a method of plotting points at intervals, the intervals calculated so as to correct previous inaccuracies that had existed in plotting curves in computing.

The decision of the Delegate of the Commissioner of Patents was that the claim in question did not define a manufacture as required for a patentable invention, but recited a mathematical algorithm and that it entirely pre-empted the algorithm because it was too broad and not limited to a field of use. Such a claim falls foul of the first limb of the Freeman-Walter-Able test.

Using first principles in "reasoning" that resonated the logic of the earlier U.K. cases, Justice Burchett delivered a clear and lucid judgement that likened the use of the algorithms to the use of the invention of compounds in ridding crops of weeds, that were found to be a method of manufacture in the NRDC case.15 In the NRDC case the High Court found that the invention did involve a manner manufacture, with the requisite inventiveness because compounds were being exploited in a new way. Burchett J said:

"Just as those compounds were previously known, so here, it is not suggested that there is anything new about the mathematics of the invention. What is new is the application of the selected

mathematical methods to computers, and in particular, to the production of the desired curve by computer. This is said to involve steps which are foreign to the normal use of computers and, for that reason, to be inventive. The production of an improved curve image is a commercially useful effect in computer graphics."

It is probably arguable that the invention in question was properly patentable and the Commissioner had made a wrong decision, even without this "widening" of the law. The technical effect of the program was improved graphics, the end result being a new computer.

So, a mathematical equation is not patentable in isolation but when used to achieve a novel effect or product, the development is prima facie entitled to the patent. The test can perhaps be enunciated as "does the invention claimed involve the production of some commercially useful effect?"

The decision of *IBM Corp v The Commissioner of Patents* ¹⁶ also heralded the abandonment of the Freeman-Walter-Abel test that had been adopted by the Australian patent office in 1986, and the adoption of a more simple and user friendly approach to determining patentability of computer programs.

However, perhaps the important gateway that the *IBM* case created was for the patenting of software that did not change the function of the machine to create a new machine but because it has a commercially useful effect, it may be patented (assuming sufficient novelty).

The software the subject of the full Federal Court decision in CCOM v Jeiging¹⁷ falls within this new category of patentable software. The petty patent in suit in CCOM v Jeiging was a computer processing apparatus for assembling text and Chinese characters. The claimed invention sought to allow the user of a conventional keyboard to create the 20 to 30 thousand Chinese characters required from the numerous different stroke types comprising characters

(and were claimed in the patent in question). The number of keystrokes involved in each character could range up to 50 strokes for simple characters. As the operator of the keyboard chooses strokes in order on keyboard with entry keys designated to indicate chinese character strokes, the program used a look up table to identify all characters comprised of the strokes entered in the order of the strokes entered. The searching procedure undertaken by the computer eliminated the possible Chinese characters that the user was trying to create through input of the strokes in that order, and displayed on screen the possible characters that could be formed from those strokes, the characters displayed becoming more select the more key strokes entered.

The Full Federal Court, on appeal, overturned the decision of Cooper J at first instance that the invention claimed was a procedure used to process and organise data relevant to Chinese characters, and as such was use of human intellect and not the useful arts. The Full Court found the idea of the invention to be:

"the use of a particular method of characterisation of character strokes which is applied to an apparatus in such a way that operation of the keyboard will enable the selection through the computer, in a particular way, of the appropriate Chinese characters required for word processing." ¹⁸

The Court held that the invention was patentable subject matter because it achieved an end result of retrieval of graphic representations of desired characters for assembly of text, the mode of achieving this being the storage of data analysed by strokes, searching and selection of characters by reference to the store data.¹⁹

Before the *IBM* decision, this software would have been considered unpatentable because it merely adapted a known word processing package by use of algorithms and language, altering the output of the machine without creating a new machine functioning differently from

the machine before the program was loaded.

4. Comptons Patent and the floodgates

In the US, the widening of the scope of patentability of computer software brought an outcry from the computer software industry. In particular, the granting by the US Patent Office of Compton's New Media's multimedia patent purporting to cover all multimedia operations was greeted with dismay. In 1993, Comptons announced that it had been granted a patent that covered virtually all multimedia applications and applications that search a CD-ROM. It also announced its plan to aggressively prosecute the patent.

Given the US patent office practice of keeping patent applications secret until grant (in Australia they are laid open to public inspection 18 months after filing), no-one in the industry knew of the patent application. Due to the outcry from the industry the US Patents Office reopened the case for examination and revoked the patent.

It appears that the reason for the granting of the patent was a failure of the examiner to appreciate that there was any prior art in the area. The resulting public criticism was directed at the Patent Office staff and their inability to be able to judge novelty in the field of computer software. Of course, given an opportunity to oppose the grant, the patent would not have been granted.

5. Confidential Information

At the inception of any new software project, it may be the case that little exists in which copyright will vest, and the development that exists is insufficient or too uncertain or perhaps not novel enough to consider filing a patent application²⁰. At this stage, it is the combined protection of copyright and confidential information that operates to allow free discussion between potential joint venturers. Even if a patent application has been filed, if it has not been laid open to the public (generally 18 months after filing), confidentiality

should be maintained. If the software is not patentable or has not been developed to the stage where a provisional patent specification can be filed, it is highly recommended that any discussions be held in the context of a confidentiality agreement having been executed by all parties involved in the discussion. Of course, duties of confidentiality arise independent of contract, but a deed acknowledging the confidentiality of the subject matter of any discussions may bring this issue to the forefront of the mind of the recipient of the confidential information.

Apart from contractual obligations that may exist, a claim for breach of an obligation of confidence lies in equity. Three requirements must be satisfied for an action in equity for breach of confidence to succeed:

- 1.the information must be "confidential" ie have the necessary element of confidence about it;
- 2. the information must be imparted under circumstances importing an obligation of confidence;
- 3. there must be an unauthorised use of that information to the detriment of the person who communicated the information²¹.

In SmithKline & French Laboratories (Australia) Ltd v Secretary for Health²² Gummow J identified a further element giving rise to a breach of an obligation of confidence - that the plaintiff must be able to identify with specificity and not merely in global terms the information which is said to be the confidential information in question.

Although Australia has no law of trade secrets as such, information that has been protected as confidential information includes items ranging from commercial information such as industrial processes, formulas, customer lists, engineering and design drawings. Confidential information ceases to be confidential once it falls into the public domain.

Once computer software is generally out on the market, it is difficult to

argue that the information comprising any program is not in the public domain. The circumstances will be entirely different, in relation to highly specialised software or bespoke software, few copies of which have been made or are installed or accessible. In these circumstances it is recommended that obligations of confidentiality be imposed during the course of any software licence as a contractual term. These obligations of confidentiality should extend to the licensee of the software being obliged to keep the software in a secure place with limited access, no copies being made (except a back up copy in the course of authorised use), and staff with access to the program being identified to the licensor. Although remedies may be available against any employee or other person charged with the theft of the software for infringement of copyright, it is useful to include such provisions in a software licence, firstly as an impediment to potential theft and to provide a further recourse against the licensee for breach of contract. This may be a valuable line of attack in instances of reverse engineering. If no patent or design rights are infringed, it may be quite legitimate for a third party to engineer a new product from what was discovered from a product available.

On a practical level, to assist in proof of a breach of confidence it will be of assistance when dealing with contractors potential partners or venturers to:

- enter into a deed acknowledging the confidential nature of the discussions to take place;
- accurately describe the information that may be divulged in the course of negotiations;
- clearly mark any documentation handed over with "CONFIDENTIAL - PROPERTY OF XXXX"

6. Employees and confidential information

The issue of confidential information often arises in the course of employer and employee relations. In this

context, "trade secrets" is often used to refer to type of information arising in this relationship²³. During the course of an employee's employment, information imparted to an employee must be used by the employee only for the benefit of the employer (because of a duty of good faith). However, disclosure to contractors does not give rise to this duty. Although the obligation of confidence on an employee is the same as the obligation on any another person, the difficulty arises in policing breach of confidence and in drawing the line between the confidentiality of information imparted to the employee and the right of an employee to continue in gainful employment is the employee's chosen field. As an adjunct to this policy consideration, if an employee can prove that the information being used by the ex-employee exists other than in his/her head, and there is no evidence of customer lists or other documentary information being taken by the ex-employee, the courts are reluctant to restrain the exemployee from using the information.

McLelland CJ recently applied these principles, (first enunciated in Faccenda Chicken Ltd v Fowler & Ors²⁴) in the Equity Division of the New South Wales Supreme Court in Security Storage Pty Ltd v Neilson²⁵. In that case, the defendant was previously employed by the plaintiff as a sales manager from 1988 to 1993. The Court ordered the defendant to stop communicating with Telecom and MLC for the purpose of any business competing with the plaintiff's business but refused to make the further orders sought; the return of information believed to be in the defendant's possession; restraint of the defendant from using certain information to solicit orders from certain customers of the plaintiff; restraint of the defendant from utilising or disclosing certain sensitive information relating to Telecom and MLC with which the plaintiff was in the latter stages of negotiation of contracts. McLelland CJ quoted from Faccenda Chicken:

"..It was pointed out in Faccenda Chicken (at 137) that in the absence of a contractual restraint the only information of a confidential nature which a court will protect form use of disclosure by a former employee is information which can properly be classed as a trade secret or is material which, while not properly described as a trade secret, is in all the circumstances of such a highly confidential nature as to require the same protection as a trade secret."²⁶

In order for an employer to obtain the benefit of maximum protection of its confidential information and trade secrets, it is advisable for the employer to contract with higher level employees incorporating a restrictive covenant that reasonably protects the employer. Restraints must be carefully drafted, because if the drafting is too far reaching they will be overturned if subject to the scrutiny of the courts.

7. Trade Marks

Generally, the applicability of trade marks to computer software is an issue that will arise at the stage of marketing. Trade marks should be registered to obtain clear protection and priority to a particular mark. Unregistered or common law trade marks are protected by the laws relating to passing off and sections 52 and 53 of the *Trade Practices Act* (and state *Fair Trading Acts*)

Under the new *Trade Marks Act* 1995, effective 1 January 1996, the range of trade marks available may give rise to greater scope of use of trade marks to protect indicia of a program, such as screen displays.

Section 17 of the new Act defines a trade mark as:

"a sign used, or intended to be used, to distinguish goods or services dealt with or provided in the course of trade by a person from goods or services so dealt with or provided by any other person."

"A sign" is in turn defined as:

"any letter, word, name, signature, numeral, device, brand, heading, label, ticket, aspect of packaging, shape, colour, sound or scent."²⁷ This extended definition of registrable items as trade marks to include shapes may give rise to protection of sounds, shapes and symbols unique to a software program. To the writer's knowledge, no applications are pending under the new legislation in this regard. However, under similar legislation outside Australia, the sound of the Harley Davidson motor cycle has sought to be registered as a trade mark, the Coca cola bottle, and the smell of certain tyres.

8. Circuit Layouts Act 1989

Circuit Layouts Act 1989 specifically provides for protection for original circuit layouts and integrated circuits made accordance with a circuit layout. The Act makes other intellectual property law inapplicable to circuit layouts (eg. copyright and registered designs)28. There is a requirement of originality so that some degree of creativity is required in the circuit layout. The structure of Circuit Layouts Act 1989 is similar to protection afforded by the Copyright Act 1968, but with a protection period of 10 years from the date the layout was commercially exploited, or if not exploited 10 years from the date it was made.29 An integrated circuit is a circuit, whether in final form or in intermediate form, for one of the purposes, of which is to perform an electronic function, being circuit in which the act of impassive elements, and any of the interconnections, are integrally formed in or on a piece of material.30

The definition of originality is that a circuit layout is not original if:

- (a) its making involved no creative contribution by the maker; or
- (b) it was common place at the time it was made.³¹

The exclusive rights of the owner of a circuit layout are called "EL Rights", and include the right to:

- (a) copy the layout, directly or indirectly in the material form,
- or
- (b) to make an integrated circuit in accordance with the layout or

- a copy of the layout, and
- (c) to exploit the layout commercially in Australia.³²

It is an infringement to do any of these things without the licence of the owner of the "EL Rights". However, it is a defence for a person who seeks to commercially exploit in Australia an integrated circuit made in accordance with a protected circuit layout without the licence of the owner of EL Rights, if at the time the person acquired the integrated circuit, that person did not know and could not reasonably be expected to have known that they were not licensed to do so by the owner.33 There are also a number of other provisions for circumstances in which EL Rights are not infringed³⁴.

This defence was considered by the High Court on appeal from the Federal Court in Nintendo Co Limited v Centronics Systems Pty Limited & Ors35. In that case, Nintendo claimed infringement of, amongst other intellectual property rights, its rights under the Circuit Layouts Act 1989 in original a circuit layout reproduced in integrated circuits in ROM chips incorporated in video games. The High Court found that Centronics was protected by Section 19(3) of the Act because when it acquired the units it did not know and could not reasonably be expected to have known that any person other than the person from whom it had acquired the units had any rights in relation to the layout in accordance with which the integrated circuit had been made.

The High Court interpreted the constructive knowledge provisions of s.19(3) as meaning that what was required was actual or constructive knowledge by an alleged infringer that he or she is unauthorised to exploit the protected layout by any person satisfying the description of the owner of the relevant intellectual property right. In this case, the Court held that it was not enough that Centronics knew, at the time of the acts of alleged infringement, that it was not licensed by Nintendo to exploit the Nintendo layout commercially in Australia. It was necessary that it also be established

that Centronics also knew or reasonably ought to have known, at that time, that the Nintendo layout existed and that Nintendo was the owner of exclusive EL Rights in it. Because of correspondence between Nintendo's solicitor and Centronics, it had been admitted that Centronics at least had constructive knowledge of the admitted existence of Nintendo's EL Rights in the Nintendo layout, and the identity of Nintendo as the owner of the rights.

9. Remedies for Infringement

The range of remedies available for intellectual property infringement are varied and sometimes unique to this field. Because of the potential damage that can ensue to a rights holder if urgent relief is not granted, interlocutory injunctions are a common form of relief applied for on an urgent basis and Anton Piller orders are a useful method of obtaining evidence of infringement.

9.1 Anton Piller Order

If the owner of intellectual property suspects an infringement is occurring, has occurred, or there is a threat of it occurring, and also has a fear that any evidence of infringement will be destroyed if proceedings are issued, the owner of the intellectual property may apply to a court exparte for an order that he be allowed, with his solicitor and a further independent solicitor, to enter and search premises and to seize or make copies of any evidence. The order will not be granted lightly and only circumstances where there is a real risk of evidence being destroyed by the alleged infringer. A detailed record of the material taken must be made.

An interesting recent case outlining the pitfalls of making an application for and Anton Piller order without disclosing all relevant facts is Milcap Publishing Group AB and others v Coranto Corporation Pty Ltd36. Davis J awarded an Anton Piller order on behalf of the applicants in relation to pirated copies of Milcap adult videos, of which the second and third applicants were the exclusive Australian distributors. The

applicants were initially successful in having granted an Anton Piller order which was set aside on the basis that a full and frank disclosure of all material facts not being made to the Court by the applicants as was required. The material fact in question that had not been disclosed was that the applicants were themselves taking in as an ordinary part of their business, pirated cassettes and retailing the pirated cassettes in the ordinary course of their business. The affidavit filed in support of the Anton Piller order gave the impression that the two applicants were selling the Milcap videos as new products and it said nothing whatsoever about the fact that their shops carried on an exchange business. Davis J did not say if this fact had been disclosed, an order would have been refused, but only that further attention would have had to be have been given by the Court to a number of matters.

9.2 Interlocutory Injunction

Interlocutory injunctions are an appropriate type of urgent relief available where infringement of intellectual property has occurred. This injunction must be obtained early in the proceedings or simultaneously with the filing of the proceedings, to restrain the alleged wrong doer from doing an act complained of until the final hearing of the matter has taken place. Successfully obtaining interlocutory injunction may have the effect of stymieing the person subject of the injunction from further action, ensuring that the action stops dead.

The applicant for the injunction must show that:

- there is a serious question to be tried.
- the balance of convenience favours the granting of an injunction.

deciding the balance of convenience, it is relevant to consider the appropriateness, or otherwise of damages in compensating the rights holder. If the court orders an interlocutory injunction, the applicant must give an undertaking to the Court as to pay any damages the person, the subject of the order, may suffer in the event that the applicant is not successful at the final determination of the matter.

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- (1992) 22 IPR 417.
- S.10 Copyrights Act 1968
- Autodesk Inc v Dyason (No. 1) (1991) 104 ACR 563 at page 564
- see Council Directive of 14 May 1991 on the Legal Protection of Computer Programs and in particular, Article 1, Clause 1.
- For an example of non-literal copying see Richardson v Flanders [1993] FSR 497
- Article 52 European Patent Convention Section 1(2) UK Patents Act 1977
- see Gottschalk v Benson 34L Ed 2d 273
- See Slee and v Harris' application [1966] RPC 195
- Section 18 Patents Act 1990
- Burroughs Corporation (Perkins') Application [1974] RPC 147
- Burroughs Corporation (Perkins') Application pg 160. See also International Business Machine Corporations application [1980] FSR 564; Slee and Harris's application [1966] RPC 195.
- at page 161
- Re Walter 205 US PO 397 (1980). Nicole Re Freeman 97 US PQ 464 (1978), Re Abel & Marshall 214 US PQ 682 (1982)
- National Research Development Corp v Commission of Patents (1959) 102 CLR 252
- 22 IPR 417
- CCom Pty Ltd and Another v Jeijing Pty Ltd and Others (1994) 28 IPR 481.
- CCom Pty Ltd and Another v Jeijing Pty Ltd and Others (1994) 28 IPR 481 at 507
- CCom Pty Ltd and Another v Jeijing Pty Ltd and Others (1994) 28 IPR 481 at 514
- The International Bureau of WIPO estimated that only 1% of all computer programs would have sufficient inventiveness to satisfy the novelty and of requirements inventiveness:(1977) 16 Industrial Property 259
- Megarry J in Coco v A N Clark (Engineers) Ltd [1969] RPC 41 at 47
- (1990) 95 ALR 87
- for example see Secton Pty Ltd v Delawood Pty Ltd (1991) 21 IPR 136
- [1987] 1 Ch 1 17
- (1993) Supreme Court, unreported
- at page 13
- Section 6 Trade Marks Act 1995
- Section 49 of the Circuit Layouts Act 1989 amends the Copyright Act, Section 10 to exclude circuit layout from the meaning of an artistic work and Section 4(1) of the Designs Act 1906 by excluding an integrated circuit from the definition of an article.
- S.5 Circuit Layouts Act 1989
- Section 5 Circuit Layouts Act 1989.
- Section 11, Circuit Layouts Act 1989
- Section 70 in the Circuit Layouts Act 1989
- Section 19(3) Circuit Layouts Act 1989
- Section 21 copying for private use; Section 22 copying for research or teaching purposes; Section 23 - copying for evaluation or analysis;
- (1994) 1818 CLR 134 Citation 1995 32 IPR 34