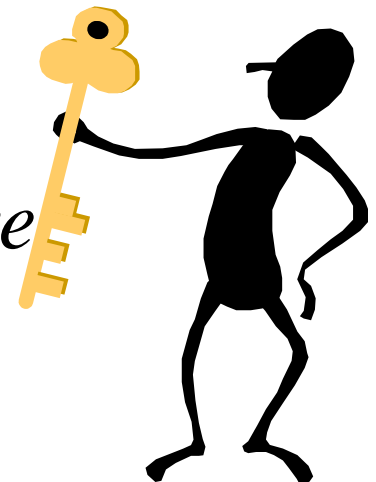# Intellectual Property in the Digital Age

CIS*2750

Professional Aspects of Software Development

What is Intellectual Property?

- **Ideas** and their consequences are *intangibles* and as such pose a problem for those people who wish to benefit from or regulate their use.

- The products of intellectual pursuits have not always been thought of as "property" and the common law did not recognize the privatization of ideas – **legislation** created this concept.

Historical Perspective

- Some of the oldest forms of IP:
    - Venetian decree of 1474
    - *English Statute of Monopolies* of 1624
- Copyright started as a response to the protections desired by the early 18th century London book trade.
- IP revolves around the concept of *encouraging new enterprise by granting monopolies*.

Types of Intellectual Property

- There are 3 basic types of IP:
  - Copyright
  - Patents
  - Trademarks
- Common features of IP law include:
  - Territoriality
  - Cumulative Rights
  - Registration
  - Marking Optional
  - Constitutional Problems

Copyright

- The Canadian *Copyright Act* was enacted in 1921 and was basically a copy of the 1911 U.K. copyright law.

- Major amendments in 1931, 1988, 1993, and 1994.

  - As a result of NAFTA, Canada was compelled to protect copyright to the 1971 level of the *Berne Convention for the Protection of Literary and Artistic Works.*

Central Aim of the *Act*

- To grant rights of exploitation to **authors** of original literary, dramatic, musical, and artistic works.

  – The means of creation (old or new technologies) is not an issue.

  – Quality and legality are irrelevant!

  – Protection is automatic and usually lasts for the author's life plus 50 years.

    - *US now: life plus 70 years; corporation 95 years*

Why Copyright?

- The encouragement of culture!
  - Provide incentives to authors and artists to produce work.
  - Provide incentives for investors that finance and distribute these cultural creations.
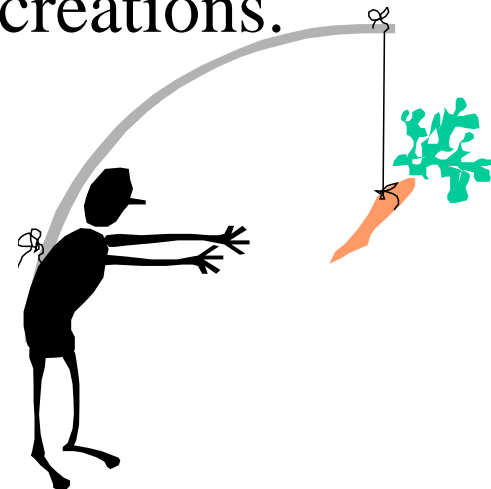
Key Features of Copyright Protection

- Only *original* work is protected.

  - Does not have to be truly *novel*, just original.

- Copyright law only prevents *copying*.

  - Does not punish independent creation.

- Copyright protects creative *expressions* only.

  - Ideas, schemes, systems, artistic style, or method of production or construction are not protected (though might qualify for patent protection).

- Protection is *automatic*, whether stated or not

What can be Copyrighted?

- Literary, dramatic, musical, and artistic works.
  - **Computer programs**, lectures, examination papers, medical records, user manuals, letters.
  - *Are the products of e-mail, electronic forums and messaging copyrightable?*
- Compilations
  - A work resulting *"from the selection or arrangement of literary, dramatic, musical or artistic works or of parts thereof"* or of data.

Computer Programs

- Definition of a computer program according to the *Act*:

  A set of instructions or statements, expressed, fixed, embodied or stored in any manner, that is to be used directly or indirectly in a computer in order to bring about a specific result.

Computer Program IP

- Definition of a program includes
  - Source and object code for the operating system and application programs
  - Component routines
  - Screen display generated by a program
- Complex systems that consist of many linked programs are considered to be *compilations*.

Problems with Program IP

- Infringement trials are like patent trials – far-ranging and expensive – but more difficult because **claims** are not staked out *in advance* about which parts of the system are covered by copyright.

- Software *style* appears literary and therefore in the domain of copyright, but the *substance* resembles the stuff of patent laws.

When has a *Program* been "Copied"?

- Copying the source or object code.

- Rewriting code to achieve the same effect may *reproduce* the original code in the legal sense.

- Displays of a game can be produced as an *artistic work*.

- Ordinary user interfaces and most screen displays are *not* protectable – their features are dictated by functional considerations.

When has a *File* been "Copied"?

- Files are reproduced when copied to permanent memory – disk, CD-ROM, tape.
- **U.S.** courts have ruled that downloading a file to temporary (volatile) memory *is* an infringement of copyright.
  - This creates the *exclusive right to read*.
  - This is not the law (yet) in Canada.

How Much Copying is Infringement?

- A copyright owner cannot control every particle of his/her work.

  - Using 60 lines out of 14,000 lines of code was found not to be an infringement especially since it was determined that the 60 lines could have been re-coded from scratch in 20 minutes.

Databases and Copyright

- For a database to be protected under the *Copyright Act* it would have to come under the definition of "compilation".

- Compilation was not defined in the Act prior to 1994 and the courts had to determine the scope of protection afforded to compilations of data.

Compilations Pre-1994

- *Sweat of the brow* approach:
  - Copyright protection was given to compilations that required the expenditure of either
    - Intellectual *effort* (arranging or selecting the data)
    - Labour or manual *effort*.
  - These principles are not well separated in pre-1994 judgments.

Compilations Since 1994

- The definition in the *Copyright Act*:

  …compilation means

  a) *a work resulting from the selection or arrangement of literary, dramatic, musical, or artistic works or of parts thereof; or*

  b) *a work resulting from the selection or arrangement of data*

  – No protection for compilers that expend effort but present the data in a straightforward, unoriginal manner?

In the United States…

- This is actually the case since *Feist Publications, Inc v. Rural Telephone Service Co., Inc. (1991)*

    – White pages telephone directory was **not** protected because it consisted of facts presented in a completely ordinary, uncreative way.

    – Repudiated case law using *sweat of the brow* approach.

In Canada…

- There have not been many compilation cases, but
  - Those cases that have occurred have had a certain *Feistian* quality about them.
  - CRTC has not afforded protection to telephone listings.
- Federal Court of Appeal has confirmed that some amount of **creativity** must exist to justify granting protection of a collection of facts.

In Europe…

- The European Union adopted a directive requiring member states to implement a national law offering specialized protection to databases.

  – Only databases where there is originality in the selection or arrangement of the contents (*Feistian*).

  – Establishes a new form of right which protects the factual contents of the database.

The Legal Protection of DBs

- Prevention of unauthorized extraction of all or a substantial part of the contents of a database.

- Prevention of such contents being made available to the public.

- 15 year duration – shorter than copyright.
  - New term to begin whenever the DB is substantially changed.

Patents

- Patents are granted to inventors for new, useful, and non-obvious ideas with practical industrial application.
  - The most powerful form of IP protection.
- The goal of patents is to stimulate the creation and development of new technologies by giving the creator a period of time to develop and market the invention without competition.

How Do Patents Work?

- A patent is granted by the Patent Office (PO)
- It lasts for 20 years from the date of filing.
- Patent holders have an absolute monopoly:
  - Nobody can make, sell, or use the invention without permission.
  - Independent creation is also suppressed.
  - Must pay yearly maintenance fees ($100/yr, escalating every 5 yrs to $450).

What Can Be Patented?

- The definition of what can be patented differs from country to country.
  - Canada and the U.S. have explicit definitions for what can be patented.
  - U.K. never defined invention – their act leaves it for the judges to figure out!
  - European patent laws define invention negatively.
- There are pressures to constantly keep re-defining what is patentable.

Canada v. United States

- In the U.S. these reforms often come from the courts as well as the Congress.
  - Federal circuit court in Washington, DC, handles all patent appeals.
  - U.S. courts tend to consider everything man-made to be patentable particularly if it advances U.S. economic policy.
- Canadian judges are reluctant to extend the definition – they leave this to Parliament.

Unpatentable Inventions

- Computer programs are generally **not** patentable in Canada.

    - Canada adopted this position in 1978.

- Programs are treated as *algorithms*:

    a set of rules or processes for solving a problem in a finite number of steps

- Algorithms are considered *abstract theorems* which cannot be patented.

But…

- A computerized method of controlling the operation of an industrial plant *is* patentable.

- The U.S. has allowed patents by claiming that in the general case of a computer program, the apparatus being controlled *is the computer* and therefore the program is patentable.

Canadian PO Guidelines

- Unapplied mathematical formulae are considered equivalent to mere scientific principles or abstract theorems which are not patentable.

- The presence of a programmed general purpose computer or program for such a computer does not lend patentability to, nor subtract patentability from, an apparatus or process.

Canadian PO Guidelines

- New and useful processes incorporating a computer program, and apparatus incorporating a programmed computer, *are* patentable subject matter if the computer-related matter has been **integrated with another practical system** that falls within an area which is traditionally patentable.

Software Patents: *Cons*

- Software is too mathematical and scientific.
- Software is not embodied in a physical device.
- Changes to software are too incremental to be inventive.
- It is too difficult to effectively search the PO for software patent validation.

Software Patents: *Cons*

- Software patents have been issued that would not have been if the relevant **prior art** had been known by the PO.

- The staff of the PO are not qualified in matters relating to software.

- The software industry already has copyright and trade secrets to help protect their IP and investments.

Software Patents: *Pros*

- Software should not be treated differently from other inventions.

- PO is getting better at judging software patent applications.

- Software patents are here and it's too late to close the barn door!

- The U.S. and Japan are already issuing software patents.

Trademarks

- A word or a symbol that is used to distinguish the products or services of one supplier from another.

- Trademark law is more a matter of consumer protection than IP.

- Trademarks can be registered under the *Trade-Marks Act*.
  – Affords national protection of the trademark.

The Trade-Marks *Act*

- Gives the owner exclusive right to its use throughout Canada.

- Protects against the use of the trademark or a confusingly similar mark in association with similar products and services.

- Prohibits use of the trademark in a manner that depreciates the goodwill in the trademark.

Registration

- To be registered the trademark must
  - It must be distinctive of a single supplier.
    - It must not be confusing with another existing registered trademark.
  - It must not be clearly descriptive—rejected:
    - IBM's *Business Solution Centre*
    - Ontario Teachers' Pension Plan Board *Teachers'*
- Registration is effective for 15 years and can be renewed indefinitely.

Internationalization

- Intellectual property protection is afforded by a variety of international treaties and conventions.
  - With respect to copyright, Canada is a signatory to:
    - Berne Convention
    - Universal Copyright Convention
    - Rome Convention

International Treaties

- Grant nationals of signatory countries reciprocal protection based on the principle of national treatment and established minimum requirements.

- For patents and trademarks, Canadians must file applications in foreign jurisdictions in order to obtain protection and vice versa.

References

- **Intellectual Property Law (Copyright, Patents, Trade-marks)** by David Vaver, Irwin Law: Essentials of Canadian Law Series, 1997.

- **Computer Law** by George S. Takach, 2/E, Irwin Law: Essentials of Canadian Law Series, 2003.

- *Both available thru UG library*