



ROBIC + LAW
+ BUSINESS
+ SCIENCE
+ ART

LAWYERS, PATENT AND TRADEMARK AGENTS

www.robic.ca

LIMITS TO PATENTABLE SUBJECT MATTER IN COMPUTER RELATED INVENTIONS

John C. Reich
Merchant & Gould (Minneapolis)

Louis-Pierre Gravelle
Robic (Montréal)

April 21, 2009
Leg@IIT 3.0

INTEGRATED
INTELLECTUAL
PROPERTY AND
BUSINESS
LAW SERVICES



Introduction

- In the United States, a few recent court decisions have renewed a great deal of controversy about whether software and business methods are patentable subject matter
- In Canada, lack of clear guidelines and lack of legislative direction means that patent protection for computer-related inventions is often overlooked





Introduction

With this background, it is important to understand the issues surrounding the patentability of software and business methods for a number of reasons:

- Capture market share to recoup R&D investment
- Give individuals and small companies leverage to compete with larger entities
- Give companies leverage when defending against suits brought by competitors
- Provide an asset to cross-licence with other companies to gain access to their technology
- Provide an asset as collateral to obtain financing





Introduction

- Shift from traditional economy (referred to as “bricks and mortar”) to development and management of information and knowledge-based systems
- Understanding how to obtain patent protection for software or computer related inventions becomes important





Introduction

1. Types of things Permitted to be Patented
2. Legal Background
3. Guidelines for determining whether a patent claim is patentable subject matter
4. What information the patent application should include
5. What type of information you need to provide to your patent attorney
6. Practical examples—claims and drawings
7. How do you counsel your clients (whether you're outside or in-house counsel)
8. What alternative forms of protection in worst case scenario if the idea is truly non-statutory subject matter
9. What to do if you get accused of infringing software or business method patent





1. Types of things permitted to be patented

A. Canada

1. Definition of invention in s. 2 of the Act:
“invention” means any new and useful art, process, machine or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter

2. Statutory prohibition against obtaining patents for mere scientific principles or abstract theorems





1. Types of things permitted to be patented

A. Canada

3. Lack of guidance in the legislation has left it up to the courts to interpret the meaning of the terms used in s. 2 and attempt to define exceptions to patentable subject matter; however, the dearth of cases and the nature of the patent applications under review results in unclear guidelines

4. Given the paucity of cases in Canada, and the temporal lag between court cases and technological development, the jurisprudential pronouncements seem out of step with the economic realities surrounding computer related inventions





1. Types of things permitted to be patented

B. United States

1. Section 101 from the United States Patent Act states, whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter is entitled to a patent

2. In enacting this statute, Congress intended statutory subject matter to include, "Anything under the sun that is made by man"





1. Types of things permitted to be patented

B. United States

3. The courts have used our statute and legislative history to explicitly define exceptions to what constitutes patentable subject matter including laws of nature, natural phenomena, and abstract ideas. These things have always existed in nature and are discovered, not "made by man."
4. The difficulty is that all things, including inventions, involve laws or nature, natural phenomena, and abstract ideas. Thus, this statute and the judicially defined exceptions raise the question, when is something made by man as opposed to falling into one of these recognized exceptions?





1. Legal background

A. Canada

Lawson (1970): "An art or operation is an act or series of acts performed by some physical agent upon some physical object and producing in such object some change either of character or of condition. It is abstract in that, it is capable of contemplation of the mind. It is concrete in that it consists in the application of physical agents to physical objects and is then apparent to the senses in connection with some tangible object or instrument." This case is generally recognized as the leading case requiring "materiality" of an invention





2. Legal background

A. Canada

Schlumberger (1985): "What is new here is the discovery of the various calculations to be made and of the mathematical formulae to be used in making those calculations. If those calculations were not to be effected by computers but by men, the subject-matter of the application would clearly be mathematical formulae and a series of purely mental operations; as such, in my view, it would not be patentable."





2. Legal background

A. Canada

Schlumberger (continued): "...as I understand the appellant's contention, those calculations are not mental operations but purely mechanical ones that constitute the various steps in the process disclosed by the invention. If the appellant's contention were correct, it would follow that the mere fact that the use of computers is prescribed to perform the calculations prescribed in the specifications, would have the effect of transforming into patentable subject-matter what would, otherwise, be clearly not patentable. The invention of the computer would then have the unexpected result of giving a new dimension to the Patent Act by rendering patentable what, under the Act as enacted, was clearly not patentable. This, in my view, is unacceptable. I am of opinion that the fact that a computer is or should be used to implement discovery does not change the nature of that discovery. What the appellant claims as an invention here is merely the discovery that by making certain calculations according to certain formulae, useful information could be extracted from certain measurements. This is not, in my view, an invention within the meaning of s. 2."





2. Legal background

A. Canada

Schlumberger is generally referred to as the leading case on the subject matter of computer related inventions. However, with time, it has been found that the holding of Schlumberger has been largely set aside by the Patent Appeals Board; following the decision in Schlumberger, over 50 cases were referred to the PAB on computer related invention, of which the large majority eventually led to patents.





2. Legal background

A. Canada

- Another case which has bearing on computer related inventions generally, and more specifically business method patents is Progressive Games:
 - *“art” is not a disembodied idea but has a method of practical application ;*
 - *is a new and innovative method of applying skill or knowledge ;*
 - *has a result or effect that is commercially useful.*





2. Legal background

A. Canada

- However, the real state of the law cannot be clearly drawn from these cases, or even the current MOPOP. Arguably, the rationale developed by the PAB in its various decisions provides better guidance to applicants, most significantly as articulated in *Motorola (1999)*:

“An apparatus claim which consists exclusively of a series of means plus-function statements is usually considered to be nothing more than a “disguised” method claim and if the method itself is not patentable, this type of apparatus claim is also not patentable.

As can be seen from the wording of claim 1, the device disclosed and claimed in the instant application is more just a series of means-plus-function statements. It includes, in section c), a read-only memory which is coupled to the modification means. This is a specific piece of hardware and, as such, this claim is necessarily limited to a specific configuration of at least one physical element as well as some elements which are ordinary components of a well known digital computer which are programmed to carry out desired functions.”





1. Legal background

A. Canada

- The Guidelines as they stand today permit method claims, apparatus claims, and product claims (a computer readable support containing instructions to performs the various steps). However, signal claims are clearly excluded as being a form of energy (the science behind this pronouncement is shaky at best and has been criticized)
- The main problem in Canada is that there is no clear policy direction articulated by either the legislator or the courts. Canada has, as is typical, adopted a middle of the ground position, somewhat softer than the European position, but not as refined as the US position. In Europe, the issue of computer related inventions is now before the Enlarged Board of Appeal following a referral from the President of the EPO, and it is hoped that clear directives will follow





1. Legal background

B. United States

- The Supreme Court has handed down a trilogy of cases—Benson (method of converting binary coded decimal numbers using a computer), Flook (a method of adjusting an alarm limit in a chemical conversion process), and Diehr (a method of using an algorithm to calculate the cure time of rubber)
- Sought to find metes and bounds in the patent claim to prevent pre-emption of the law of nature and abstract idea (i.e. take an idea from an inventor's head and limit it with structure to form a practical application)
- The Court ruled that claims contain statutory subject matter if they recite a particular machine or apparatus, or transform matter from one state or thing to another (called the "machine-or-transformation" test)
- Qualified their ruling stating insignificant post-solution activity will not transform a claim from non-statutory subject matter to statutory subject matter





1. Legal background

B. United States

- The Federal Circuit Court of Appeals handed down a series of decisions to build on these rules:
 - The court reiterated the machine-or-transformation of matter test
 - The court also noted that merely including a physical step does not make a claim statutory subject matter
 - Expanded the rule that insubstantial post-solution activity is not enough to save a patent claim. The expanded rule is that insignificant extra-solution activity is not enough to make a claim statutory subject matter





1. Legal background

B. United States

- Three recent opinions issued by the U.S. Federal Circuit Court of Appeals have renewed controversy about how to apply these tests:
 - » State Street Bank. Court held that the claims contained statutory subject matter stated that business methods are not *per se* excluded from statutory subject matter. It also used language different than the machine-or-transformation test (new, useful, and tangible result). However, an analysis of the claim suggests that it still contains patentable subject matter under the machine-or-transformation test.
 - » Bilski. Court reaffirmed the machine-or-transformation test and rejected any other test or language to determine whether a claim contains patentable subject matter.





1. Legal background

B. United States

- Cominskey. The court expanded on its analysis of statutory subject matter in Bilski and explained software and business methods are not patentable if they only apply human intelligence to the solution of a practical problem. It then remanded apparatus claims to the patent office for further examination rather than affirming their patentability. The apparatus claims were directed to a general purpose computer programmed with new software contains statutory subject matter. This case raises the question about how much structure is necessary for claims that recite a particular machine.





1. Legal background

B. United States

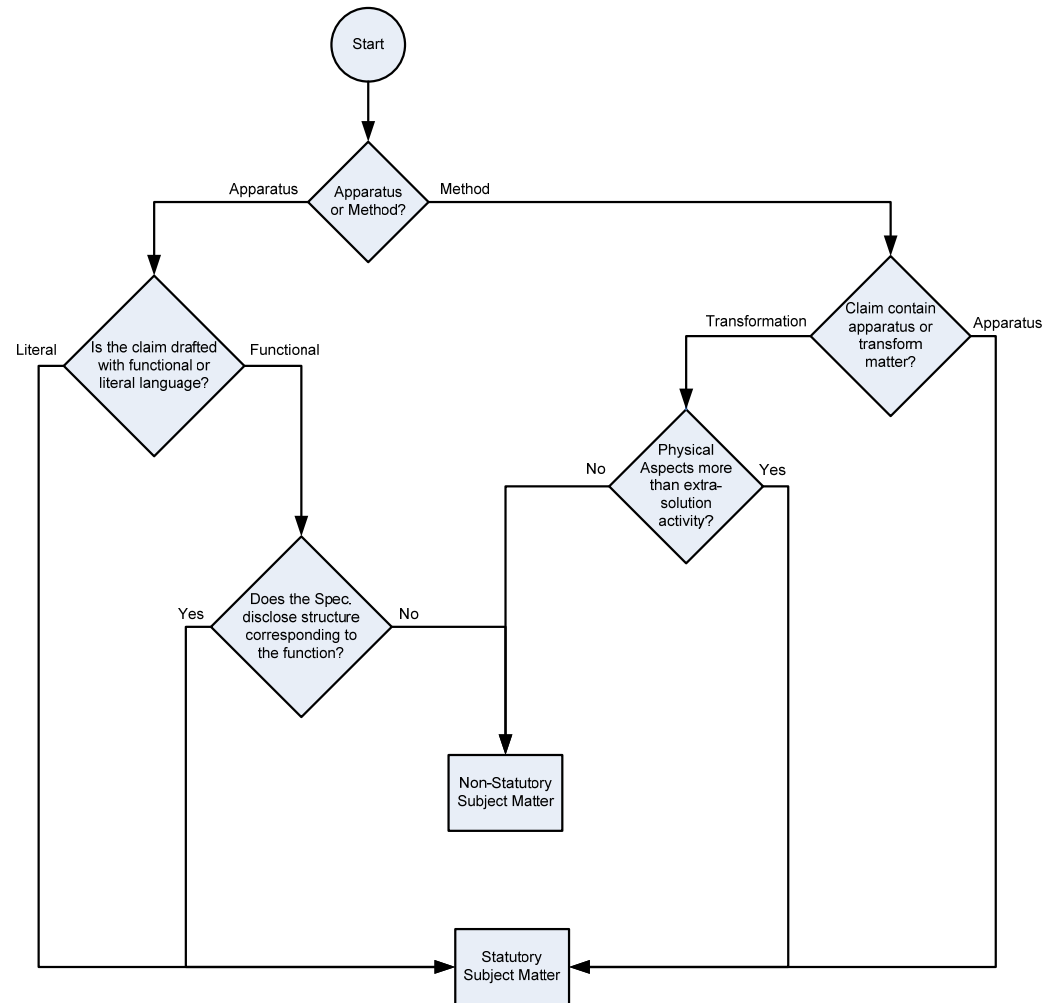
- This decision raises a question about how much structure is required so that the claim does not merely include extra-solution activity or structure remains to be seen.
- For example, is merely embodying the software in a general purpose computer or on a recordable medium enough structure?
- The better analysis is that any such structure is enough and the real question is whether the application of the algorithm or method of doing business to a general purpose computer is obvious.
- If application of structure is potentially extra-solution activity, it is important to weave the structure into different elements of the algorithm or actions of the process.





3. Guidelines for determining patentable subject-matter

An algorithm for determining patentable subject matter





4. Content of a patent application

- Drawings illustrating the algorithm, process, or business method embodied in a physical structure.
- A lot of detail about the physical structure and how the algorithm, process, or business method are embodied in, and interact with, the different components of the physical structure. Important because the rules for determining whether an invention is statutory subject matter is changing and having detailed information in the specification will give the patent attorney material with which to argue in support of finding statutory subject matter or the flexibility to re-craft the claims into a form that is statutory.





4. Content of patent application

- A story about how the claimed invention is an advance over the old ways of doing things, advantages (other than efficiency) of embodying the invention in the physical structure over simply using mental steps or pencil and paper, any other advantages over the prior art.
- Claims using a variety of strategies including processes, apparatuses, and articles of manufacture. Claims are preferably written with non-functional claim language, but it might be helpful to include functional language





5. Information required by patent attorney

- Description of idea and functionality (specifications can be helpful).
- Practical applications for ideas.
- Description of how idea is different than past systems and implementations.
- Drawings.
 - Overall system and environment in which it operates.
 - System components.
 - Architecture of hardware and software.
 - Database structures.
 - Data structures.
 - State diagrams.
 - Input apparatuses (sensors, transducers, instrumentation, other computers, etc.).
 - Output apparatuses (sensors, transducers, instrumentation, other computers, etc.).
 - Flow charts of algorithms and processes.





6. Practical examples

- A step that merely requires gathering or inputting data does not make a claim statutory subject matter. There must be something structural about how the data is gathered and what it represents
- A claim is statutory subject matter if a number obtained through software is not an abstraction, but a measure of a physical or structural thing (e.g., a measure of specific heart activity in microvolts)





6. Practical examples

- Claim 8. A method for calculating value "f", comprising the steps of:
 - Inputting values for m and a in a computer; and
 - calculating $f=m*a$.

- Claim 9. A computer implemented method for determining the force "f" provided by a moving brick, comprising the steps of:
 - inputting variable "m", where "m" is the mass of the moving brick measured in kilograms;
 - inputting variable "a", where a is the acceleration of the moving brick measured in meters per second per second;
 - automatically calculating $f=m*a$, where "f" is the force provided by the moving brick in newtons; and
 - displaying variable "f".





6. Practical examples

- Claim 9. A computer implemented method for determining the force "f" provided by a moving brick, comprising the steps of:
 - Generating a first electrical signal corresponding to a mass m of a moving brick;
 - generating a second electrical signal corresponding to an acceleration of said brick;
 - inputting the first and second signals into a computer, where "m" is the mass of the moving brick measured in kilograms, and "a" is the acceleration measured in meters per second per second;
 - automatically calculating $f=m*a$, where "f" is the force provided by the moving brick in newtons; and
 - displaying variable "f".





6. Practical examples

- Claim 10. A computer implemented method for evaluating $f=ay$ more quickly and efficiently at the expense of a given amount of accuracy, comprising the steps of:
 - receiving as input, variable "y" and desired base "a";
 - automatically calculating a first scaled value using "y", "a", and a predetermined base;
 - automatically generating an approximation value using said first scaled value and a stored predetermined set of values;
 - automatically determining a first exponential value having said predetermined base;
 - automatically generating an adjusted error value using said first scaled value and said approximation value; and
 - automatically determining a correction value using said adjusted error value;
 - automatically determining a substantially accurate value for "f", using said first exponential value and said correction value; and
 - outputting said substantially accurate value for "f".





6. Practical examples

1. A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:
 - (a) computer processor means for processing data;
 - (b) storage means for storing data on a storage medium;
 - (c) first means for initializing the storage medium;
 - (d) second means for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, assets and for allocating the percentage share that each fund holds in the portfolio;
 - (e) third means for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;
 - (f) fourth means for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and
 - (g) fifth means for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.





7. Counselling clients

- Advise clients that everything they develop is potentially the type of thing that can be patented— it is enough to describe and claim the software or business method in physical terms to be the type of thing that can be patented.
- Educate clients about standards for determining patentability. Because the ideas came so easily to the developers, many developers incorrectly assume that they are obvious or have been done in the past. The standard for determining obviousness is legal, not technical.
- Educate clients about how patents can be used in business.
- Advise clients to keep notebooks of their ideas.
- Advise clients to promptly complete and submit invention disclosure forms.
- Educate clients on how to work with their patent attorneys.





8. Alternative forms of protection

- Trade secrets
 - Trade secret protection cannot be used simultaneously with patents.
 - Trade secrets require affirmative steps to keep the protected material secret, while patents require an enabling disclosure.
 - Some choose to rely on trade secrets in lieu of patents because of cost and/or the length of time it takes to have a patent issue.
 - Disadvantage of trade secrets is that you cannot use them to protect against competitive products and systems that are independently developed or are disclosed thus breaching the trade secret status.
 - If an application is filed only in the US, publication can be prevented until the patent actually issues
- Copyrights
 - Copyrights protect software simultaneously with patents.
 - Copyrights protect against copying expression, they do not protect functionality embodied in a work or against independent creation.





9. Running afoul of a patent?

- In the United States, a lot of patent applications were filed and a lot of patents issued that do not disclose adequate structure.
 - Common with Internet-based applications and methods of doing business.
 - Many of these patents may be invalid for the reasons discussed today.
- What to do if you are accused of infringement or are invited to take a patent license.
 - Contact your attorney and develop a strategy for handling the matter.
 - Review the patent to determine whether the claims include any physical limitations other than extra-solution activity.
 - Review the claims to determine whether they are written with functional as opposed to literal claim language.





THANK YOU

