Future of Software IP:
Unpatentability + Copyright

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Outline

- Software copyright infringement criteria

- Software Patent Quagmire

- Proposed criteria of demarcation for software unpatentability

- Call for Action

Background on Copyright

Software IP
- Protection
  - Infringing similarity of expression
  - Many statutory & other exceptions
- Licensing
  - Automated clearing houses
    - Terms
    - Payment

Copyright Infringement
Criteria

1. Abstraction

2. Filtration

3. Comparison

1. Abstraction

- Not restricted to literal elements of expression
  - ➢ Ontology
  - ➢ Structure
- Higher abstraction means less infringement

2. Filtration

Not infringing if derived from

- Efficiency considerations
- Scènes à faire
- External factors
  - APIs
  - Interoperability and compatibility
  - Design standards
  - Demands of market
  - Standard programming techniques
- Public domain

3. Comparison

Work as a whole

- Importance of infringing elements
- Economic damage of infringing elements

Software copyright protects
Expression *not* Process

102(b) In no case does copyright protection for an original work of authorship 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.

Software Patents

Quagmire?

Software Patent Extortion?

- "The Patent, Used as a Sword" NYT 10/7/2012

- "Are Patent Trolls Now Zeroed In On Start-Ups?" Forbes 1/172013

- "CentUp is Back Up on Indiegogo After Patent Troll Threat" EFF 2/25/2013

- Etc.

Patent for Patent Trolling!

IBM "System and method for extracting value from a portfolio of assets"*

Can IBM sell protection against being sued by a troll?

*US 8,386,350 issued 2/26/2013

Nature of Quagmire?

Is Operational Imprecision the primary problem?

Slippery Slope?

Mark Lemley has proposed that software patentability is OK if computational processes are *precisely specified.*

Software Patents and the Return of Functional Claiming
Stanford Public Law Working Paper. July 25, 2012.

Advanced Technology Programming Constructs

Highly Precise Operational Constructs

- Setting goals
- Strategies for achieving and assessing goals
- Conjectures, Metaphors & Analogies
- High-level executable contingency plans
- Argumentation

Advanced
Programming Construct Examples

- Setting a goal

$\Vdash$ Differentiate[AIDS, Diabetes, differential]

- Strategy for achieving a goal

when $\Vdash$ Differentiate[diagnosis1, diagnosis2, differential] $\longrightarrow$

    $\Vdash$ CanCause[morbidity, =diagnosis1],

      CanCause[morbidity, =diagnosis2] $\longrightarrow$

      $\Vdash$ CommonCause[=morbidity, {=diagnosis1, =diagnosis2}] $\longrightarrow$

        $\vdash$ Differentiate[diagnosis1, diagnosis2, CommonMorbidity[morbidity]]

- Analogy

$\vdash$ Analogous[SolarSystem ~ Atom,

    with {SolarSystem.sun ~ Atom.nucleus,

      SolarSystem.planet ~ Atom.electron}]

Nature of Quagmire?

~~Operational imprecision~~*

*Contra Lemley *et. al.*

Nature of Quagmire:

Advanced Technology*
+
New Applications

E.g. advanced programming constructs

"Bottomless Quagmire?"

- De Gaulle:

  "I predict you will sink step by step into a bottomless quagmire, however much you spend in men and money."

- US retort:

  French are incompetent; sour grapes!

Irresistible Pull of Software Patent Quagmire:

Scalability for New Applications

Advanced Technology Heuristic Knowledge

Millions of apps

- Each one potentially patentable
- Automated construction of patent applications?
  - "There's an app for that?"

Quagmire

Advanced Technology + New Applications
Consequence

Patenting
heuristic knowledge of
every **intellectual field**
stands to *overwhelm*
patent examiners & courts

Overwhelmed!

- Patent office
  - Tsunami of patent applications
  - Will cost $37.50 for a micro-entity
- Software developers
  - Troll licensing
    - Own patents to trolls
    - External patents from trolls
  - Troll litigation + "Thermonuclear War"
- Courts
  - Troll litigation + "Thermonuclear War"

A way forward

Need
Criteria for Demarcation

Fundamentally similar:

- Machine "thinking"
- Computational processes

everything else

"Bright red line"

Bright Red Line:
Any of

Computation (machine "thinking") comprised of

- Message sending
- Message receiving
- Message receiver creation
- Message processing*

everything else

*including how to process future messages

Why these criteria
for *Bright Red Line*?

- Video: *"Everything that you wanted to know about ...."* Hewitt, Meijer, and Szyperski. Microsoft Channel 9.
- Scientific Papers:
  - *"What is Computation? ..."* Carl Hewitt. in A Computable Universe
    http://what-is-computation.carlhewitt.info
  - *Proc. of Inconsistency Robustness 2011* http://robust11.org

Process and Method

For each patent claim remove every element that consists of any of the following:

- Message sending
- Message receiving
- Message receiver creation
- Message processing*

*including how to process future messages

Patent Applied For

Process and Method for Determining Whether Software-Based Patent Claims Are Allowable.

Application of
Bright Red Line

Example:
A patent that crosses the line

IBM "Watson Jeopardy" patent claims:*
- "Submitting a set of questions ..."
  - ➢ Message sending
- "Receiving back ... a set of answers"
  - ➢ Message receiving
- "Comparing the set of answers received ... to answers in ..."
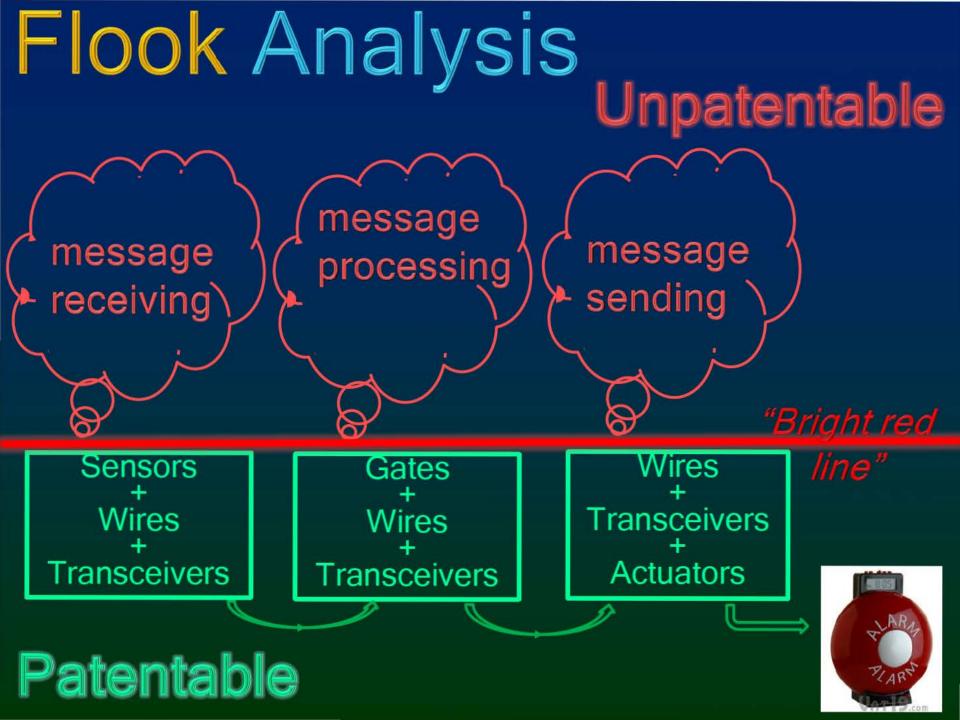 - ➢ Message processing

*US 2012/0077178 A1

Another Example:

Flook "Method for Updating Alarm Limits":*

- Read process variables
  - ➢ Message receiving: Physical signaling mechanism can be patented but not information (abstract meaning) conveyed
- Calculate alarm limit
  - ➢ Message processing: Physical substrate mechanism can be patented but not abstract computational process (machine "thinking") induced
- Set alarm bell
  - ➢ Message sending: Physical signaling mechanism can be patented but not information (abstract meaning) conveyed

*US Ser. No. 194,032

Possible Uses of Criteria

- USPTO to impose additional requirements in a manner similar to the current imposition of additional requirements for business method patents

- SCOTUS to demarcate software unpatentability

SCOTUS?

Partial Results

- Gottschalk v. Benson
  - A computational process to convert binary-coded decimal numbers into binary numbers
  - Ruled unpatentable

- Parker v. Flook
  - a computational process for updating an alarm limit (used to signal abnormal conditions) in a catalytic conversion process
  - Ruled unpatentable

Technology change mandates review!

Call to Action

Software UnPatentability Alliance

SUPA

Abolish software patentability

http://sup-alliance.org

SUPA

Potential alliance among:

- Technology companies
  - Large
    - "Thermonuclear War"
    - Swarms of independent inventions
  - Small
    - Financially crippling extortion
- Investors
    - Financial viability of start-ups?
- Research labs
- Educational institutions
- Public interest groups
- Thought leaders