THE PATENTABILITY OF SOFTWARE REVISITED

Pamela Samuelson, UC Berkeley

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OVERVIEW

- U.S. Supreme Court is revisiting the patentability of computer-implemented innovations in *Alice v. CLS Bank*
- Why does software present difficult patentable subject matter issues?
- What is the SCT likely to do in *Alice*?
- What effect will the SCT's decision in *Alice* have on the SW industry?

PATENTABILITY

- To be eligible for a patent, an inventor must submit an application to the patent office, which will be examined for:
  - **Eligible subject matter (SM)**
    - Machine, manufacture, composition of matter, & processes named in the statute
    - All processes? Or only technological ones?
  - New, nonobvious, & useful
  - Adequate claims, proper disclosures
- Issued patent presumed valid, good up to 20 yrs

SW PATENT CLAIMS

- Sometimes claimed as a process (a “method” of doing X, consisting of steps…)
- Sometimes claimed as a machine (a “system” for performing specified functions in specified way)
- Sometimes claimed as a “manufacture” (program stored on a computer medium)
- Alice’s patents include all 3 types of claims and all contemplate software-implementations

ALICE v. CLS BANK

- Alice has patents that claim a software-implemented way to manage settlement risks for financial transactions
  - Money won’t change hands until both parties have completed their obligations
- CLS Bank developed a complex program to perform these functions on a global basis
- Alice asserted CLS Bank infringed its patents
- CLS sought a declaration that the patents were invalid under recent SCT decisions; Alice counterclaimed
- DCT ruled for CLS; Alice appealed
- CAFC deeply split on the appeal

CAFC DECISION

- CAFC heard *Alice* en banc (all 10 judges)
  - 5 judges voted to strike down all 3 types of claims
  - 2 judges agreed that the method and medium claims were invalid, but for different reasons than the other 5
  - 5 judges voted to uphold the system claims
  - 3 judges would have upheld all claims
  - 7 opinions altogether (150 pages long)
- Upshot: Split vote on the system claims results in affirmance of DCT decision to strike all down
- No agreement in CAFC re standard to apply

STATUS OF CASE IN SCT

- Deep split within the CAFC made it almost inevitable that the SCT would take *Alice*
- Parties' briefs + amicus briefs supporting Alice filed in Jan.
- CLS-side amici briefs filed in Feb.
- SCT heard oral argument in Alice v. CLS Bank on March 31
- SCT will decide by end of June
- Unlikely SCT will answer all SW patent SM?s with this case, but perhaps some

50 YEAR CONTROVERSY

- 1960s-mid-1990s: skepticism about patent protection for SW
- Mid-1990s-2006: tide shifted in favor of software patents (even though mixed views within the industry)
  - many developers took advantage of the opportunity to get patents
- 2006-now: tide shifted again toward doubts about patents for software innovations

MID-1960's VIEWPOINTS

- PTO doubted patentability of SW:
  - SW=texts; "printed matter" ineligible for patents
  - Processes embedded in SW were often "mental processes," capable of being done in the mind
- 1966 Presidential Commission recommended vs. SW patents, saying copyright would adequately protect them
  - even though Cop. Office then not sure SW was ©'ble
- IBM, Honeywell, other computer makers were vs. SW patents back then
  - Impediments to SW that could run on their machines

GOTTSCHALK v. BENSON (1972)

- Benson (Bell Labs ee) developed a method for transforming binary coded decimals to pure binary form
  - 1 claim was for the method in general terms
  - 1 claim mentioned hardware elements (re-entrant shift registers)
- SCT: not patentable SM (9-0 vote)
  - Mathematical algorithm = scientific principle
  - Claim would preempt all uses of algorithm in all fields
  - Did not transform matter from 1 form to another
  - Computer-implementation claim not distinguishable

PARKER v. FLOOK (1978)

- Flook claimed an improved method for updating alarm limits for catalytic converter process
- Novel & nonobvious algorithm
  - Field of use limitation in claims (only use of that algorithm in catalytic conversion process)
  - Some post-solution activity (adjusting alarm limits so plant wouldn't blow up)
- SCT: not patentable SM (6-3)
  - Field of use, insignificant post-solution activity not meaningful limits; worry about artful claim drafting

DIAMOND v. DIEHR (1981)

- Diehr claimed patent for improved method for curing rubber, which included SW as component
  - SCT affirmed patentability (5-4) because claim was for a traditional manufacturing process
  - Dicta: everything under the sun made by humans OK
- Initially seemed like a narrow decision
  - Only when SW was part of a conventional mfg process
  - PTO treated it so, denied many SW applications

FEDERAL CIRCUIT

- CAFC took an increasingly an expansive view of patentable SM, especially as to SW, in 1980s & 1990s
  - *Freeman-Walter-Abele* test in 1980's: if claim does not wholly preempt use of algorithm, then it recites patentable SM
  - *Alappat* decision in 1994 involved a software system for smoothing waves in oscilloscopes:
    - Questioned whether *Benson* limited system claims
    - "Useful, concrete, tangible result" test for SM

STATE STREET BANK (1998)

- Signature Financial had gotten a patent on a data processing system for particular financial structure having certain tax advantages
- SF sued SSB; DCt ruled patent was invalid under SCT precedents & earlier cases holding business methods to be unpatentable
- CAFC: business methods ARE patentable SM
  - Indeed, everything under the sun made by humans = patentable SM as long as it produces “useful, concrete & tangible result”

FLOODGATES OPENED

- Tax planning methods
- Jury selection methods
- Dating methods
- Meditation methods
- Method for teaching experiential writing
- Method for assessing person’s character
- Process of relaying story having unique plot
- Under *State Street Bank*, all seemingly pass SM threshold (even though no link to technology)
  - Though claims might be rejected for lack of novelty, obviousness or overbreadth

UPTICK IN SW PATENTS

- Partly because patent lawyers were strongly recommended getting patents, if only for defensive purposes
- Partly due to desire by some to have some to ensure freedom to operate
- Partly owing to VC interests in patents as some assurance that firm might attain competitive advantage (or asset if co went bankrupt)
- Partly because © was “thin” after *CA v Altai*

SCT INTEREST SINCE 2006

- SCT took appeal in LabCorp. v. Metabolite on SM issue
  - M claimed LC induced infringement by reporting to doctors levels of homocysteine in blood sample, which doctors could correlate with vitamin deficiency, thereby infringing the patent
  - SM issue not cleanly presented below, so SCT dropped case
  - Justice Breyer wrote dissent saying patent was for discovery of natural phenomenon; invalid on SM grounds
- Microsoft v. AT&T: 5 Justices asked whether software was patentable (even though issue not in the case)
- eBay v. MercExchange: Kennedy concurrence for 4 Justices called into ? business method patents
  - Overturned CAFC automatic injunction rule if patent infringed
  - Damages may be sufficient as equitable matter

PTO RENEWS SM REJECTIONS

- In response to SCT signals, PTO began rejecting claims on patent SM grounds:
  - *Bilski*: method for managing risks of energy consumption based on weather uncertainties
  - *Borton*: method for business projections
  - *Ferguson*: method for marketing a product
  - *Barnett*: method of coupon distribution via Internet
  - *George*: method for planning activity levels after rapid time zone changes; chart depicting

IN RE BILSKI

- Bilski sought a patent on a method of hedging risk in fluctuation of commodity prices
- PTO rejected on SM grounds, Bilski appealed
- Under *SSB*, no reason to doubt that Bilski's claim would satisfy SM standards
- On appeal, CAFC articulated new SM test:
  - Did inventor claim a machine?
  - Did inventor claim a transformation from 1 state to another?
  - Bilski did not meet either, so CAFC upheld denial

DIVERGENT VIEWS ON SM

- Everything under the sun is patentable SM
- Only traditional manufacturing processes are patentable; no evidence Congress intended o/w
- Constitution limits Congress' power to those processes in "useful arts" (= technology)
- Need for some physical transformation or technical effect to be patentable SM, but SW OK
- Need for broad conception as to technological processes (e.g., applied economics OK)

REASONS NOT TO LIMIT

- “Technology” is incapable of precise definition, so not worth trying to weed out on SM grounds
- Don’t limit patents to yesterday’s technologies (i.e., manufacturing); risk of harming today’s most significant advances
  - New technologies may not be “transformative” in physical way, as previous advances generally were
- Many advances embodied in SW, biotech are often expensive to develop, cheap to imitate; need patent investment incentives
- Trying to limit patent SM will lead only to “artful drafting” to bypass it

BILSKI v KAPPOS

- SCT took Bilski's appeal
- Clear from oral argument Bilski was going to lose; only ? was on what rationale
- Like the CAFC, the SCT was not all of one mind
- Ultimately held Bilski's claims were too abstract to be patent SM
  - Stevens concurrence for 4 Justices: business methods are unpatentable
- Revived *Benson* & *Flook* as important precedents, characterizing them as too abstract

WHAT'S "ABSTRACT IDEA"?

- Alice: only mathematical formula & fundamental truths
  - My patent claims are not either, so uphold them
- CLS: Alice's claims are like Bilski's (methods of hedging financial risks)
  - Claiming computer-implementation alone is insufficient
  - Patent would preempts all uses of that hedging method/system/medium
  - This is NOT a sw patent case (so don't get distracted)

AMICI BRIEFS

- 3 in support of Alice
- 20 in support of neither party
    - IBM: computer-implemented inventions are patent-eligible; abstract idea exception unworkable
    - Some bar assns & Judge Michel: consider claim-as-a-whole; narrow construction of abstract idea
    - Retailers: computer-implementation not enough
- 18 in support of CLS Bank
    - Google, Amazon, Facebook, Zynga et al.
    - Microsoft, BSA, CCIA, PK, EFF

WHAT WILL THE SCT DO?

- Despite FSF objections to “sw patents,” unlikely SCT will outlaw them all
- *Diehr*-like claims for programs as elements of traditional manufacturing process are safe
- Claims for methods that achieve technical effects will probably be patentable SM
  - *Abele* would pass this test as better x-ray system
  - *State Street Bank* would probably flunk this test because result of this process was generation of share price #s

OTHER POSSIBILITIES

- Software, as such, is probably not patentable SM, even though *In re Beauregard* said object code on disk = patent SM
  - PTO, SCT likely to say program code is ©'ble, not patentable, SM
- *Benson/Flook*-like claims: where innovation lies in algorithm/mathematical concepts, not patentable SM
- Other information innovations embodied in sw (e.g., data structures, UI designs) may not be patentable SM as too abstract

EASY ISSUES

- Not enough to claim field of use restriction
- Not enough to claim insignificant pre- or post-solution activity
  - How to measure "insignificance"?
- Computer implementation of X function may be too abstract to qualify for patenting
  - Bessen & Meurer, *Patent Failure* discusses this
- Not patentable if preempts use of algorithm, as in *Benson*
  - SG insists that M-or-T is distinct inquiry from preemption inquiry; CAFC blurred the two
  - Even preempting within a field is a problem

METHOD cf SYSTEM CLAIMS?

- Method or apparatus claims?
  - 5 CAFC judges think that apparatus claims for programmed computer to do X might satisfy SM requirements
  - SCT unlikely to find this acceptable, as it would be to easy to circumvent intent of SM ruling
    - Stevens, Breyer, and Roberts seemed very dissatisfied with SG's argument on this issue in *Bilski* case
  - If buy that theory, does computer become new machine each time it plays a different CD of music?
    - Would digital music be patent SM as *Beauregard* claim?

HARDER ISSUES

- What transformations will qualify?
  - *Diehr* was easy case because method transformed rubber & computer implementation arguably overcame under-, over-curing problem
  - What about data?
    - *Benson* involved transformation of data
    - Method to transform MP3 data to WAV?
    - Method of calculating mean item in group of items?
    - Method of presenting information (e.g., HTML)?

HARDER ISSUES

- What does it mean to be tied to a particular machine?
  - SW may be component of x-ray or other particular machines, in which case claims likely to be OK
  - But merely being tied to a general purpose computer may not satisfy patent SM
    - *Fuzzysharp*: DCT granted SJ to D where claims only mentioned components of general purpose computer
  - Any middle ground?
- Does M-or-T provide the right framework?
  - Best argument in *Fuzzysharp* is that method is more efficient way to assess visibility of 3-D surfaces for graphics displays (reduces # of calculations)

ORAL ARGUMENT IN *ALICE*

- Most of the Justices were plainly skeptical of Alice's patents
- Justice Roberts was impressed, though, at the complexity of a flow chart in the record
  - "a lot of arrows" makes it look "complicated"
  - CLS lawyer said this chart was not at issue
- SG proffered a test for SW patenting:
  - OK if claim an improvement in the computer or if computation improves other technology
- No SW in the case, so SCT could duck the SW issue
- What standard will give clarity & predictability?

WHAT IMPACT FOR SW?

- Alice claims failure to uphold broad patentability of computer-implemented inventions "will decimate entire sectors of the economy and stifle innovation" & some amici agree
- But there are reasons to doubt this:
  - Only a small minority of SW companies own or apply for patents
  - Copyright, TM, trade secrecy & licensing are more significant ways to protect SW
  - First mover advantage, network effects, & complementary assets also highly important

FIXING “BAD” PATENTS?

- Court decisions striking down all or most SW patents is possible, but unlikely
  - PTO working on guidelines to clarify standard
  - Some issued SW patents are likely invalid
- Courts may take a closer look at novelty, nonobviousness, breadth of claims
- New post-grant review regime in PTO may help weed out “bad” SW patents
- Setting higher maintenance fees may deter trolls
- Various bills in Congress

CONCLUSION

- People have been arguing about the patentability of SW for almost 50 years
- No evidence that SW patents have been “good” for the software industry
- But no evidence they have been ruinous either
  - Though patent “trolls” have extracted some rents, they have less leverage after *eBay v. MercExchange* re injunctions
- Patent portfolios, cross-licensing, & patent pools to protect open source help address SW patent problems
- SCT decision in *Alice* is unlikely to end the debate over patents for computer-implemented inventions