Concrete Analysis of Abstract Idea: *Alice/Mayo* Step One

Frank L. Bernstein
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USPTO Roundtable on Patent Eligible Subject Matter
Stanford University
December 5, 2016

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TECHNOLOGY LITIGATION & COUNSELING

The Problem With “Abstract Idea”

- Undefined except by example in software cases
- At some level, almost any software-based claim can be said to be directed to an abstract idea
- Even something physical like controlling a robot’s movement

Alice/Mayo Step One - *Enfish*

- "We must first determine whether the claims at issue are directed to a patent-ineligible concept."
  - *Alice*, 134 S. Ct. at 2355 (quoted in *Enfish*, 822 F.3d at 1335)
- "That formulation plainly contemplates that the first step of the inquiry is a meaningful one, i.e., that a substantial class of claims are *not* directed to a patent-ineligible concept."
  - *Enfish*, 822 F.3d at 1335

Alice/Mayo Step One - *Enfish*

- "The 'directed to' inquiry, therefore, cannot simply ask whether the claims *involve* a patent-ineligible concept…"
- "…because essentially every routinely patent-eligible claim involving physical products and actions *involves* a law of nature and/or natural phenomenon —…"
- "…after all, they take place in the physical world."
  - *Enfish*, 822 F.3d at 1335

Software Does What Hardware Did

- Software is **supposed** to run on generic hardware (processor = a bunch of circuits and circuit elements)
- Software is **supposed** to reduce or eliminate the need for special-purpose hardware
- Software is **supposed** to accomplish what circuits and circuit elements accomplished

Back to *Alice/Mayo* Step One

- "Software can make non-abstract improvements to computer technology just as hardware improvements can,…"
- "…and sometimes the improvements can be accomplished through either route. "
- "Therefore, we find it relevant to ask whether the claims are directed to an improvement to computer functionality versus being directed to an abstract idea, even at the first step of the *Alice* analysis."
  - *Enfish*, 822 F.3d at 1335

Software Does What Hardware Did

- A circuit arrangement clearly is **patent-eligible**
- **Patentability** (novelty and unobviousness) analysis proceeds immediately in circuits cases
- The circuit arrangement is **patentable** provided it is claimed sufficiently clearly

Back to *Alice/Mayo* Step One

- "For that reason, the first step in the *Alice* inquiry in this case asks whether the focus of the claims is on the specific asserted improvement in computer capabilities …"
- "… or, instead, on a process that qualifies as an "abstract idea" for which computers are invoked merely as a tool."
  - *Enfish*, 822 F.3d at 1335-1336

Software Runs on Generic Hardware

- That's really the point of having software
- Maybe software just needs to be disclosed and claimed at the same level of specificity that hardware does
- That's how the software can be shown to be more than "merely a tool"
- That's how the software can be shown to improve computer capabilities

But Does That Go Far Enough?

- What does it really mean to “improve computer capabilities”?
- Does the computer have to run better?
- Or is it enough that the programmed computer does its intended job better?
- If my robotic control is improved with better programming, shouldn’t I be allowed to apply for a patent?
- Or do I have to be able to show that the software improves the functioning of the computer?

Thank you!

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Exploring the Legal Contours of Patent Subject Matter Eligibility

Impact of *Amdocs (Israel) Limited v. Openet Telecom, Inc. (Fed. Cir. 2016)* on Software Patent Eligibility

Chirag Patel

Holzer Patel Drennan

HOLZER PATEL DRENNAN

INTELLECTUAL PROPERTY LAW

Amdocs (Israel) Limited v. Openet Telecom, Inc. (Fed. Cir. 2016)

- Amdocs (Patentee) alleged infringement of four patents (7,631,065; 7,412,510; 6,947,984; and 6,836,797)
- Openet (defendant) pleaded invalidity for all four patents under 35 U.S.C. § 101
- Patent Subject Matter: Accounting and billing system for network providers.
- Majority (Plager and Newman) upheld claims as eligible using parallels between the subject claims and the claims in *DDR Holding* and *BASCOM*.

7,631,065 Claim 1

- A computer program product embodied on a computer readable storage medium for processing network accounting information comprising:

  computer code for receiving from a first source a first network accounting record;

  computer code for correlating the first network accounting record with accounting information available from a second source; and

  computer code for using the accounting information with which the first network accounting record is correlated to enhance the first network accounting record.

- "enhance" construed as "to apply a number of field enhancements in a distributed fashion"
- Distributed processing (network usage records being processed close to their sources before being transmitted to a centralized manager) found to be a critical advancement over the prior art. → This considered an unconventional technological solution to a technological problem (massive record flows which previously required massive databases)

7,631,065 Claim 1

- Are solutions addressing processing of “massive” data in an alternative manner to be considered “technological solutions”?
- Claims directed to organizing information, processing data, and classifying information (all potentially *abstract* ideas) held to be patent eligible! (Compared to *Digitech*, *Content Extraction*, and *TLI*)
- Commonalities of claim terms with claims from *DDR Holdings* and *BASCOM* were emphasized in justifying the results.
- “When all limitations are considered individually and as ordered combination, they provide an inventive concept through use of distributed architecture.“ (*citing BASCOM*).

7,412,510 Claim 16

- A computer program product stored in a computer readable medium for reporting on a collection of network usage information from a plurality of network devices, comprising:

  computer code for collecting network communications usage information in real-time from a plurality of network devices at a plurality of layers;

  computer code for filtering and aggregating the network communications usage information;

  computer code for completing a plurality of data records from the filtered and aggregated network communications usage information, the plurality of data records corresponding to network usage by a plurality of users;

  computer code for storing the plurality of data records in a database;

  computer code for submitting queries to the database utilizing predetermined reports for retrieving information on the collection of the network usage information from the network devices; and

  computer code for outputting a report based on the queries;

  wherein resource consumption queries are submitted to the database utilizing the reports for retrieving information on resource consumption in a network; and

  wherein a resource consumption report is outputted based on the resource consumption queries.

7,412,510 Claim 1

- Claim construction: ”Completing” → “enhance a record until all required fields have been populated”
- Review claim in light of specification:
  - (1) “The written description explains that the distributed architecture allows the system to efficiently and accurately collect network usage information in a manner designed for efficiency to minimize impact on network and system resources.”
  - (2) as per claim specification, “this is an advantage over prior art systems”
  - (1) + (2) → Technical improvement and an inventive ordered combination of components → Patent Eligible.

Observations and Takeaways

- Majority used flexible approach emphasizing that emphasized that the concept of an “abstract idea” has no set meaning!
- No “single universal definition of ‘abstract idea’” because “it is difficult to fashion a workable definition to be applied to as-yet-unknown inventions”
- Decision relied on claim term construction beyond plain language of the claims and on improvements over the prior art (as discussed in the specifications).

Observations and Takeaways

- Claim construction important for analysis of patent eligibility
- Practitioners may be well advised to emphasis improvements provided by the solution (include complete description of the technical problem and solution in the specification)
- Claim combination of structural elements that is beneficial over the prior solutions.
- Dissent (judge Reyna):
- Subject claims recite desired goal (combining data from two sources) absent structural or procedural means for achieving the goal → Abstract idea
- "The § 101 inquiry is not whether the specifications disclose a patent eligible system, but whether the claims are directed to a patent ineligible concept"

USPTO Roundtable 2

December 5, 2016

Steve Bachmann

Principal, Bachmann Law Group

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USPTO Roundtable – Section 101 vs. 103

- Patent Eligible Subject Matter analysis based on prior art
- Non-obviousness analysis based on prior art
- Overlap and distinctions between the two analysis
- Effect on patent prosecution process

USPTO Roundtable 2

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BACHMANN LAW GROUP

Finding a Solution to the § 101 Puzzle

Benjamin G. Jackson
VP Legal Affairs
Myriad Genetics

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Overview

- Roundtable Federal Register questions 7-13
- Roundtable Federal Register questions 3-6

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Fed. Reg. Questions 7-13

- Please review exhaustive comments by Coalition for 21st Century Medicine on earlier guidance
  - https://www.uspto.gov/sites/default/files/patents/law/comments/mm-a-coalitionfor21stcenturymed20140806.pdf
  - https://www.uspto.gov/sites/default/files/documents/2014ig_a_21st_2015mar16.pdf

Fed. Reg. Questions 7-13

- Coalition comments provide…
  - Practical approach to **preemption** (Fed. Reg. question 7)
  - Insight on harmonizing and faithfully (yet narrowly) interpreting and applying key cases to **life science inventions** (Fed. Reg. questions 8-13)
  - Extensive examples with detailed analysis
  - Help in fleshing out ideas on later slides (*e.g.*, "discrete natural unit")

Fed. Reg. Questions 3-6

- Strong evidence of a § 101 problem
- Empassioned commentary at November 2016 Roundtable in Alexandria
- CAFC denial of *en banc* rehearing in *Sequenom*
- *Amicus* briefs in recent court cases
- Patent protection for ground-breaking innovations (*e.g.*, NIPT) swept away
- Companies responding to changed landscape
  - Not pursuing some technologies
  - Electing different types of protection (trade secret)

What Is the Root of the Problem?

- Exceptions to eligibility are entirely judicially-created
- No basis in (contrary to?) the statute
  - Statutory language gives no hint of any exception
- No basis in (contrary to?) Constitution
  - SCOTUS has never cited Constitution as basis for the exceptions

Constitutional Issues? No.

- ***Bergy***: "*The **only** restraints placed on Congress pertained to the means by which it could promote useful arts, namely, through […] securing 'exclusive rights' […]. The conditions to be imposed on the granting of such rights[…] were left to Congress to devise*."

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Potential Fixes

- Judicial solution?
  - SCOTUS created (*e.g.*, *Mayo*, *Myriad*) and has refused to fix (*e.g.*, *Sequenom*) the problem
  - CAFC improving (*e.g.*, *McRO*), but bound by SCOTUS decisions (*e.g.*, *Sequenom*)
- Agency solution?
  - Examination guidance = Opportunity to shape interpretation of new cases, but…
  - PTO bound by both SCOTUS and CAFC

Legislative Solution

- Precedent: Congress "corrected" SCOTUS *Deep South* decision
- USPTO's role: Expert agency that can be influential in shaping legislation
- How do you fix a statute that's not broken?
  - Not a problem of courts misconstruing statutory language
  - § 101 already says "***any*** *… invention or discovery*" is patentable

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Legislative Solution

- Many proposals being discussed
- Wholesale elimination of judicial exclusions (Fed. Reg. question 3)
  - Less preferred
- Enumerate specific statutory exceptions (Fed. Reg. questions 4-6)
  - More preferred

Wholesale Elimination of Exclusions (Fed. Reg. Question 3)

- Relatively simple to draft…
  - Expressly state there are no exceptions to patent eligibility; expressly state that natural laws, etc. are eligible for patenting
  - Fewer unintended consequences
- But not the best approach
  - People have become accustomed to the exceptions (visceral reaction)
  - Expressly saying a law of nature can be patented simply may not be palatable anymore

Enumerate Specific Statutory Exceptions (Fed. Reg. Questions 4-6)

- More complicated to draft…
  - Which exclusions get codified?
    - Building a coalition v. pet issues
  - Unintended consequences
- But ultimately the better solution
  - Brings clarity and predictability
  - Moves beyond whole-cloth judicial creations, emotional rhetoric and arbitrary values of individual judges

Learn from European Approach

- International harmonization has been a recurrent theme in § 101 *amicus* briefs
- European practitioners widely perplexed by § 101 developments in US
- EPC approach seen as rational, balanced and fair

Learn from European Approach

- Everything is eligible by default
- Exclusions are specifically listed in EPC
  - List is expressly not exhaustive
- Excludes a lot
  - Games
  - Software
  - Mental acts
  - Others

"Americanize" It

- Everything is eligible by default
  - Text of § 101 stays mostly the same, but…
- Create new statutory sub-section specifically and exhaustively listing categories of excluded matter

  35 U.S.C. § 101(a): "*Inventions Patentable. Except for subject matter expressly excluded by sub-section 101(c) of this title, and subject to the requirements of sub-section 101(b) and sections 102, 103 and 112 of this title, whoever invents or discovers any subject matter, including but not limited to any process, machine, manufacture, or composition of matter, or any improvement thereof, may obtain a patent therefor.*"

“Americanize” It

- New sub-section 101(b) can codify the current utility requirement
  - No more judicial creations; **<u>everything</u>** is statutory
- New sub-section 101(c) can flexibly exclude anything Congress chooses
  - Current judicial exceptions codified, but now carefully and precisely redefined
  - “Ethical” exclusions
  - Anything else

Finally Bring Clarity to Judicial Exceptions

- 35 U.S.C. § 101(c): "*Excluded Subject Matter. A patent may not be issued on any application in which any functional embodiment of any claim is any of the following* per se*:* […]*.*"

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Finally Bring Clarity to Judicial Exceptions

- *"(i) any process in which every step can be readily performed by an unaided human mind of average intelligence;*
- *(ii) a statement of a direct, natural cause and effect relationship;*
- *(iii) any event or process acting solely according to or under the influence of any subject matter in (ii), unaltered by human activity;* […]"

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Finally Bring Clarity to Judicial Exceptions

- "*(iv) any undivided element, mineral or organism entirely unmodified from its intact natural state;*
- *(v) a discrete, natural unit of any subject matter in (iii) whose function is unaltered from its natural state; […]*"

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Framework to Incorporate Other Exceptions

- "*(vi) an entire human organism, any portion thereof comprising any portion of a central nervous system, or processes for producing either;*
- *(vii) any process for modifying the germ-line genetic make-up of any human organism;*
- *(viii) any process for modifying the genetic make-up of any non-human animal wherein such modification is likely to cause such animal suffering without any substantial medical benefit to man or animal; or*
- *(ix) any product or process relating to the use of any embryo comprising a human cell for industrial or commercial purposes;*
- *(x)* [surgical procedures as defined in § 287(c)]*;*
- Others…

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Conclusions

- Previous comments (Coalition's and others') outline detailed, insightful approaches to life science inventions
- Best legislative approach follows European lead of codifying a list of specific exclusions
- USPTO is playing and will continue to play an important role in finding a solution

Thank You

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Patent Subject Matter Eligibility

Patrick Giblin
451 Degrees
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Who is Patrick Giblin?

- Inventor - 5 US Patents issued on AI/ML around Big Data…look out Google and Facebook and…
- Geek - Love Databases and Computers…no CS/CE
- Law School Dropout/Flunkout - I get the “Law”
- Founder of 451 Degrees Artificial Intelligence and Machined Learning for Comments and Reviews…blah blah blah
  - I am broke and raising funds every DAY to survive the storms coming
  - I owe $892,000 and COUNTING…”Are you an investor?”
  - I build as fast as I can
  - I sleep on couches
- My life SUCKS but I LOVE IT! I do not work for MONEY! I build a DREAM!

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Legal Contours of…

- Eligible Subject Matters for Patents - Step 1
  - Case Law…Am I back in Law School? Or theory?
  - Law is rarely Black and White. It is Grey
    - 4 Cases - Bilski, Mayo, Myriad, Alice
      - Much Wiser people make those decisions
- If it makes a market and is pained by another it probably matters and should be PROTECTED
  - Is it obvious? - Step 2
  - Is it unique? - Step 3
  - Is it useful? - Step 4

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What do I believe about Patents?

- USPTO and Patents are Important…PROTECT INVENTORS
- David vs Goliath - Big Business versus Inventors
  - US Industrial Revolution - Civil War II
  - US Technology Revolution - Civil War III
    - Redefining “Subject Matters for Patents” - NEW WORLDS…protect them, honor them, help build inventors not big business
- Trolling SUCKS - See Lawyers
  - Bad Platform
  - No Inventor starts as a troll
- Inventors are BEAT DOWN into bad places and partners…this must STOP
  - Extend Rights
  - > Fees for wrong doing…MAKE IT HURT! They know when they are doing wrong
  - Cap $ after # of years rather the the life of the Patent itself

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Lawyers versus Inventors

- Lawyers job is about costs and hours billable - GREED
  - Do we fight or buy?
  - Can we cut around this without paying for it
  - Can we beat them with our war chest
  - How does the logic look here? Costs management?
- Inventors - GOOD
  - I have an IDEA
  - I want to build this!
  - Please help…I need Money, team, framework…a CHANCE

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Good versus Greed

- Strength and Speed should not ALWAYS win
- It does too often
- Inventors are trapped and held under water - The PAIN is real
- Slow process that leads to a moment of joy and then a question of more costs…more PAIN
  - Issued => Defend = ^$$$

New Questions to consider…

- Does this Subject “Create” a market opportunity or condition?
- What is the intent of the owner?
- What is the intent of the litigator?
- Who wrongs whom?
- Why are we here? Good versus Greed

Speed of Technology

- Today look at how much is invented via the Web since mid 1990
- We must protect those INVENTING
- These are the NEW Eligible Subjects for Patents
  - Discover them, label them and protect them
  - Same standards but speed causes more pain
    - Address THAT!

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SaaS is the new Hardware

- Software is a modern Gold Mine
  - Bit Coin
  - Big Data
    - Machined Learning/ Artificial Intelligence
      - Human 2.0
- New Economy - Protect properly or Civil and Financial unrest will take over
- New Economy defines a need for not only new definitions and subject matters for Patents but also increase the costs to infringe so the pain prevents more Case Law

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Help the Good Crush the Evile

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There is no such thing as a software patent

Kim Rubin

BSEE/CS

45 years technology experience

4 startups

100+ inventions

Patent Agent

Author

Taught computer security

Book shelf for patents


GRANTED
REJECTED

There is no such thing as a software patent

7.5

7.4

7.3

There is no such thing as a software patent.
There is no such thing as a rubber patent.
There is no such thing as a steel patent.
There is no such thing as an electricity patent.

There is only ... a patent.

said embodiment

Czapinski v. St. Francis Hosp., Inc., 2000 WI 80, ¶ 19, 236 Wis. 2d 316, 613 N.W.2d 120.

v.

The Federal Food, Drug, and Cosmetic Act (FDCA), ch. 675, 52 Stat. 1040, as amended, 21 U.S.C. § 301 *et seq*., iSee 21 U.S.C. § 355(a); *Eli Lilly & Co.* v. *Medtronic, Inc.*, 496 U.S. 661, 665—666, 674 (1990).

Article I, Section 8

8. *"To promote the Progress of Science and useful Arts, by securing for limited Times to Inventors the exclusive Right to their Discoveries."*

Article I, Section 8

8. "To promote the Progress of Science and useful Arts, by securing for limited Times to Inventors the exclusive Right to their Discoveries … except for software."

Jefferson, Congress, SCOTUS and MPEP

3. “The Act embodied Jefferson’s philosophy that ‘ingenuity should receive a liberal encouragement.’ 5 Writings of Thomas Jefferson, 75-76 Washington ed. 1871). See *Graham* v. *John Deere Co.,* 383 U.S. 1, 7-10, 148 USPQ459, 462-464 (1966). Subsequent patent statutes in 1836, 1870, and 1874 employed this same broad language. In 1952, when the patent laws were recodified, Congress replaced the word ‘art’ with ‘process,’ but otherwise left Jefferson’s language intact. The Committee Reports accompanying the 1952 act inform us that Congress intended ‘**statutory subject matter to include any thing under the sun that is made by man.’** S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H. R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952)”

2011: AIA and Patentable Subject Matter

The only change to the law regarding patentable subject matter in the AIA:

"Any strategy for reducing, avoiding, or deferring tax liability,"

is not useful.

Software is not a “thing?”
Data is not “tangible?”

OK, everybody in this room who does not own a cell phone and has never used a computer, raise your hand.

Article I, Section 8

"To promote the Progress of Science and **useful** Arts, by securing for limited Times to Inventors the exclusive Right to their Discoveries."

“Don’t call it a computer,”

I used to tell my engineers.

The meaning of a “computer” is so broad that the word itself is meaningless.

“Computer” is directed to …

everything from
an abacus, a loom, logic
in a microwave oven, the
control of a 787 Dreamliner,
to the search for life on an
extra-terrestrial planet.

“Computer” is but a grammatical placeholder, like “device,” informing us of nothing.

If you don’t have a computer, then you don’t have a program.

You have
METHOD STEPS.

METHOD
v.
ALGORITHM
v.
PROCESS

"A claim must be directed to one of the four patent-eligible subject matter categories: process, machine, manufacture, or composition of matter."

— MPEP 2106

A “process” is patentable.

Let’s ask the experts in “process”

...

“True love is a process”
— Ricarco Mantalban

“The whole of life is a process of learning.” — Jiddu Krishnamurti

“Fighting monsters is a risky process.” — Friedrich Nitzsche

Clearly, a “process” is patentable.

Algorithms are computer programs – software – so an algorithm for data encryption such as …

DES

U.S. Patent: 3,962,539
Filed: February 24, 1975
Issued: June 8, 1976
Inventors: Ehrsam et al.
Assignee: IBM

This patent covered the DES cipher and was placed in the public domain by IBM. It is now expired.

Diffie-Hellman

U.S. Patent: 4,200,770
Filed: September 6, 1977
Issued: April 29, 1980
Inventors: Hellman, Diffie, and Merkle
Assignee: Stanford University

This is the first patent covering a public-key cryptosystem. It describes Diffie-Hellman key agreement, as well as a means of authentication using long-term Diffie-Hellman public keys. This patent is now expired.

Public-key cryptosystems

U.S. Patent: 4,218,582
Filed: October 6, 1977
Issued: August 19, 1980
Inventors: Hellman and Merkle
Assignee: Stanford University

The Hellman-Merkle patent covers public-key systems based on the knapsack problem and now known to be insecure. Its broader claims cover general methods of public-key encryption and digital signatures using public keys. This patent is expired.

RSA

U.S. Patent: 4,405,829
Filed: December 14, 1977
Issued: September 20, 1983
Inventors: Rivest, Shamir, and Adleman
Assignee: MIT

I can’t imagine anything less a “thing” than multiplying:

185323955009471744507093833849366798683834244443114056794632807824057962331639 77

by

207472224677348520782169522210760858748099647472111729275299258991219668475054965831008441673255007 7

Without these mathematical algorithms we would not have the most important technology developed in the past 40 years.

No web, no e-commerce, no electronic privacy.

Clearly mathematics, numbers and software fail the useful test in the constitution.

?

We can always use the prior art — trading shells.

Ah! We have to have "significantly more"

Question: exactly how large does a prime number have to be in order to be "significant?"

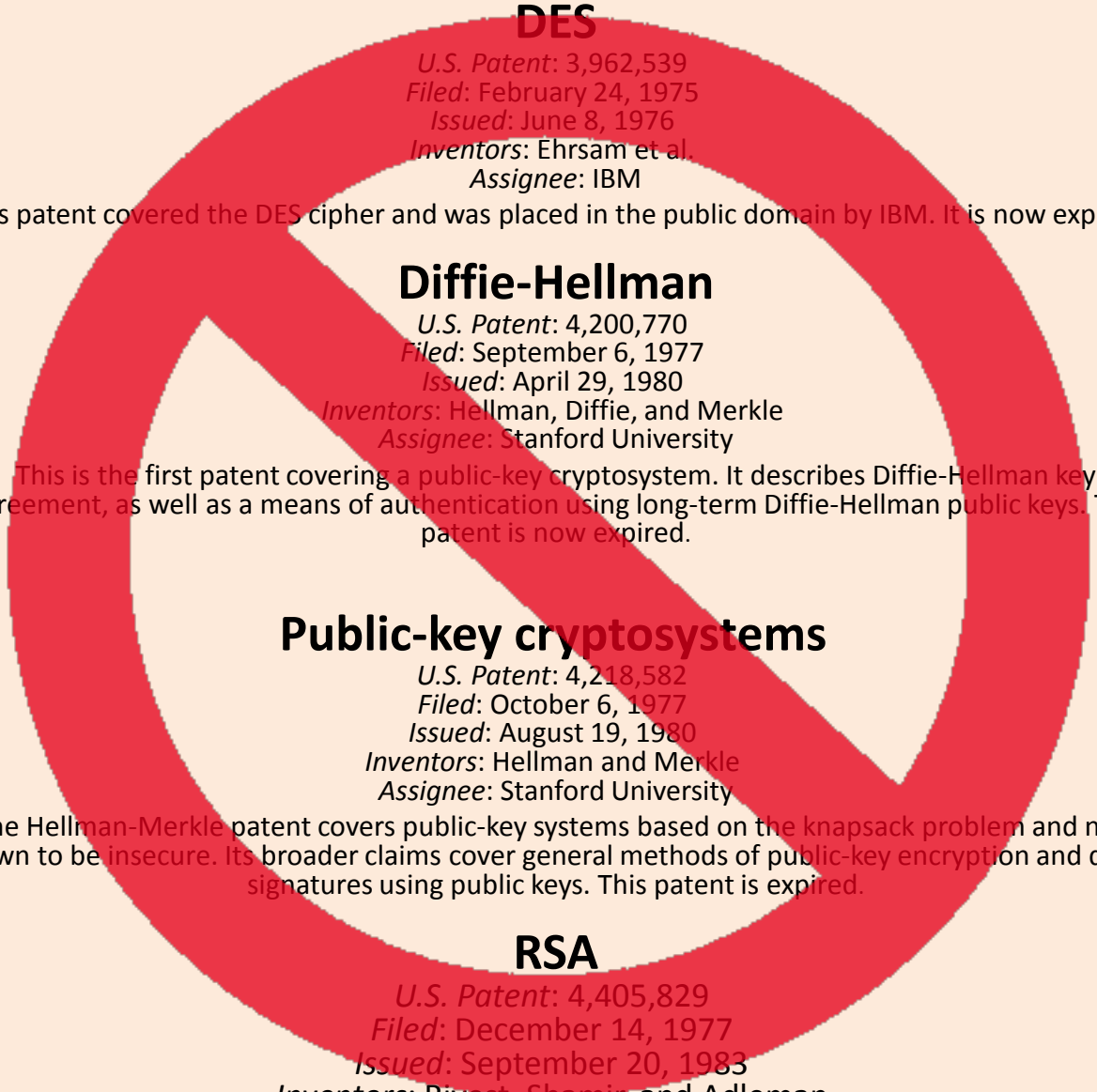
Put "significantly" in a claim and see how far you get.

“True love is a process”
— Ricarco Mantalban

“The whole of life is a process of learning.” — Jiddu Krishnamurti

“Fighting monsters is a risky process.” — Friedrich Nitzsche

PROCESSES are patentable.



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Determining the differences between

METHOD

v.

ALGORITHM

v.

PROCESS

v.

SOFTWARE

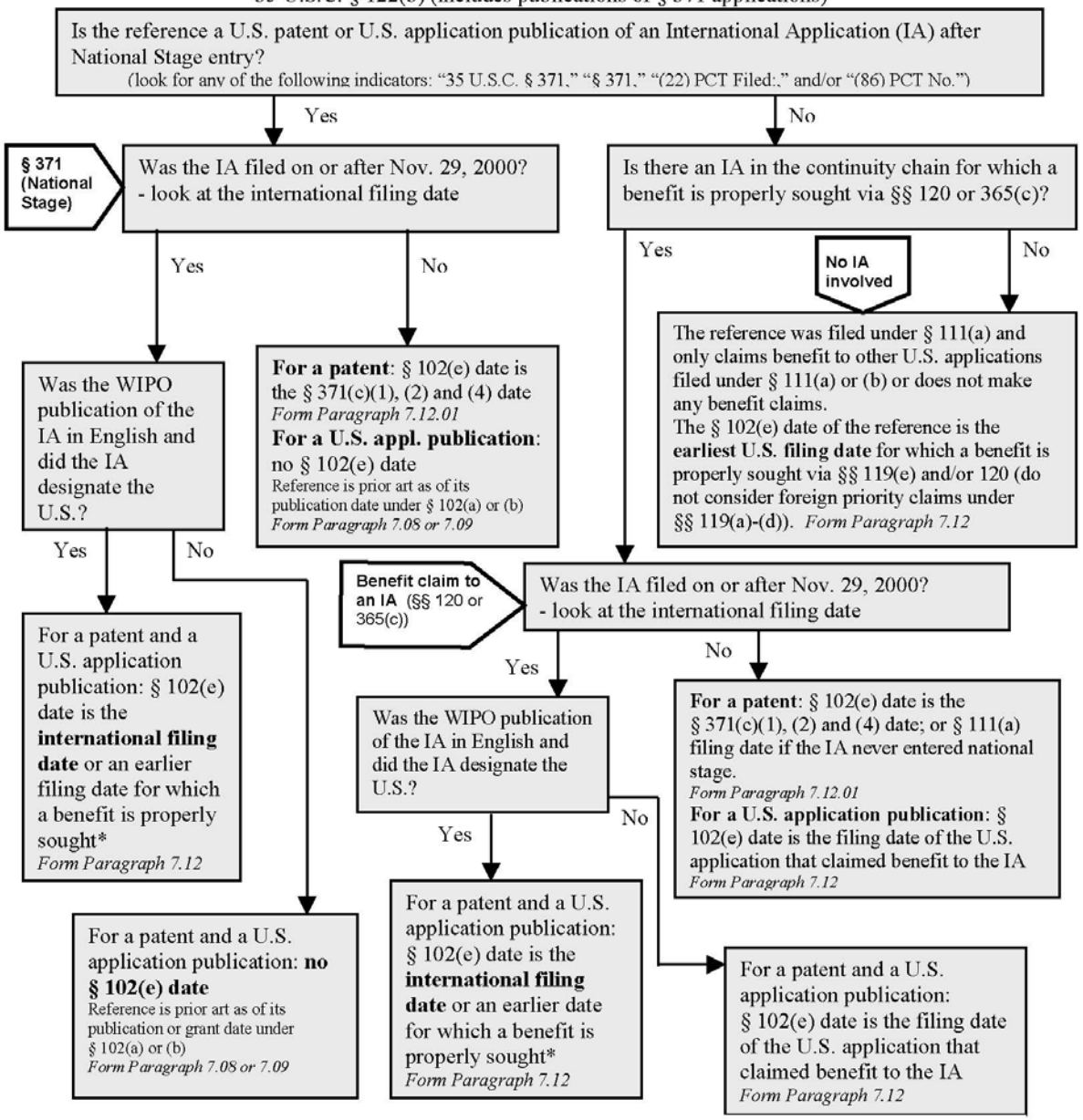
is like parsing clouds.

Solution

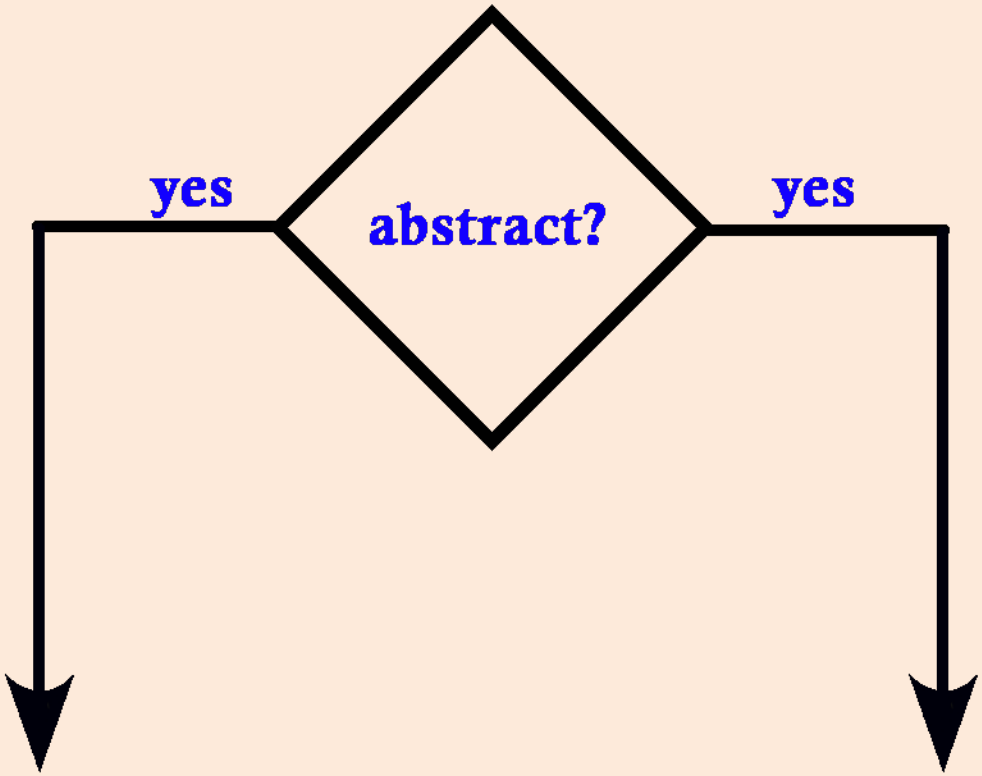
FLOWCHARTS FOR 35 U.S.C. § 102(e) DATES:

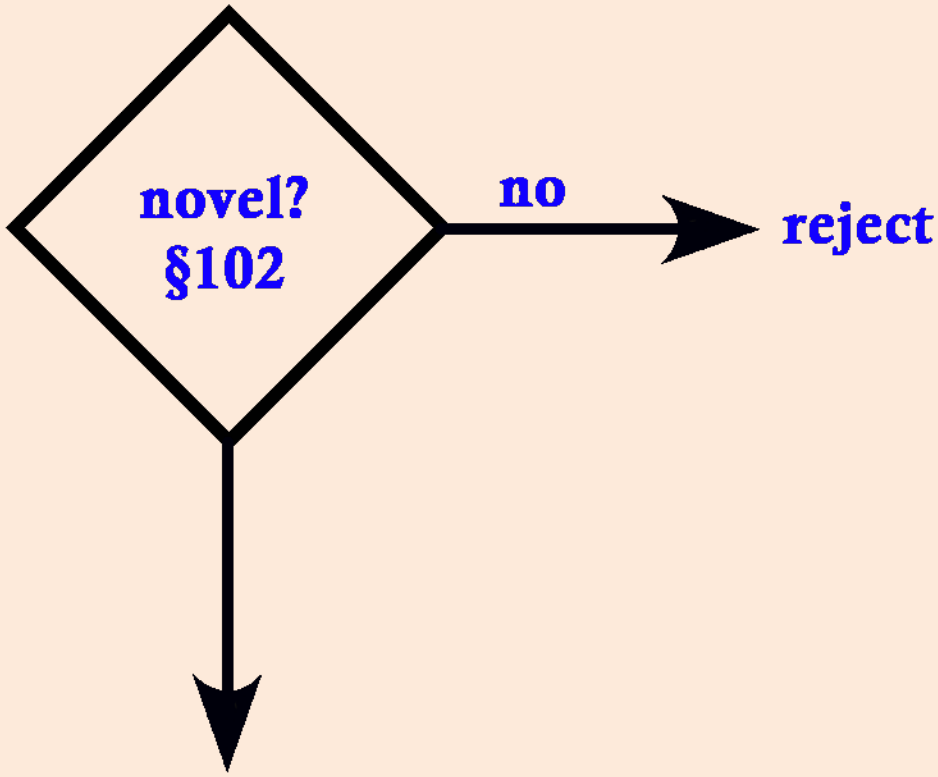
Apply to all applications and patents, whenever filed

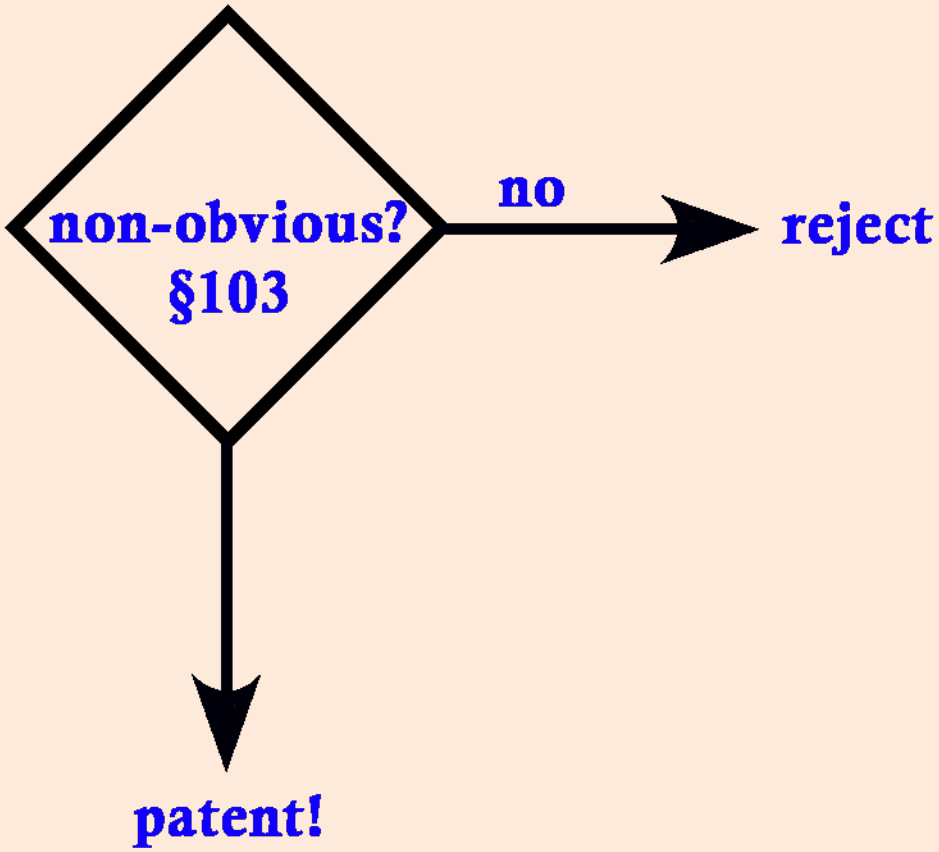
Chart I: For **U.S. patent or U.S. patent application publication** under 35 U.S.C. § 122(b) (includes publications of § 371 applications)

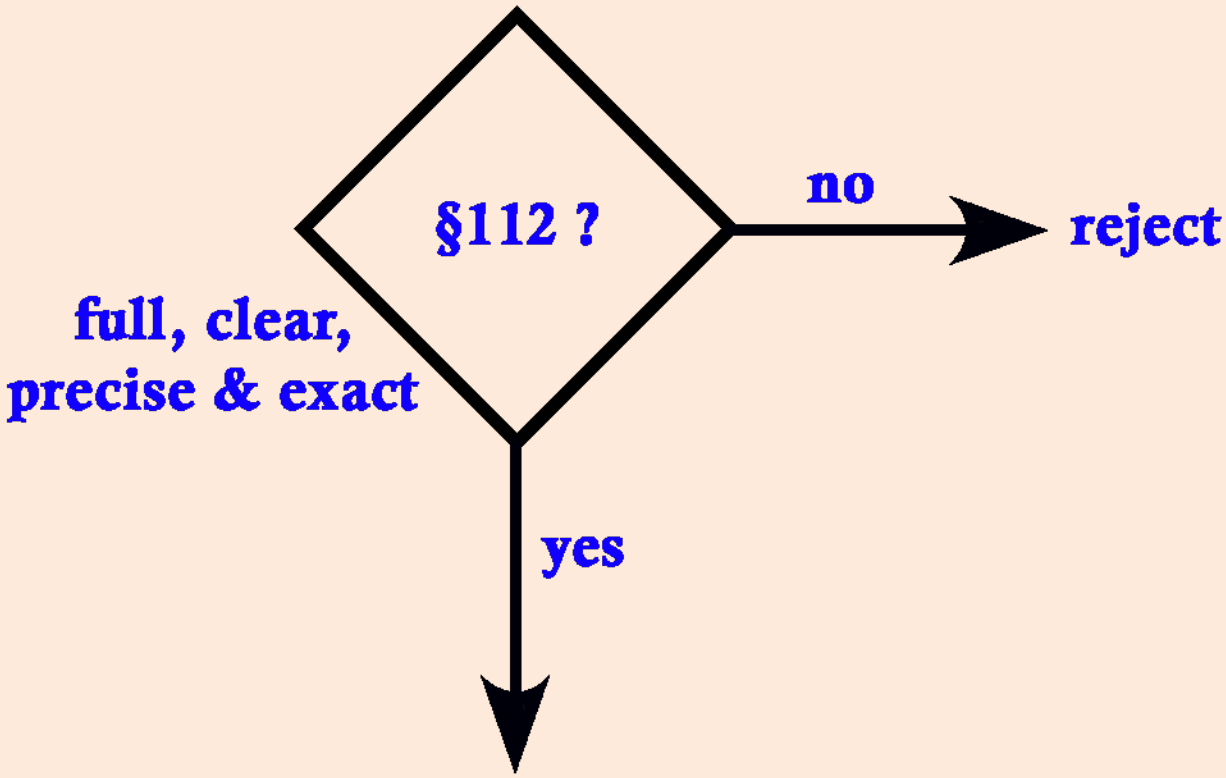


* Consider benefit claims properly made under § 119(e) to U.S. provisional applications, § 120 to U.S. nonprovisional applications, and § 365(c) involving IAs. Do NOT consider foreign priority claims.

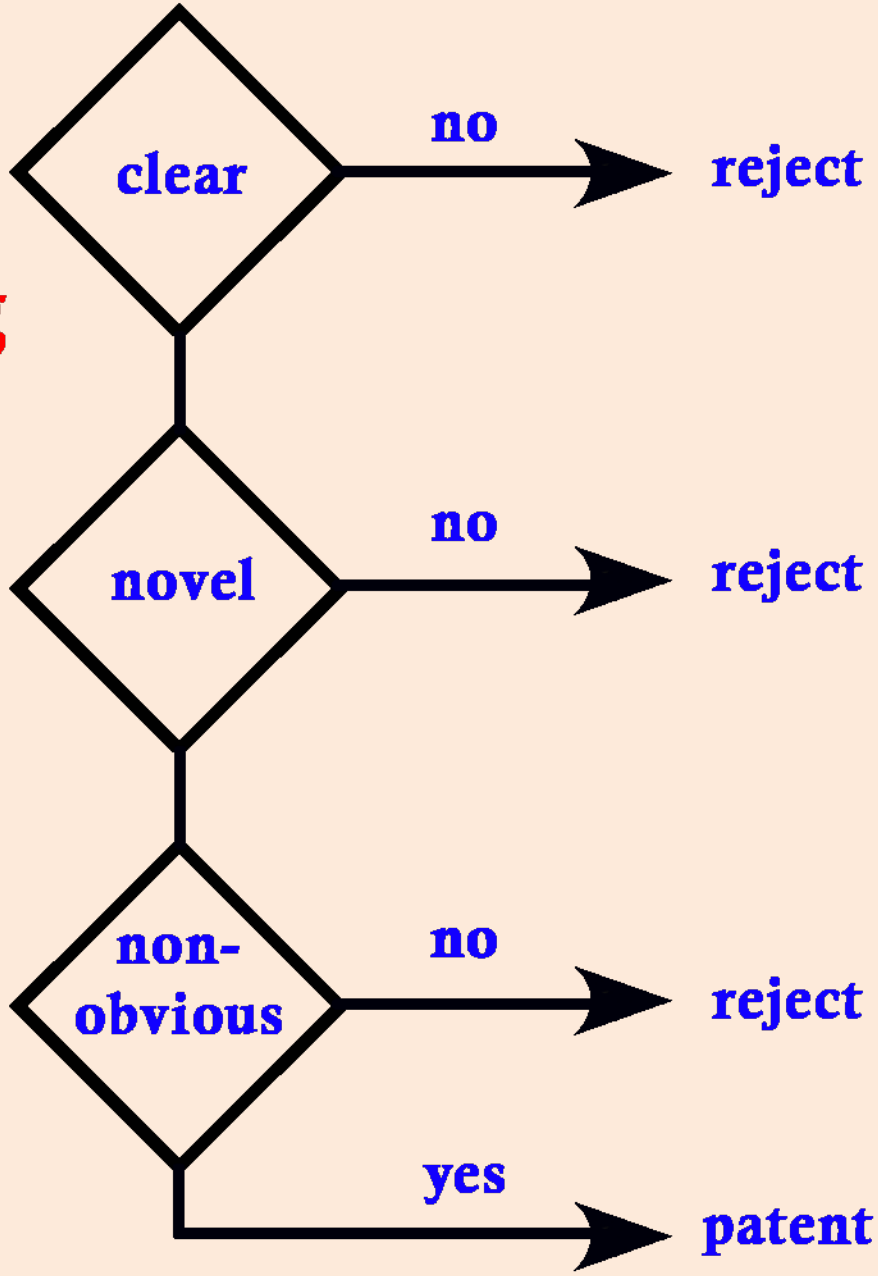

yes
abstract?
yes


novel?
§102
no
reject


non-obvious?
§103
no
reject
patent!

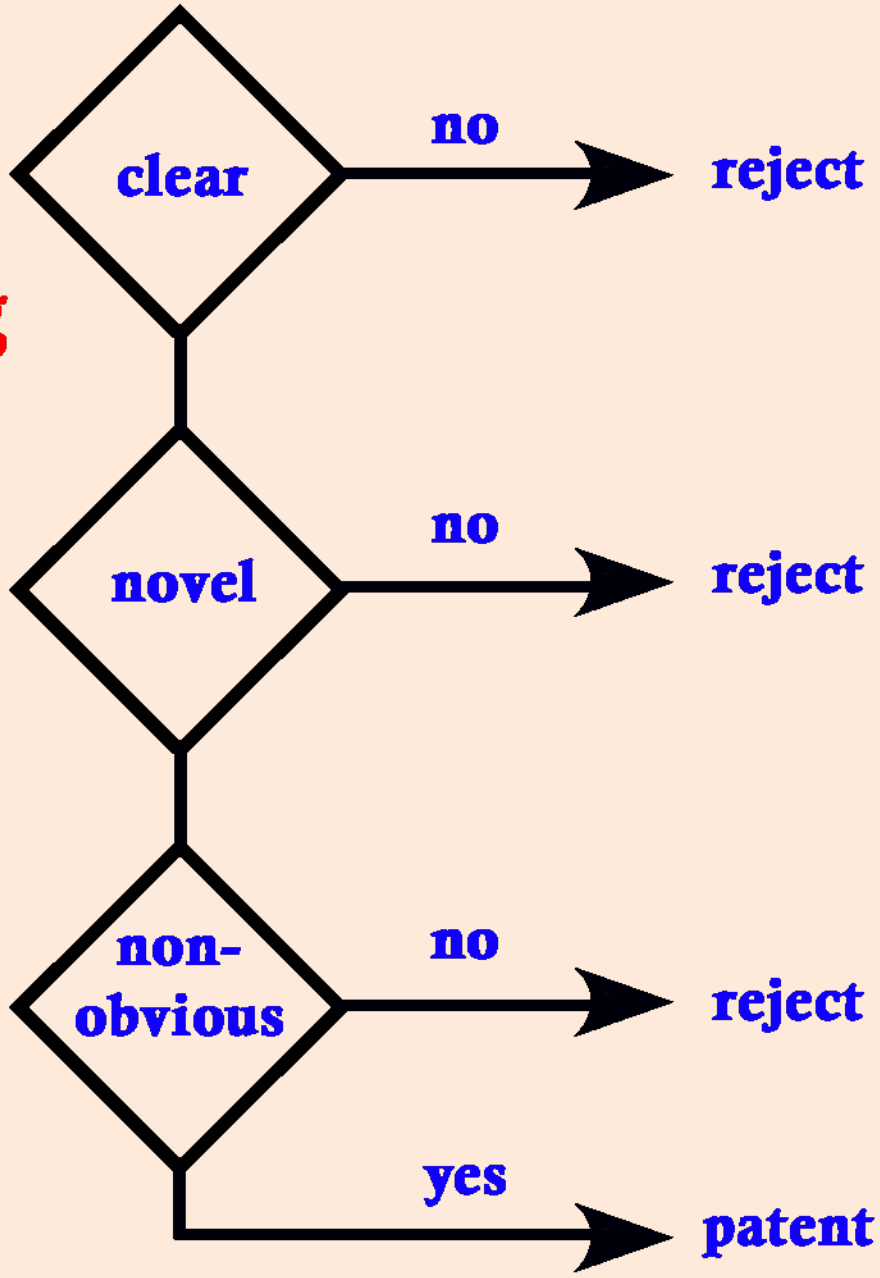

§112 ?
no
reject
full, clear,
precise & exact
yes

Flowchart for examining software patents



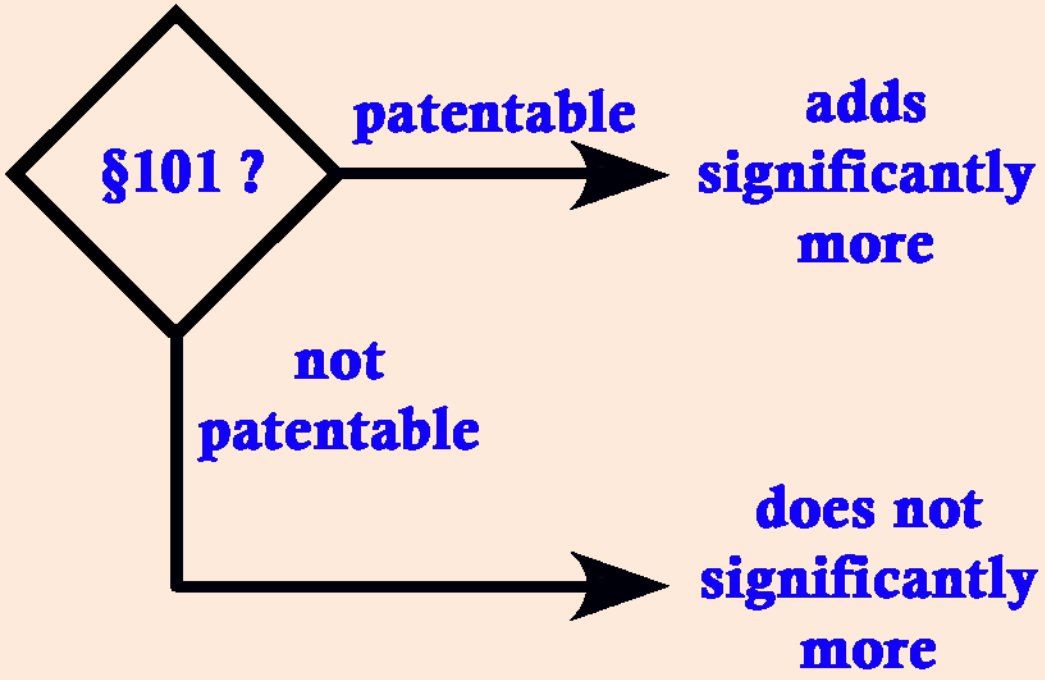
Flowchart for examining software patents

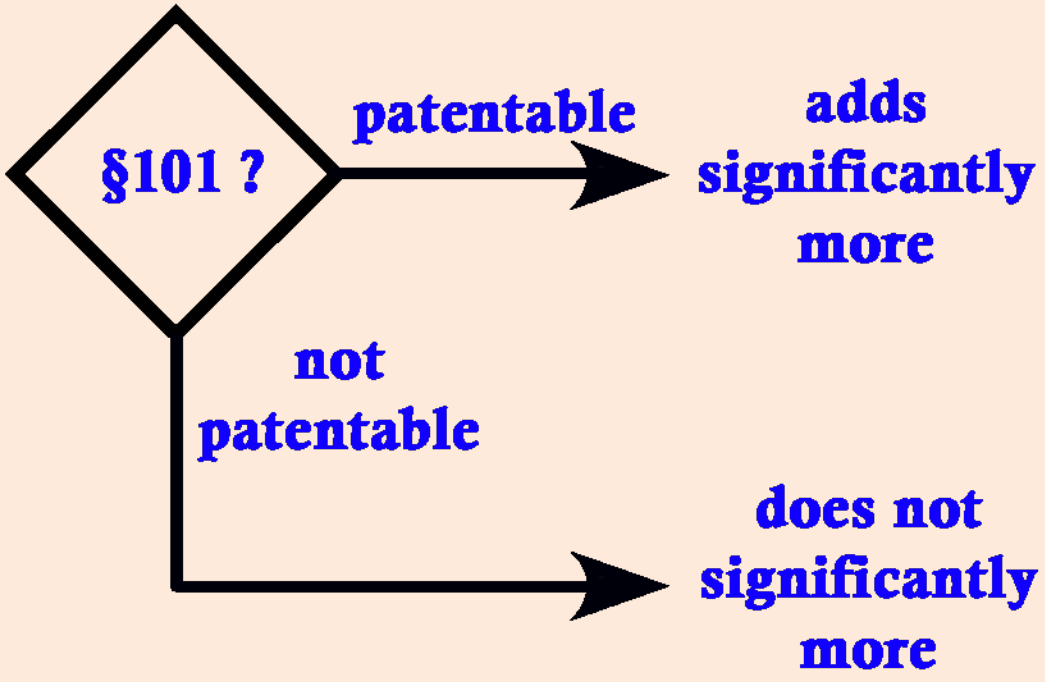
and … all patents.



Oops!

What happened to § 101?


§101 ?
patentable
adds significantly more
not patentable
does not significantly more



Compatible with SCOTUS opinions and USPTO Guidelines.

"Directed to a new and useful technique"
"invention achieves a better way"

Section 101 validity finding under *Alice*

—*Rapid Litigation Management v. CellzDirect* (Fed. Cir. 2016)

If it is "new" and "better" … clearly these are §102 and §103

There is no such thing as a software patent

in 7.5 minutes

Electronic circuits have schematics.

Mechanical devices have a mechanical drawing.

Software methods have code.

If you don't have code, you have an idea, not an invention

Known art in software:

- language intrinsics
- standard library
- open source
- widely available application,
  like Excel or Matlab
- widely available framework,
  like iOS, Xcode, Android, JAVA, html
- defined in a Standard,
  like an RFC, IEEE, IEC

Question presented:

How many Supreme Court Justices can dance on the head of a pin?

Answer:

An even number.

Thank you