Drafting Patent Claims to Avoid §101 Rejections after *Alice* & *Enfish*

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Recent Supreme Court Cases

In the last seven years, the Supreme Court has issued four decisions on 35 U.S.C. § 101 after none for nearly 30 years, since Diamond v. Diehr was decided in 1981.

- 2010 - Bilski v. Kappos
- 2012 - Mayo v. Prometheus
- 2013 - Association for Molecular Pathology v. Myriad Genetics
- 2014 - Alice Corp. v. CLS Bank International

Alice Corp. v. CLS Bank (1/2)

Two-step analysis from *Mayo v. Prometheus* was applied:

1. Determine "whether the claims are directed to a patent-ineligible concept"
2. If patent-ineligible, then determine "whether the claim elements, considered both individually and as an ordered combination transform the nature of the claim into a patent-eligible application."
   - In other words, whether an element or combination of elements is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself.

Alice Corp. v. CLS Bank (2/2)

Application of two-step analysis:

- Like the hedging in *Bilski*, intermediated settlement is an abstract idea which is ineligible for patent protection.
- "[T]he method claims, which merely require generic computer implementation, fail to transform that abstract idea into a patent-eligible invention."

Note:

- The claims at issue in *Alice* recited functional language without structure that implemented the standard business practice of escrow accounts on a computer.

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Application of two-step analysis:

- Like the hedging in *Bilski*, intermediated settlement is an abstract idea which is ineligible for patent protection.
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Federal Circuit Cases after Alice

Since the Supreme Court's *Alice* decision in 2014 through March 2017, the Court of Appeals for the Federal Circuit has issued 88 decisions on 35 U.S.C. § 101, finding no patent eligible subject matter in 80 cases and holding that at least one claim was directed to patent eligible subject matter in eight cases:

- Dec. 2014 - DDR Holdings v. Hotels.com
- May 2016 - Enfish v. Microsoft
- June 2016 - Bascom v. AT&T
- July 2016 - Rapid Litigation v. Cellzdirect
- Oct. 2016 - McRo, Inc. v. Activision
- Nov. 2016 - Amdocs v. Openet
- Jan. 2017 - Trading Technologies v. CQG (nonprecedential when issued)
- Mar. 2017 - Thales Visionix Inc. v. U.S.

Cf. ineligible subject matter: Ariosa v. Sequenom (June 2015) and
TLI Communications v. AV Automotive (May 2016)

Cases after Alice (1/10)

DDR Holdings v. Hotels.com (December 5, 2014):

Claim:

> a "specific way to automate the creation of a composite web page … that incorporates elements from multiple sources in order to solve a problem faced by websites on the Internet"

CAFC Holding: Patent Eligible

- "Retaining website visitors … is a challenge particular to the Internet" and the claims "specify how interactions with the Internet are manipulated to yield a desired result … that over-rides the routine and conventional sequence of events ordinarily triggered by the click of a hyperlink"

Cases after Alice (2/10)

Enfish v. Microsoft (May 12, 2016):

Claim:

> means for configuring memory to store a *self-referential* table that District Court found was created by four-step algorithm, including "stor[ing] information about … [a] column in one or more rows, … [so that] new columns that are available for immediate use being possible through the creation of new column definition records."

CAFC Holding: Patent Eligible

- "[T]he plain focus of the claims is on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity."
- "Accordingly, the claims … are not directed to an abstract idea within the meaning of *Alice*. Rather, they are directed to a specific improvement to the way computers operate, embodied in the self-referential table."
- The court stated "we do not read *Alice* to broadly hold that all improvements in computer related technology are inherently abstract."

Cases after Alice (3/10)

Bascom v. AT&T (June 27, 2016):

Claim:

"content filtering system for filtering content retrieved from … Internet"

CAFC Holding: Patent Eligible

- "[F]iltering content is an abstract idea … it is a long-standing, well-known method of organizing human behavior, similar to concepts previously found to be abstract."
- Claim recites significantly more:
  - "non-conventional and non-generic arrangement of known, conventional pieces."
  - "a filtering tool at a specific location, remote from the end-users, with customizable filtering features specific to each end user" that provides "a technology-based solution … that overcomes existing problems … [of] filtering systems."
  - "more than a drafting effort designed to monopolize the abstract idea" that improves an existing technological process.

Cases after Alice (4/10)

Rapid Litigation v. Cellzdirect (July 5, 2016):

Claim:

> "producing a desired preparation of multi-cryopreserved hepatocytes" including, after freezing & thawing hepatocyte cells, "recovering … and … refreezing … viable cells"

CAFC Holding, patent eligible under Step 2A:

- "*process* of preservation … is patent eligible …, not necessarily the end product"
- an "innovative method that acts on something that is naturally occurring, [is not ineligible] simply because of the nature of the underlying subject matter"
- claim 5's "pooled preparation of hepatocytes of multiple sources … achieved a notable advance over prior art techniques for preserving hepatocytes"

If analyzed under Step 2B, also patent eligible:

- claims directed to "an improved process for preserving hepatocytes for later use."
- "process involves freezing and thawing hepatocytes twice" & repeating is not known

Cases after Alice (5/10)

McRO v. Bandai (September 13, 2016):

Claim:

> "a combined order of specific rules ["evaluate sub-sequences, generate transition parameters" and "apply transition parameters to create a final morph weight sequence"] that renders information into a specific format that is then used and applied to create desired results: a sequence of synchronized, animated characters"

CAFC Holding: Patent Eligible

- "no evidence that the process previously used by animators is the same as the process required by the claims"
- "incorporation of the claimed rules, not the use of the computer, … improved [the] existing technological process … by allowing the automation of further tasks"
- limitations in claim 1 prevent preemption of all processes for achieving automated lip-synchronization of 3-D characters

Cases after Alice (6/10)

Amdocs v. Openet (November 1, 2016):

Claim:

> "code for using the accounting information with which the first network accounting record is correlated to enhance the first network accounting record" where "enhance" means "apply a number of field enhancements in a distributed fashion"

CAFC Holding: Patent Eligible

- "field enhancement specifies how the data obtained from the trigger of the enhancement procedure is processed before it is placed in a single field"
- "claim entails an unconventional technological solution (enhancing data in a distributed fashion) to a technological problem (massive record flows which previously required massive databases)"
- "distinct from the … claim in *Digitech* [which] was not tied to any particularized structure, broadly preempted related technologies, and merely involved combining data in an ordinary manner"

Cases after Alice (7/10)

Trading Technologies v. CQG (January 11, 2017, nonprecedential as issued):

Claims:

> "method and system for reducing the time it takes for a trader to place a trade when electronically trading on an exchange, thus increasing the likelihood that the trader will have orders filled at desirable prices and quantities"

CAFC Holding: Patent Eligible

- the TTI System improves the accuracy of trader transactions, utilizing a software implemented program
- "the claimed subject matter is 'directed to a specific improvement to the way computers operate,' … for the claimed graphical user interface method imparts a specific functionality to a trading system 'directed to a specific implementation of a solution to a problem in the software arts.'"

Cases after Alice (8/10)

Thales Visionix v. U.S. (March 8, 2017):

Claim

> "use [of] inertial sensors in a non-conventional manner to reduce errors in measuring the relative position and orientation of a moving object on a moving reference frame"

CAFC Holding: Patent Eligible - claims not directed to an abstract idea

- "a mathematical equation … required to complete the claimed method and system does not doom the claims to abstraction"
- "method of using the raw data from the sensors … to more accurately calculate the position and orientation of an object on a moving platform. The mathematical equations are a consequence of the [unconventional] arrangement of the sensors and the unconventional choice of reference frame in order to calculate position and orientation"
- "claims seek to protect only the application of physics to the unconventional configuration of sensors"

Cases after Alice (9/10)

Ariosa v. Sequenom (June 12, 2015):

Claim:

> "amplifying a paternally inherited nucleic acid from the serum or plasma sample and detecting the presence of a paternally inherited nucleic acid of fetal origin in the sample"

CAFC Holding: Patent **In**eligible

- "The only subject matter new and useful as of the date of the application was the discovery of the presence of cffDNA in maternal plasma or serum"
- "a method … that starts and ends with a naturally occurring phenomenon … [is not] patent eligible subject matter if the methods themselves are conventional, routine and well understood applications in the art"
- "the absence of complete preemption does not demonstrate patent eligibility"

Cases after Alice (10/10)

TLI Communications v. AV Automotive (May 17, 2016):

Claim:

- For recording a digital image, communicating the digital image from the recording device to a storage device, and administering the digital image in the storage device

CAFC Holding: Patent **In**eligible

- Claims are drawn to the concept of classifying an image and storing the image based on its classification.
- Enfish distinguished: Contrary to TLI's arguments on appeal, the claims here are not directed to a specific improvement to computer functionality.
- Specification does not describe a new telephone, a new server, or a new physical combination of the two
- Specification fails to provide any technical details for the tangible components, but instead predominately describes the system and methods in purely functional terms
- Claims use well-known and conventional components (phone and server)

"Abstract Ideas" Identified by Courts

- Mitigating settlement risk
- Hedging
- Creating a contractual relationship
- Comparing new and stored information and using rules to identify options
- Using categories to organize, store, and transmit data
- Organizing information through mathematical correlations
- Using advertising as an exchange or currency
- Processing information through a clearinghouse
- Managing a game of Bingo
- Mitigating settlement risk
- Equation for calculating the cure time of rubber
- Formula for updating alarm limits
- Mathematical formula relating to standing wave phenomena
- Mathematical formula for converting one form of numerical representation to another

"Significantly More"

- To be patentable, a claim must recite "significantly more" than the abstract idea.
- Limitations referenced in *Alice* that may be enough to quality as "significantly more":
  - Improvement to another technology or technical field;
  - Improvement to the functioning of the computer itself;
  - Effecting a transformation or reduction of a particular article to a different state or thing;
  - Adding a specific limitation other than what is well-understood, routine and conventional in the field, or adding unconventional steps that confine the claim to a particular useful application; or
  - Other meaningful limitations beyond generally linking the use of an abstract idea to a particular technological environment.

USPTO Guidance to Examiners

- June 2014 - Memo with Preliminary Examination Instructions in view of *Alice*
- Dec. 2014 - Examination Guidance published in Federal Register for Comments
- Jan. 2015 - Abstract Idea Examples
- July 2015 - Subject Matter Eligibility Update published in Federal Register
- May 6, 2016 - Subject Matter Eligibility Update published in Federal Register
- May 19, 2016 - Memo on *Enfish* and *TLI Communications*
- July 2016 - Memo on *CellzDirect* and *Sequenom*
- Nov. 2016 - Memo on *McRO* and *Bascom*

(https://www.uspto.gov/patent/laws-and-regulations/examination-policy/subject-matter-eligibility)

USPTO Guidance Flowchart

Step 1 – Is the claim to a process, machine, manufacture, or composition of matter?

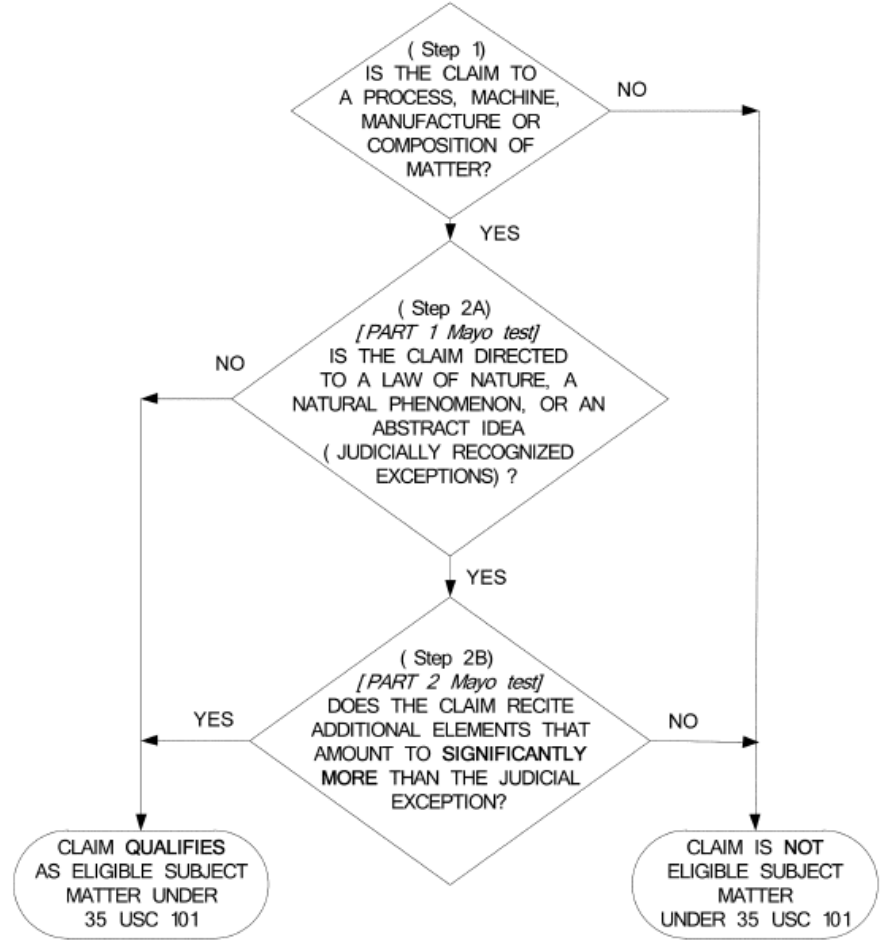
- No – Not eligible under § 101
- Yes – Go to Step 2A

Step 2A – Is the claim directed to a law of nature, natural phenomenon, or abstract idea?

- No – Eligible under § 101
- Yes – Go to Step 2B

Step 2B – Does the claim recite additional elements that make the whole claim amount to significantly more than the judicial exception?

- Yes – Eligible under § 101
- No – Not eligible under § 101



USPTO Guidance – Step 2A (1/3)

Is the claim directed to a law of nature, a natural phenomenon, or an abstract idea (judicial exceptions)?

- Abstract idea examples
  - The USPTO has grouped each "abstract idea" recognized in CAFC or Supreme Court case law
  - The grouping recognizes that "concepts outside these clusters have not been identified as abstract ideas" – Robert W. Bahr, Acting Deputy Commissioner for Patent Examination Policy (September 29, 2015)

USPTO Guidance – Step 2A (2/3)

Abstract Idea Examples and Clusters

"Fundamental Economic Practices"	"Certain Methods of Organizing Human Activity"	
- Creating a contractual relationship - Hedging - Mitigating settlement risk	- Creating a contractual relationship - Hedging - Mitigating settlement risk - Processing loan information - Managing an insurance policy - Managing a game of bingo - Allowing players to purchase additional objects during a game - Generating rule-based tasks for processing an insurance claim - Tax-free investing - Arbitration	- Using advertising as an exchange or currency - Structuring a sales force or marketing company - Using an algorithm for determining the optimal number of visits by a business representative to a client - Computing a price for the sale of a fixed income asset and generating a financial analysis output - A mental process that a neurologist should follow when testing a patient for nervous system malfunctions - Meal planning

Concepts relating to the economy and commerce, such as agreements between people in the form of contracts, legal obligations, and business relationships

Concepts relating to interpersonal and intrapersonal activities, such as managing relationships or transactions between people, social activities, and human behavior; satisfying or avoiding a legal obligation; advertising, marketing, and sales activities or behaviors; and managing human mental activity

USPTO Guidance – Step 2A (3/3)

Abstract Idea Examples and Clusters

"Mathematical Relationships/Formulas"	"An Idea Of Itself'"	
- An algorithm for converting binary coded decimal to pure binary - A formula for computing an alarm limit - A formula describing certain electromagnetic standing wave phenomena - The Arrhenius equation - A mathematical formula for hedging - Managing a stable value protected life insurance policy by performing calculations and manipulating the results - Reducing the amount of calculations in known and established computations - An algorithm for determining the optimal number of visits by a business representative to a client - An algorithm for calculating parameters indicating an abnormal condition - Computing a price for the sale of a fixed income asset and generating a financial analysis output - Calculating the difference between local and average data values	- Comparing information regarding a sample or test subject to a control or target data - Collecting and comparing known information - Comparing data to determine a risk level - Diagnosing an abnormal condition by performing clinical tests and thinking about the results - Obtaining and comparing intangible data	- Comparing new and stored information and using rules to identify options - Using categories to organize, store and transmit information - Data recognition and storage - Organizing information through mathematical correlations - Displaying an advertisement in exchange for access to copyrighted media

Mathematical concepts such as mathematical algorithms, mathematical relationships, mathematical formulas, and calculations

An idea standing alone such as an uninstantiated concept, plan or scheme, as well as a mental process (thinking) that "can be performed in the human mind, or by a human using a pen and paper"

USPTO Guidance Update - May 4, 2016 (1/2)

Formulating Subject Matter Eligibility Rejection and Evaluating Applicant's Response

Examiner Rejection under 35 USC § 101

- For Step 2A identify the judicial exception recited in a claim, for example, identify the abstract idea recited in the claim.
- For Step 2B identify the additional claim elements that do not amount to "significantly more"
  - Explain why or identify support providing reasoned rationale when identifying an exception
- Examiners are suggested to explain in more detail the 35 USC § 101 rejection rationale - the USPTO Guidance examples can help
- Rejection rationale for both Step 2A (Step 1 in *Alice*) and Step 2B (Step 2 in *Alice*)

USPTO Guidance Update - May 4, 2016 (2/2)

Examiner Evaluation of Applicant Response

- Examiner must consider Applicant arguments and evidence provided to rebut the 35 USC § 101 rejection
- If a proper challenge, the rejection should be withdrawn.
- Can provide basis to challenge the 35 USC § 101 rejection rationale:
  - Guidance was not followed by the Examiner
  - Could focus on distinguishing from USPTO's examples of abstract ideas
  - Could reduce rejections, or can more easily overcome rejection by adjusting claim language

USPTO Guidance Update - May 19, 2016

Subject Matter Eligibility Decisions: *Enfish v. Microsoft* & *TLI Comms. v. A.V. Automotive*

- Focus is on the Step 2A inquiry (Step 1 in Alice) – identifying an abstract idea
- Confirms that the USPTO 2014 Guidance, the 2015 Update and the May 4, 2016 Memorandum are consistent with the Enfish decision
- **Enfish**: Claims directed to improvements in computer-related technology, including claims directed to software are not necessarily abstract (Step 2A)
  - No need to perform analysis under Step 2B, because claim is not directed to abstract idea
- **TLI**: Claims directed to generalized steps to be performed on a generic computer

Responding to a 35 USC § 101 rejection

- **Consider calling the Examiner to ask how to overcome the rejection.**
- Evaluate whether you have an abstract idea.
- Try to qualify claim as not being “abstract idea”
- Try to qualify claim as reciting “significantly more”
- Claim Strategy - amend or argue that the claims fit into one of the following categories (See USPTO Guidance on Patent Subject Matter Eligibility):
  - Improvement to another technology or technical field;
  - Improvement to the functioning of the computer itself;
  - Effecting transformation or reduction of a particular article to different state or thing;
  - Adding a specific limitation other than what is well-understood, routine and conventional in the field, or adding unconventional steps that confine the claim to a particular useful application; or
  - Other meaningful limitations beyond generally linking the use of an abstract idea to a particular technological environment.
  - Check to see if the reasoning in DDR, Enfish, BASCOM or McRO can be applied to the claim. If so, amend and/or argue accordingly

Example 1 – Art Unit 2636

A reachability determination method comprising:

- detecting an overlap portion of a first route and a second route where a start node and an end node of the first route respectively match a start node and an end node of the second route;
- retrieving first quality information representing a quality of an optical signal that is obtained when the optical signal is transmitted from the start node to the end of the first route, second quality information representing a quality that is obtained when the optical signal is transmitted along a partial route of the first route other than the overlap portion of the first route, and third quality information representing a quality that is obtained when the optical signal is transmitted along a partial route of the second route other than the overlap portion of the second route; and
- determining reachability of the second route in accordance with the first quality information, the second quality information, and the third quality information.

Example 1 – Response to USPTO

- Rejected under 35 USC §§ 101 and 112
- Office Action asserted that claim was directed to the abstract idea of "determining reachability of the second route in accordance with the first quality information, the second quality information, and the third quality information."
- Office Action noted that no details in claims regarding how the determination is made.
- Amendment added details to how the determination is made and to further tie the second quality information and third quality information to the optical signal.

Example 1 – Amendment (1/2)

A reachability determination method comprising:

- detecting an overlap portion of a first route and a second route where a start node and an end node of the first route respectively match a start node and an end node of the second route;
- retrieving measured first quality information representing a quality of an optical signal that is obtained when the optical signal is transmitted from the start node to the end of the first route;[[,]]
- determining, executed by a processor, when the first quality information is above a predetermined threshold, the first route is reachable;
- retrieving measured second quality information representing a quality of the optical signal that is obtained when the optical signal is transmitted along a partial route of the first route other than the overlap portion of the first route; ~~and~~

Example 1 – Amendment (2/2)

- retrieving measured third quality information representing a quality of the optical signal that is obtained when the optical signal is transmitted along a partial route of the second route other than the overlap portion of the second route; ~~and~~
- comparing, executed by the processor, the second quality information with the third quality information;
- when the third quality information is greater than or equal to the second quality information, determining, executed by the processor, ~~reachability of~~ the second route ~~in accordance with~~ is reachable; and
- when the ~~first~~ third quality information[[,]] is less than the second quality information, ~~and the third quality information~~ determining, executed by the processor, the second route is not reachable.

Example 2 – Art Unit 3715

A question setting apparatus, comprising:

– a storage that stores
  - a problem database which maintains problem data including a problem and a correct answer, and
  - a student answer database which maintains answer data including an answer of a student for the problem and a correct/incorrect answer determination result for each student; and

– a processor that performs
  - recording the answer data and the correct/incorrect answer determination result by using the problem database based on a correct answer of the problem, the answer data being received during a test from student terminals connected through a network, and
  - sending a comment to the student terminals through the network in which during the test, an answer state of the students is determined by using the student answer database and the comment related to the problem is acquired from a teacher based on a determination result.

Example 2 – Response to USPTO

- First Office Action rejected claim under 35 USC §§ 101 and 103
- Prior art rejection overcome by argument, but extensive amendment required to overcome § 101 rejection
- Claim was amended to recite
  - More data involved in more operations
  - Make trigger conditions more specific
  - Make formula more specific, using many different percentages
  - Improvement to computerized student testing

Example 2 – Amendment (1/4)

A question setting apparatus, comprising:

– a storage that stores

- a problem database which maintains problem data including a problem, ~~and~~ a correct answer to the problem, and a problem identifier to identify the problem,
- a reference answer percentage, a reference correct answer percentage, a reference answer time, and a reference percentage of students exceeding the reference answer time, and
- a student answer database which maintains answer data including an answers of ~~a~~ respective students for the problem, the problem identifier which corresponds the answers to the problem, answer times taken by respective students to answer the problem, and [[a]] correct/incorrect answer determination results for each student; and

Example 2 – Amendment (2/4)

– a processor that performs

- in response to receiving respective answer data during the test from the respective student terminals of the respective students, for each of the respective answer data:
  - recording the respective answer data, which includes an answer time taken to answer the problem, ~~and~~
  - producing the correct/incorrect answer determination result by using the problem database ~~based on~~ and the problem identifier included in the respective answer data to identify the problem and a correct answer of the problem,
  - recording the correct/incorrect answer ~~data being received during a the test from student terminals connected through a network~~ determination result, and ~~sending a comment to the student terminals through the network in which during the test, an answer state of the students is determined by~~

Example 2 – Amendment (3/4)

- using answer data recorded in the student answer database ~~and the comment related~~ to determine a comprehension level of the students in comprehending the problem, by determining a first percentage of a number of students who answered the problem ~~is acquired from a teacher based on a determination result~~ problem with respect to a total student number,

- in response to the first percentage being determined to exceed the reference answer percentage,

  - determining that the comprehension level is a trigger to notify a user of the question setting apparatus to generate a supplemental explanation of the problem, upon determining that a second percentage of a number of correct answers with respect to the number of students who answered the problem is lower than the reference correct answer percentage, the second percentage determined based on the correct/incorrect answer determination results recorded in the student answer database,

Example 2 – Amendment (4/4)

- in response to the first percentage being determined as not exceeding the reference answer percentage,
    - determining that the comprehension level is a trigger to notify the user of the question setting apparatus to generate a supplemental explanation of the problem, upon determining that a third percentage of the students who exceed the reference answer time is higher than the reference percentage of students exceeding the reference answer time, the third percentage determined based on the answer times recorded in the student answer database,
- in response to determining that the comprehension level is a trigger to notify the user to generate a supplemental explanation of the problem, notifying ~~a~~ the user of the question setting apparatus to generate ~~a~~ the supplemental explanation of the problem to guide the students to select a correct answer of the problem, and
- receiving the supplemental explanation from the user, and sending the supplemental explanation of the problem to the respective student terminals through the network during the test before the test ends.

Example 3 – Art Unit 2464

A pilot resource allocation method comprising:

– determining, according to an aggregation level and multiplexing information of an enhanced control channel element in a resource block pair, a number of resource elements that are allocated to and occupied by a demodulation pilot signal in the resource block pair.

resource allocation by establishing correspondence between the aggregation level of

Example 3 – 1st Response to USPTO

- First Office Action rejected claim under 35 USC §§ 101, 102 and 112(b)
- Examiner stated "judicial exception …[of] determining a number of resource elements that are allocated to and occupied by a demodulation pilot signal (DMRS) in the resource block pair" was recited in claim without significantly more, because it was a "method that can be performed in the human mind."
- § 101 rejection addressed by adding that method is performed by at least one processor and "performing resource allocation by establishing correspondence between the aggregation level and the determined number of resources."
- § 102 rejection overcome by argument in light of amendments

Example 3 – Amendment 1

A pilot resource allocation method comprising:

– by at least one processor executing computer-readable instructions stored in at least one memory:

- determining, according to an aggregation level and multiplexing information of an enhanced control channel element in a resource block pair, a number of resource elements that are to be allocated to and occupied by a demodulation pilot signal in the resource block pair; and
- performing resource allocation by establishing correspondence between the aggregation level and the determined number of resources.

Example 3 – 2nd Response to USPTO

- Second Office Action rejected claim only under 35 USC § 101
- Examiner stated claim was “directed to the abstract idea of determining a number of resource elements” without significantly more, “because the processor and the memory, which are recited at a high level of generality, provide convention[al] computer functions that do not add meaningful limits to practicing the abstract idea.”
- § 101 rejection overcome by adding specific equipment, operable in a communication system, that perform the operations
- Amended claim is “significantly more” than what is not a court-identified abstract idea

Example 3 – Amendment 2

A pilot resource allocation method comprising:

– by ~~at least one processor executing computer-readable instructions stored in at least one memory~~ a base station or user equipment operable in a communication system:

- determining, according to an aggregation level and multiplexing information of an enhanced control channel element in a resource block pair of the communication system, a number of resource elements of the communication system that are to be allocated to and occupied by a demodulation pilot signal of the communication system in the resource block pair; and
- performing resource allocation in the communication system by establishing correspondence between the aggregation level and the determined number of resources.

Example 4 – Art Unit 3662

An analysis method executed by a computer, the analysis method comprising:

- acquiring first path information indicating a first movement path, first velocity information of a first moving body on the first movement path, second path information indicating a second movement path, and second velocity information of a second moving body on the second movement path;
- calculating, based on a specific rule, a similarity between the first velocity information and the second velocity information when the first path information and the second path information are extracted as candidates to be integrated;
- determining, based on the similarity, whether the first path information and second path information are to be integrated with each other; and
- generating graph information to be used to draw at least a part of the first path information and at least a part of the second path information as a single path when it is determined that the first path information and the second path information are to be integrated with each other.

Example 4 – Response to USPTO

- Claim rejected under 35 USC §§ 101, 112(a), and 112(b).
- Office Action stated
  - claim is directed toward organizing human activities and is directed to a broadly-claimed algorithm and does not transform the algorithm into something more; and
  - "generating graph information to be used to draw" is broad, because "to be used to draw" is a result that carries little patentable weight
- Claim was amended to positively recite "drawing" which is not an abstract idea and is tied back to the "determining"

Example 4 – Amendment

ELIGIBLE

An analysis method ~~executed by a computer, the analysis method~~ comprising:

- acquiring first path information indicating a first movement path, first velocity information of a first moving body on the first movement path, second path information indicating a second movement path, and second velocity information of a second moving body on the second movement path;
- calculating~~, based on a specific rule,~~ a similarity between the first velocity information and the second velocity information when the first path information and the second path information are extracted as candidates to be integrated;
- determining by a computer, based on the similarity, whether the first path information and second path information are to be integrated with each other; and ~~generating graph information to be used to draw~~
- drawing at least a part of the first path information and at least a part of the second path information as a single path when it is determined that the first path information and the second path information are to be integrated with each other.

Example 5 – Art Unit 3623

An apparatus comprising:

- at least one memory storing instructions; and
- at least one processor which executes the instructions to cause the at least one processor to:
  - obtain execution results from executing a plurality of workflows, each workflow including a plurality of activities,
  - calculate, based on the execution results, a first value corresponding to a first parameter for each activity of each workflow,
  - calculate, based on the execution results, a second value corresponding to a second parameter for each activity of each workflow,
  - determine activities in which the first parameter and the second parameter are the same,
  - for each respective activity in which the determining determines that the first parameter and the second parameter are the same, computing a total = the first value + the second value for the respective activity,
  - determining a workflow of the plurality of workflows having an activity with the highest computed total, and
  - outputting information indicating the determined workflow as a recommended workflow.

Example 5 – 1st Response to USPTO

- First Office Action rejected claims under 35 USC §§ 101, 112(a), and 112(b)
- Office Action said claim was "calculating frequencies of updates in work-flows" which was viewed as "a series of steps instructing the execution of mathematical formulas … similar to the Digitech Image Tech., LLC v. Electronic for Imaging in that it relates to organizing information through mathematical functions and is not tied to a specific structure or machine."
- Specification defines a workflow as "a series of business operations executed on a computer system with regard to some business operation process"
- Specification discussed extracting workflows that improve efficiency of organization
- Attempt to add more structure, technical improvement

Example 5 – 1st Response to USPTO

- **Arguments:**
  - The computer is employed to perform a distinct process to automate a task previously performed by humans.
  - It is the incorporation of the claimed rules, not the use of the computer, that "improved the existing technological process" by allowing the automation of further task.
  - The automation goes beyond merely "organizing existing information into a new form" or carrying out a fundamental economic practice
  - Claimed process uses a combined order of specific rules that renders information into a specific format that is then used and applied to create desired results.

Example 5 – Amendment 1 (1/2)

An apparatus comprising:

– a terminal; and

– a server configured to receive a request for a recommended workflow from the terminal and, in response to the received request, to:

- obtain execution results from executing a plurality of workflows, each workflow including a plurality of activities,
- calculate, based on the execution results, a first value corresponding to a first parameter for each activity of each workflow,
- calculate, based on the execution results, a second value corresponding to a second parameter for each activity of each workflow,
- determine update activities in which the first parameter and the second parameter differ ,

Example 5 – Amendment 1 (2/2)

- for each respective update activity in which the determining determines that the first parameter and the second parameter are different, determine highest difference in update activity,
- determining a workflow of the plurality of workflows having an update activity with the highest difference, and
- outputting information indicating the determined workflow as the recommended workflow to the terminal.

Example 5 – 2nd Response to USPTO

- Second Office Action repeated rejections under §§ 101, 112(a), and 112(b)
- Second Office Action
  - repeated comparison with *Digitech* and stated claim had "no substantial practical application except in connection with a digital com-puter and thus … [is] ineligible"
  - responded to arguments of "substantially more" by asserting that claim limitations were "[m]ere instructions to implement an idea on a computer is not significantly more when recited with an abstract idea and thus is not sufficient, when considered separately and in combination to qualify the limitations as significantly more than the abstract idea."
  - "to improve business aspect"
- Second Amendment adding more details (see next slides) was still not enough to overcome §101, even though allowable over prior art.

Example 5 – Amendment 2 (1/4)

A system comprising:

– at least one memory storing instructions; and

– at least one processor that executes the instructions to cause the at least one processor to perform:

storing, in the at least one memory, first definition information of a standard workflow and second definition information of customized workflows,

the standard workflow including a plurality of first activities that are executed,

each customized workflow of the customized workflows including a plurality of second activities that are executed being generated by customizing at least one activity of the plurality of first activities,

Example 5 – Amendment 2 (2/4)

- executing processing, based on the first definition information stored in the at least one memory, to execute the standard workflow multiple times on the computer-implemented information processing system, so that each of the first activities are executed multiple times on the computer-implemented information processing system,
- executing processing, based on the second definition information stored in the at least one memory, to execute each of the customized workflows multiple times on the computer-implemented information processing system, so that each of the second activities in each of the customized workflows are executed multiple times on the computer-implemented information processing system,
- acquiring first execution results from the execution of the standard workflow, the first execution results including first sets of first values and parameters in each of the first activities,
- storing, in the at least one memory, a first logical relationship indicating a relationship between the first values and the parameters of the first sets,

Example 5 – Amendment 2 (3/4)

– acquiring, for each respective customized workflow of the customized workflows, second execution results from the execution of the respective customized workflow, the second execution results including second sets of second values and parameters in each of the second activities of the respective customized workflow, the parameters of the first sets and the parameters of the second sets being shared parameters that are shared between the first and second sets,

– storing second logical relationship indicating a relationship between the second values and the parameters of the second sets,

– determine, for the first activities in the standard workflow, first updating frequencies of the parameters in the first sets, based on the first values of the first sets,

– storing a third logical relationship indicating a relationship between the first updating frequencies and the parameters in the first sets,

– determine, for the second activities in each respective customized workflow of the customized workflows, second updating frequencies of the parameters in the second sets, based on the second values of the second sets

Example 5 – Amendment 2 (4/4)

- storing fourth logical relationship indicating a relationship between the second updating frequencies and the parameters in the first second,
- select, as a related parameter, a parameter which has a greatest difference between a first updating frequency and a second updating frequency,
- calculating, for each pairing of the standard workflow with a respective customized workflow of the customized workflows, differences between a value of the related parameter of each of the first activities after a last first activity of the first activities has been executed, and of each of the second activities in the respective customized workflow after a last second activity of the second activities of the respective customized workflow has been executed,
- storing a fifth logical relationship indicating a relationship between the pairings and the calculated differences,
- select a customized workflow from the customized workflows having a greatest difference as a recommended workflow, and
- transmitting information indicating the recommended workflow for execution.

Example 5 – Comments

- Amended claim focuses more on the operation of the computer
- Recites "executing workflows", not just obtaining results
- Recites logical structures stored in memory that are accessed
  - Possible Enfish argument, depending on how the specification was written
- Could further amend to recite doing something with the recommend workflow, such as controlling another system to implement the recommended workflow
- Could further amend to clarify how the recommended workflow is different from other workflows
- How the specification is written is very important
- Still not successful, what more could be done? Recite benefit to improve results for a computer implemented business workflow system?

Example 6 – Art Unit 3667

A method for operating a motor vehicle having a first detection device detecting radio waves transmitted by a wireless key and a second detection device having a smaller detection range than the first detection device for the wireless key, comprising:

- detecting operation of an operator control element indicating a request for change in operation status of the motor vehicle;
- performing a first search process using the first detection device in response to said detecting;
- performing, when the wireless key associated with the motor vehicle has not been found by the first search process, a second search process from a fallback instant using the first and second detection devices one of continuously and intermittently and one of in parallel and alternately; and
- performing, at a switching instant when the wireless key associated with the motor vehicle has not been found for at least one of a predetermined period of time and a predetermined number of search processes using the first and second search processes after the fallback instant, a third search process using only the second detection device.

Example 6 – Response to USPTO

- First Office Action stated only "claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more" describing claims as directed to "searching for radio wave signals transmitted from a wireless key … [and] using alternate apparatus to perform substantially the same search."
- Response argued first Office Action failed to follow instructions in Guidance to "explain why … [the claimed subject matter] corresponds to a concept that the courts have identified as an abstract idea" and "significantly more" is claimed
- Final Office Action made little change to wording of rejections
- During Interview, Examiner agreed apparatus claims were not abstract and stated that his art unit normally requires reciting control of an automobile
- Small amendments were made to overcome both § 101 and § 103 rejections

Example 6 – Amendment (1/2)

A method for operating a motor vehicle having a first detection device detecting radio waves transmitted by a wireless key and a second detection device having a smaller detection range than the first detection device for the wireless key, comprising:

– detecting operation of an operator control element indicating a request for change in operation status of the motor vehicle;

– performing a first search process ~~using~~ by processing the radio waves in the first detection device in response to said detecting;

– performing, when the wireless key associated with the motor vehicle has not been found by the first search process, a second search process from a fallback instant using the first and second detection devices one of continuously and intermittently and one of in parallel and alternately; ~~and~~

Example 6 – Amendment (2/2)

- performing, at a switching instant when the wireless key associated with the motor vehicle has not been found for at least one of a predetermined period of time and a predetermined number of search processes using the first and second search processes after the fallback instant, a third search process using only the second detection device; and
- operating a control device in the motor vehicle after detection of the wireless key.

Summary: Responding to § 101 Rejections

- **Call the Examiner** to determine practice of art unit and personal idiosyncrasies
- Cite Guidance and Memos from Deputy Commissioner for Patent Examination Policy defining USPTO procedure for § 101 analysis
- Emphasize (argue or amend to recite) specific technology that performs operations
- Amending to overcome any § 102/103 rejections, and to tie elements together, will often overcome § 101 rejection, because claim may no longer be "abstract."
- Cite improvement - computer operation or other technology, such as digital image processing.
- Argue claim is not an "abstract idea," particularly when no corresponding claim has been found ineligible by a court, and then argue that "significantly more" is recited

Drafting Application for 35 USC § 101

- **In the specification, explain how the invention improves the technology and/or operation of a computer (see *Enfish*)**
  - For example, describe "a process including a plurality of activities executed by a computer."
  - Describe how the process is more efficient and effective than the prior art, not merely because it has been computerized, but the way it has been implemented by a computer provides benefit(s) over the prior art
  - For example, an improvement in workflow operation as compared to the prior art workflows
- Focus the claims on the operation of the computer (for example, what happens inside a computer) or other technology, as opposed to reciting operations on data that might be considered a business method

Questions?
Thank You

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