PATENTING SOFTWARE INVENTIONS

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Constitutional Basis

- *U.S. Constitution, Article I, Section 8, Clause 8*:

The Congress shall have power . . . to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

Statutory Basis

- *35 U.S.C. §101 – Inventions Patentable*:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Judicial Exceptions

- Abstract Ideas
  - Mathematical Concepts
  - Methods of Organizing Human Activity
  - Mental Processes
- Laws of Nature
- Natural Phenomena

ALICE TWO-STEP TEST

- Claims directed to abstract ideas or other judicial exceptions without an inventive concept are not patent-eligible under 35 U.S.C. §101. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208 (2014).
- Under *Alice*, a two-step framework is applied. At Step 1, a court determines whether a claim is directed to a judicial exception. If the claim is directed to a judicial exception, the court proceeds to Step 2 to determine whether the claim contains an inventive concept that transforms the judicial exception into a patent-eligible application.
- Claims "directed to an improvement in the functioning of a computer" are not directed to judicial exceptions, and are therefore patent-eligible at Step 1, such that Step 2 is not reached.
- Claims providing "a technical improvement over prior art" include an inventive concept sufficient to transform a judicial exception, and are therefore patent-eligible at Step 2.

Abstract Ideas – Mathematical Concepts

- *Gottschalk v. Benson*, 409 U.S. 63 (1972) – Method for converting binary-coded-decimal (BCD) numerals into pure binary numerals
- "The mathematical formula involved here has no substantial practical application except in connection with a digital computer, which means that if the judgment below is affirmed, the patent would wholly preempt the mathematical formula and in practical effect would be a patent on the algorithm itself."

Abstract Ideas – Mathematical Concepts

- *In re Board of Trustees of the Leland Stanford Junior University*, 989 F.3d 1367 (Fed. Cir. 2021) – Method for resolving haplotype phase, an indication of the parent from whom a gene has been inherited
- "We . . . conclude that claim 1 is directed to the abstract idea of mathematically calculating alleles' haplotype phase. Because claim 1 is directed to a patent ineligible mathematical algorithm, we turn next to *Alice* step two. We conclude that claim 1 is not transformed at step two into patent eligible subject matter. Claim 1 recites no steps that practically apply the claimed mathematical algorithm; instead, claim 1 ends at storing the haplotype phase and 'providing' it 'in response to a request.' Simply storing information and providing it upon request does not alone transform the abstract idea into patent eligible subject matter."

Abstract Ideas – Methods of organizing human activity

- *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208 (2014) – Method for mitigating settlement risk
- "We hold that the claims at issue are drawn to the abstract idea of intermediated settlement, and that merely requiring generic computer implementation fails to transform that abstract idea into a patent-eligible invention."

ABSTRACT IDEAS – METHODS OF ORGANIZING HUMAN ACTIVITY

- *Buysafe, Inc. v. Google, Inc.*, 765 F.3d 1350 (Fed. Cir. 2014) – Method for guaranteeing a party's performance of its online transaction
- "The claims are squarely about creating a contractual relationship—a 'transaction performance guaranty'—that is beyond question of ancient lineage. . . . The dependent claims' narrowing to particular types of such relationships, themselves familiar, does not change the analysis. This kind of narrowing of such long-familiar commercial transactions does not make the idea non-abstract for section 101 purposes."

ABSTRACT IDEAS – MENTAL PROCESSES

- *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138 (Fed. Cir. 2016) – Method for converting a hardware independent user description of a logic circuit into logic circuit hardware components

- "A review of the actual claims at issue shows that they are directed to the abstract idea of translating a functional description of a logic circuit into a hardware component description of the logic circuit. This idea of reviewing a description of certain functions and turning it into a representation of the logic component that performs those functions can be – and, indeed, was – performed mentally or by pencil and paper by one of ordinary skill in the art. Moreover, the claims . . . cannot be characterized as an improvement in a computer as a tool. The claims add nothing to the abstract idea that rises to the level of an 'inventive concept' as required by precedent."

LAWS OF NATURE & NATURAL PHENOMENA

- *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012) – Method of optimizing therapeutic efficacy for treatment of an immune-mediated gastrointestinal disorder, involving administering a drug providing 6-thioguanine to a subject, and determining the level of 6-thioguanine in the subject, with associated adjustments in dosage.
- "Beyond picking out the relevant audience, namely, those who administer doses of thiopurine drugs, the claim simply tells doctors to: (1) measure (somehow) the current level of the relevant metabolite, (2) use particular (unpatentable) laws of nature (which the claim sets forth) to calculate the current toxicity/inefficacy limits, and (3) reconsider the drug dosage in light of the law. These instructions add nothing specific to the laws of nature other than what is well-understood, routine, conventional activity, previously engaged in by those in the field."

Laws of Nature & Natural Phenomena

- *American Axle & Manufacturing Inc. v. Neapco Holdings LLC*, 939 F.3d 1355 (Fed. Cir. 2019), *modified on reh'g*, 967 F.3d 1285 (Fed. Cir. 2020), *petition for cert. filed*, (Dec. 28, 2020) – Method for manufacturing a shaft assembly of a driveline system using an attenuation liner within a hollow drive shaft, with tuning accomplished according to Hooke's law, an equation that describes the relationship between an object's mass, its stiffness, and the frequency at which the object vibrates.
- "We conclude that [the claim at issue] is patent ineligible under section 101 because it simply requires the application of Hooke's law to tune a propshaft liner to dampen certain vibrations. . . . [The claim] merely describes a desired result . . . [and] does not identify the 'particular [tuned] liners' or the 'improved method' of tuning the liners to achieve the claimed result."

PATENT-ELIGIBLE CLAIM EXAMPLES

Diamond v. Diehr, 450 U.S. 175 (1981) – Claimed process for curing synthetic rubber which includes in several of its steps the use of a mathematical formula and a programmed digital computer is patent-eligible subject matter, because claim is not "an attempt to patent a mathematical formula," but is instead "drawn to an industrial process for the molding of rubber products."

A method of operating a rubber-molding press for precision molded compounds with the aid of a digital computer, comprising:
providing said computer with a database for said press, including at least,
natural logarithm conversion data (ln),
the activation energy constant (C) unique to each batch of said compound being molded, and
a constant (x) dependent upon the geometry of the particular mold of the press,
initiating an interval timer in said computer upon the closure of the press for monitoring the elapsed time of said closure,
constantly determining the temperature (Z) of the mold at a location closely adjacent to the mold cavity in the press during molding,
constantly providing the computer with the temperature (Z),
repetitively calculating in the computer, at frequent intervals during each cure, the Arrhenius equation for reaction time during the cure, which is
$\ln v = CZ + x$
where v is the total required cure time,
repetitively comparing in the computer at said frequent intervals during the cure each said calculation of the total required cure time calculated with the Arrhenius equation and said elapsed time, and
opening the press automatically when a said comparison indicates equivalence.

PATENT-ELIGIBLE CLAIM EXAMPLES

McRO, Inc. v. Bandai Namco Games America Inc., 837 F.3d 1299 (Fed. Cir. 2016) – Claim is focused on a specific asserted improvement in computer animation, i.e., the automatic use of rules of a particular type. It is therefore not directed to a judicial exception and is patent-eligible at *Alice* Step 1.

A method for automatically animating lip synchronization and facial expression of three-dimensional characters comprising:

obtaining a first set of rules that define output morph weight set stream as a function of phoneme sequence and time of said phoneme sequence;

obtaining a timed data file of phonemes having a plurality of sub-sequences;

generating an intermediate stream of output morph weight sets and a plurality of transition parameters between two adjacent morph weight sets by evaluating said plurality of sub-sequences against said first set of rules;

generating a final stream of output morph weight sets at a desired frame rate from said intermediate stream of output morph weight sets and said plurality of transition parameters; and

applying said final stream of output morph weight sets to a sequence of animated characters to produce lip synchronization and facial expression control of said animated characters.

PATENT-ELIGIBLE CLAIM EXAMPLES

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327 (Fed. Cir. 2016) – Claim directed to storing data in a self-referential table improves the way in which a computer stores and retrieves data, and represents an improvement in the functioning of a computer. It is therefore not directed to a judicial exception and is patent-eligible at *Alice* Step 1.

A data storage and retrieval system for a computer memory, comprising:

means for configuring said memory according to a logical table, said logical table including:

a plurality of logical rows, each said logical row including an object identification number (OID) to identify each said logical row, each said logical row corresponding to a record of information;

a plurality of logical columns intersecting said plurality of logical rows to define a plurality of logical cells, each said logical column including an OID to identify each said logical column; and

means for indexing data stored in said table.

PATENT-ELIGIBLE CLAIM EXAMPLES

Visual Memory LLC v. Nvidia Corp., 867 F.3d 1253 (Fed. Cir. 2017) – Claim directed to an enhanced computer memory system is focused on a particular asserted improvement in computer capabilities, namely the use of programmable operational characteristics that are configurable based on the type of processor. The claim is therefore not directed to a judicial exception and is patent-eligible at *Alice* Step 1.

A computer memory system connectable to a processor and having one or more programmable operational characteristics, said characteristics being defined through configuration by said computer based on the type of said processor, wherein said system is connectable to said processor by a bus, said system comprising:

a main memory connected to said bus; and

a cache connected to said bus;

wherein a programmable operational characteristic of said system determines a type of data stored by said cache.

PATENT-ELIGIBLE CLAIM EXAMPLES

Bascom Global Internet Services, Inc. v. AT&T Mobility LLC, 827 F.3d 1341 (Fed. Cir. 2016) – Claim is directed to an abstract idea under *Alice* Step 1 because "filtering content . . . is a longstanding, well-known method of organizing human behavior." However, the claim includes "an inventive concept . . . in the non-conventional and non-generic arrangement of known, conventional pieces," and is therefore patent-eligible at *Alice* Step 2.

A content filtering system for filtering content retrieved from an Internet computer network by individual controlled access network accounts, said filtering system comprising:

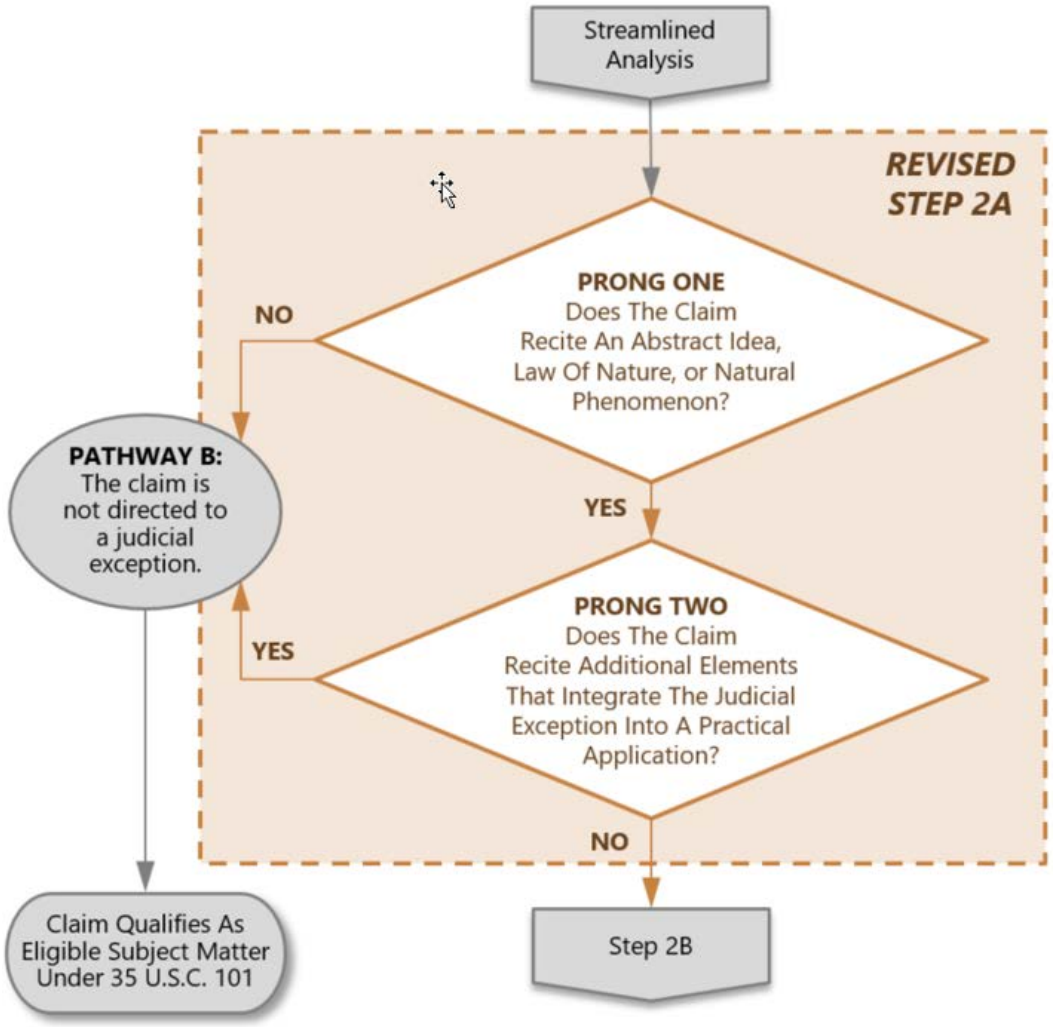
a local client computer generating network access requests for said individual controlled access network accounts;

at least one filtering scheme;

a plurality of sets of logical filtering elements; and

a remote ISP server coupled to said client computer and said Internet computer network, said ISP server associating each said network account to at least one filtering scheme and at least one set of filtering elements, said ISP server further receiving said network access requests from said client computer and executing said associated filtering scheme utilizing said associated set of logical filtering elements.

U.S. Patent Office Updated Guidance



Section 101 Reform Efforts in Congress

- *Draft Bipartisan, Bicameral Section 101 Reform Bill Released May 22, 2019*
- The provisions of section 101 shall be construed in favor of eligibility.
- No implicit or other judicially created exceptions to subject matter eligibility, including "abstract ideas," "laws of nature," or "natural phenomena," shall be used to determine patent eligibility under section 101, and all cases establishing or interpreting those exceptions to eligibility are hereby abrogated.
- The eligibility of a claimed invention under section 101 shall be determined without regard to: the manner in which the claimed invention was made; whether individual limitations of a claim are well known, conventional or routine; the state of the art at the time of the invention; or any other considerations relating to sections 102, 103, or 112 of this title.