



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/700,643	11/28/2012	Cedric Favre	CH920100014US1 (163-560)	4987
49267	7590	11/13/2017	EXAMINER	
TUTUNJIAN & BITETTO, P.C. 401 Broadhollow Road, Suite 402 Melville, NY 11747			JEANTY, ROMAIN	
			ART UNIT	PAPER NUMBER
			3623	
			NOTIFICATION DATE	DELIVERY MODE
			11/13/2017	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@tb-iplaw.com

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

*Ex parte* CEDRIC FAVRE and HAGEN VOELZER

---

Appeal 2016-002364  
Application 13/700,643  
Technology Center 3600

---

Before JEAN R. HOMERE, JON M. JURGOVAN, and SHARON FENICK,  
*Administrative Patent Judges.*

JURGOVAN, *Administrative Patent Judge.*

DECISION ON APPEAL

## STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from a Final Rejection of claims 1–13.<sup>1</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.<sup>2</sup>

## CLAIMED INVENTION

The claims are directed to analyzing a control-flow in a business process model. Spec., Abstract. A business process model defines order dependencies of constituent activities of a business process. Spec. 1:12–13. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A computer-implemented method for analyzing a control-flow in a business process; the method comprising the steps of:
  - invoking a representation of the business process as an acyclic workflow graph containing AND-, XOR- and IOR-types of nodes and edges linking nodes of the graph;
  - labeling edges of the graph such that a label assigned to a first edge comprises a set of one or more edge identifiers identifying respective edges, each of the edges identified being an outgoing edge of an XOR-split or an IOR-split node in the graph, whereby executing any one of the identified edges ensures that the first edge will be executed;
  - checking the labels for a deadlock, while labeling;
  - providing a user-perceptible indication of whether the deadlock exists responsive to a result of said checking step; and

---

<sup>1</sup> Claims 14–16 were canceled. Claims App’x.

<sup>2</sup> Our Decision refers to the Specification (“Spec.”) filed November 28, 2012, the Final Office Action (“Final Act.”) mailed March 25, 2015, the Appeal Brief (“App. Br.”) filed June 25, 2015, the Examiner’s Answer (“Ans.”) mailed October 27, 2015, and the Reply Brief (“Reply Br.”) filed December 16, 2015.

Appeal 2016-002364  
Application 13/700,643

- receiving and executing computer program code modifications to overcome the deadlock and complete program execution when the deadlock is detected,
- wherein the method has a quadratic time complexity and provides the user-perceptible indication in quadratic time.

App. Br. 19, Claims App'x.

## REJECTION

Claims 1–13 stand rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter, i.e., an abstract idea, as set forth in the Final Office Action mailed November 20, 2014. Final Act. 4.

## ANALYSIS

Patent eligibility is a question of law that is reviewable *de novo*.

*Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012).

Patentable subject matter is defined by 35 U.S.C. § 101, as follows:

[w]hoever 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.

In interpreting this statute, the Supreme Court emphasizes that patent protection should not preempt “the basic tools of scientific and technological work.” *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012); *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014). The rationale is that patents directed to basic building blocks of technology would not “promote the progress of science” under the U.S. Constitution, Article I, Section 8, Clause 8, but instead would impede it. Accordingly, laws of nature, natural phenomena, and abstract ideas are not patent-eligible subject matter. *Thales*

Appeal 2016-002364  
Application 13/700,643

*Visionix Inc. v. U.S.*, 850 F.3d 1343, 1346 (Fed. Cir. 2017) (citing *Alice*, 134 S. Ct. at 2354).

The Supreme Court set forth a two-part test for subject matter eligibility in *Alice*. 134 S. Ct. at 2355. The first step is to determine whether the claim is directed to a patent-ineligible concept. *Id.* (citing *Mayo*, 566 U.S. at 76–77). If so, then the eligibility analysis proceeds to the second step of the *Alice/Mayo* test in which we “examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 134 S. Ct. at 2357 (quoting *Mayo*, 566 U.S. at 72, 79). The “inventive concept” may be embodied in one or more of the individual claim limitations or in the ordered combination of the limitations. *Alice*, 134 S. Ct. at 2355. The “inventive concept” must be significantly more than the abstract idea itself, and cannot be simply an instruction to implement or apply the abstract idea on a computer. *Alice*, 134 S. Ct. at 2358. “[W]ell-understood, routine, [and] conventional activit[ies]’ previously known to the industry” are insufficient to transform an abstract idea into patent-eligible subject matter. *Alice*, 134 S. Ct. at 2359 (citing *Mayo*, 566 U.S. at 73).

In the Final Office Action, the Examiner finds the claims are directed to a computer-implemented method for analyzing a control-flow in a business process that has been chained together, which the Examiner considers to be a routine, long-prevalent, and conventional idea. Final Act. 2. The Examiner cites *Ulramercial, Inc. v. Hulu, LLC*, 772 F.3d 709 (Fed. Cir. 2014) as support for his finding that “the claims do no more than break the abstract idea into basic steps and add token extra-solution activity, and thus add no meaningful limitations to convert the abstract idea into patent-eligible subject matter.” *Id.* at 2–3. The Examiner further finds that adding

Appeal 2016-002364  
Application 13/700,643

routine additional steps such as invoking a presentation, checking the labels, and providing a user-perceptible indication, do not transform the abstract idea into patent-eligible subject matter, and finds the claim recites conventional steps specified at a high level of generality. *Id.* Thus, the Examiner concludes, the claims are not significantly more than the abstract idea as the claims merely recite the use of wholly generic computers (i.e., using a process engine operation on one or more microprocessors). *Id.* at 3.

*Step One of Alice/Mayo Test*

Appellants argue claim 1 is not abstract because it does not correspond to any of the types of concepts that courts have found to be abstract ideas as delineated by examples in the “2014 Interim Guidelines on Patent Subject Matter Eligibility,” 79 Fed. Reg. 74618 (Dec. 16, 2014). Specifically, the 2014 Interim Guidelines state that examples of abstract ideas include fundamental economic practices, certain methods of organizing human activity, an idea “of itself”, and mathematical relationships/formulas. 79 Fed. Reg. at 74622.

We agree with the Examiner that claim 1 is directed to the abstract idea of analyzing control-flow in a business process. Final Act. 2. The claim may be viewed as a fundamental economic practice, a method of organizing human activity, or an abstract idea because it is directed to a business process which is unspecified in the claim and Specification, and thus can be interpreted broadly as any one of these abstract ideas. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1369 (Fed. Cir. 2004) (claims are given their broadest reasonable interpretation consistent with the specification). Also, because the claim recites nodes performing Boolean algebra and edges connecting the nodes, i.e., mappings, it may also be viewed, as a whole, as directed to a mathematical relationship/formula.

Even if we assumed Appellants are correct the claim does not fall into one of these concept types, the 2014 Interim Guidelines are clear that the stated types of abstract ideas are examples and are not intended to be an exclusive list. Thus, one cannot conclude claim 1 is directed to eligible subject matter merely because it does not fall into one of these categories.

Appellants also argue claim 1 is not abstract because the recited steps indicate the existence of a real-world deadlock condition and receives and executes computer program code modifications to overcome the deadlock and complete program execution. App. Br. 10. However, this is not necessarily true considering the entire scope of the claim under its proper interpretation. Specifically, the claim recites that the workflow graph “represents” a business process. What it means to “represent” a business process is not elucidated in the claim, and “the PTO is obligated to give claims their broadest reasonable interpretation during examination” consistent with the specification. *See Am. Acad. of Sci. Tech. Ctr., supra*. The corresponding description in the Specification can be interpreted in multiple ways as meaning the computer program implements the business process, generates code for a business process, or, alternatively, that the computer program simulates the business process. The Specification mentions each of these possibilities: “[w]ith the increased use of business process models in simulation, code generation and direct execution, it becomes more and more important that the processes are free of control- and data-flow errors.” Spec. 1:12–16. Thus, the claim scope encompasses circumstances in which the deadlock is not a real-world condition, but one that results from simulation of a business process. Additionally, the claim recites that a deadlock is “checked . . . for a deadlock,” and that an indication of “whether the deadlock exists” is provided. Thus the broadest reasonable

Appeal 2016-002364  
Application 13/700,643

construction of the claim covers a method in which the claimed deadlock does not occur. *See Ex parte Schulhauser*, No. 2013-007847, 2016 WL 6277792, \*3–5 (PTAB April 28, 2016) (precedential) (discussing construction of conditional limitations in method claims).

We also note that Appellants’ argument is ineffective because our reviewing court has held § 101 is not concerned with tangibility, i.e., whether the claim touches upon the real-world, but instead is concerned with preemption of the building blocks of human ingenuity. *McRo, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299, 1315 (Fed. Cir. 2016); *Alice*, 134 S. Ct. at 2350 (citing *Mayo*, 566 U.S. at 1303). Thus, we do not agree with Appellants’ contention.

Furthermore, we note that, as claimed, the “business process” is entirely unrestricted in what it may be. Thus, the recited “business process” may be one of the many examples found to be ineligible subject matter, for example, in *Alice*, *Bilski v. Kappos*, 130 S. Ct. 3218 (2010), *Credit Acceptance Corp. v. Westlake Services*, 859 F.3d 1044 (Fed. Cir. 2017), *OIP Technologies, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359 (Fed. Cir. 2016), *Mortgage Grader, Inc. v. First Choice Loan Services Inc.*, 811 F.3d 1314 (Fed. Cir. 2016), *Versata Development Group, Inc. v. SAP America, Inc.*, 793 F.3d 1306 (Fed. Cir. 2015), or *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350 (Fed. Cir. 2014).

Thus, we conclude the claim is directed to the abstract idea of analyzing control-flow in a business process, which is undefined, and may include ineligible subject matter.

#### *Step Two of Alice/Mayo Test*

Appellants also argue that even if claim 1 is directed to an abstract idea, the claim includes meaningful limitations beyond linking the abstract



idea to a technological environment, and is thus “significantly more” than the abstract idea itself. App. Br. 11. Appellants argue the functions recited in claim 1 are not generic computer functions, but instead include unconventional functions previously unknown to the industry to which the inventions of these claims pertain. *Id.* Additionally, Appellants argue the fact that the Examiner made no prior art rejections is very compelling evidence that the steps of claim 1 are unconventional and unknown to the industry. *Id.*

Appellants’ argument is at a general level and does not identify the “meaningful limitation” or inventive concept that Appellants contend amounts to “significantly more” than the abstract idea. Appellants’ argument also does not explain *why* any such limitation amounts to “significantly more” than the abstract idea. *See* 37 C.F.R. § 41.37(c)(1)(iv) (“The arguments shall explain *why* the Examiner erred as to each ground of rejection contested by appellant.” Emphasis added.). Accordingly, we find Appellants’ argument unpersuasive to show Examiner error.

Appellants further state claim 1 recites “wherein the method has a quadratic time complexity and provides the user-perceptible indication in quadratic time,” which provides improvements to the functioning of the computer itself by avoiding significant waste of computer resources, and determining a deadlock condition in substantially less time than conventional approaches. App. Br. 12. However, this limitation is merely an intended result of the claimed invention, and the recited steps do not establish how the result is achieved. Such intended-result limitations are not accorded patentable weight. *O’Reilly v. Morse*, 56 U.S. 62 (1853); *Elec. Power Group v. Alstom S.A.*, 830 F.3d 1350, 1351 (Fed. Cir. 2017) (“The claims, defining a desirable information-based result and not limited to

Appeal 2016-002364  
Application 13/700,643

inventive means of achieving the result, fail under § 101”); *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997) (dispensing top with conical shape passing only several kernels of popcorn at a time not accorded patentable weight). Although one recited step states “checking the labels for a deadlock, while labeling” may allude to how the claimed result is achieved, the Specification makes clear the “quadratic time” limitation is made possible by eliminating deadlocks in only one traversal through the workflow graph. Spec. 16:6–8. However, this feature is not recited in the claim. Thus, the claim fails to set forth an inventive concept that could be the basis for asserting the claim is significantly more than the abstract idea.

Appellants further note claim 1 recites “providing a user-perceptible indication of whether the deadlock exists responsive to a result of said checking step,” and argue this step results in improvements in another field, namely, any other technical field that benefits from a business process being analyzed for flow-control where a deadlock can stop the analysis and render the computer inoperable. App. Br. 13. Appellants’ reference to “technical field” is illusory, however, because the claim recites no technical field, and Appellants do not specify any other technical field that can be improved. Thus, Appellants’ argument is unavailing.

Appellants additionally argue this same step improves the functions of the computer itself by detecting deadlocks to allow for corrective actions to be taken, citing *Alice* for the proposition that a specific improvement to the way computers operate may be patentable subject matter. App. Br. 14. Although Appellants’ method may eliminate a deadlock in the computer’s operation, for the reasons explained, the claim scope is such that the computer may be merely simulating a business process rather than implementing it. Thus, the business process may not be improved at all by

Appeal 2016-002364  
Application 13/700,643

eliminating a deadlock in the computer's operation since the computer program may be simulating the business process so that the corrective actions have no effect on it. In addition, the business process when carried out may never encounter the deadlock condition simulated. In other words, in the claimed steps, the computer may be merely used as a tool to simulate a deadlock in the business process, and the improvement is to an existing computer that is used as a tool in aid of the abstract idea of analyzing control-flow representing a business process. *See Elec. Power Grp.*, 830 F.3d at 1354, *supra*.

Appellants further note that claim 1 recites “receiving and executing computer program code modifications to overcome the deadlock and complete program execution when the deadlock is detected.” App. Br. 15. Appellants argue this step transforms a situation where a deadlock exists to a situation where the deadlock is overcome and program execution is completed. *Id.* Appellants also argue this step results in improvements to any other technical field that benefits from a business process being analyzed for control-flow where a deadlock can stop the analysis, and overcomes the deadlock to complete program execution to achieve any business objectives that hinge on completion and outcome of the analysis.

Our analysis of Appellants' assertions is similar to our analysis of the previously discussed step. The deadlock may merely result from simulation of the business process, so overcoming the deadlock does not necessarily improve the business process, even though it may restore the computer running the simulation program. As to improvements in another technical field, as discussed, the claim does not specify what technical field it belongs to let alone what other technical field is benefited by the method. Thus, we find these arguments unpersuasive.

Claim 1, if patented, would result in significant preemption of analyzing control-flow representing business processes for deadlocks. In the claim, “business process” is broadly recited and may encompass ineligible subject matter. Although the claim is limited to invoking a representation of a business process as a workflow graph, labeling edges and checking them for deadlocks, providing a user-perceptible indication of a detected deadlock in quadratic time, and receiving and executing code to overcome the deadlock, the claim’s preemption is nonetheless significant, the more so because the claim does not recite an inventive concept. The presence of the mentioned features in the claim may limit claim scope to a degree, but “the absence of complete preemption does not demonstrate patent eligibility.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). We conclude, therefore, that claim 1 would result in significant preemption if patented.

Accordingly, we conclude claim 1 is directed to ineligible subject matter under § 101. Appellants argue dependent claims 2–13 on the same basis as claim 1. Accordingly, our decision with respect to claim 1 applies to dependent claims 2–13 as well. 37 C.F.R. § 41.37(c)(1)(iv).

#### DECISION

We affirm the Examiner’s rejection of claims 1–13 under 35 U.S.C. § 101.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED