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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KIM HERZIG, JACEK CZERWONKA, BRENDAN MURPHY,
MICHAELA GREILER

Appeal 2019-006797
Application 14/699,387
Technology Center 3600

Before JOSEPH A. FISCHETTI, BIBHU R. MOHANTY, and
BRADLEY B. BAYAT, *Administrative Patent Judges*.

BAYAT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ appeals under 35 U.S.C. § 134(a) from the Examiner’s final rejection of claims 1–13, which constitute all the claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the term “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Our Decision references Appellant’s Appeal Brief (“Appeal Br.,” filed March 29, 2019) and Reply Brief (“Reply Br.,” filed Sept. 18, 2019), and the Examiner’s Answer (“Ans.,” mailed July 18, 2019) and Final Office Action (“Final Act.,” mailed Oct. 29, 2018). Appellant identifies the real party in interest as “Microsoft Technology Licensing LLC.” Appeal Br. 3.

CLAIMED INVENTION

Appellant’s disclosure is directed to “performing a test optimization that is based on predicted test cost and test benefit of future test executions based on historical patterns.” Spec. ¶ 2.

Claim 1 is the sole independent claim on appeal. Claim 1, reproduced below with added bracketed notations and emphasis, is representative of the claimed subject matter. *See* Appeal Br., Claims App.

1. A method of automatically selecting tests for execution on a software product, the method comprising:

[(a)] *executing, with at least one processor, a plurality of tests on the software product;*

[(b)] *generating, with the at least one processor, a cost model based on test performance history data that is based on results of the executions of the plurality of tests on the software product, wherein the cost model provides, for each test in the plurality of tests, a first expected monetary cost value associated with executing the test and a second expected monetary cost value associated with skipping execution of the test;*

[(c)] *automatically selecting, with the at least one processor, tests in the plurality of tests for future execution based on the first and second expected monetary cost values; and*

[(d)] *executing, with the at least one processor, the selected tests on the software product.*

REJECTION²

Claims 1–13 are rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

OPINION

Patent-Ineligible Subject Matter

Under 35 U.S.C. § 101, an invention is patent eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. The Supreme Court, however, has long interpreted § 101 to include an implicit exception: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

The Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice Corp.*, 573 U.S. at 217. The first step in that analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts.” *Id.* If the claims are not directed to a patent-ineligible concept, e.g., an abstract idea, the inquiry ends. Otherwise, the inquiry proceeds to the second step where the elements of the claims are considered “individually and ‘as an ordered combination’” to determine whether there are additional elements that “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*,

² “The 35 U.S.C. § 103 (a) rejection as set forth in the Final Office Action is withdrawn in view of the Appeal Conference decision.” Ans. 3.

566 U.S. at 78, 79). This is “a search for an ‘inventive concept’ — *i.e.*, an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Id.* at 217–18 (alteration in original).

In rejecting the pending claims under 35 U.S.C. § 101 and under the first step of the *Alice* framework, the Examiner determined that the claims are directed to a method for “performing a test optimization that is based on predicted test cost and test benefit of future test executions based on historical patterns.” Final Act. 7. According to the Examiner, this is “related to a fundamental economic practice.” *Id.*; *see also* Ans. 6.

Appellant argues claims 1–13 together as a group. *See* Appeal Br. 5–7. We select independent claim 1 as representative for the group. Thus, pursuant to 37 C.F.R. § 41.37(c)(1)(iv), dependent claims 2–13 stand or fall with claim 1.

The U.S. Patent and Trademark Office (the “USPTO”) has published revised guidance for use by USPTO personnel in evaluating subject matter eligibility under 35 U.S.C. § 101. 2019 REVISED PATENT SUBJECT MATTER ELIGIBILITY GUIDANCE, 84 Fed. Reg. 50, 57 (Jan. 7, 2019) (the “2019 Revised Guidance”). That guidance revised the USPTO’s examination procedure with respect to the first step of the *Alice* framework by (1) “[p]roviding groupings of subject matter that [are] considered an abstract idea”; and (2) clarifying that a claim is not “directed to” a judicial exception if the judicial exception is integrated into a practical application of that exception. *Id.* at 50.

We have reviewed the eligibility of the pending claims under the *Alice* framework and the through the lens of the 2019 Revised Guidance, but we

are not persuaded the Examiner erred in concluding that the pending claims are directed to a judicial exception without significantly more.

Step One of the Alice Framework (2019 Revised Guidance, Step 2A)

The first step in the *Alice* framework is to determine whether the claims at issue are “directed to” a patent-ineligible concept, e.g., an abstract idea. *Alice Corp.*, 573 U.S. at 217. This first step, as set forth in the 2019 Revised Guidance (i.e., Step 2A), is a two-prong test; in Step 2A, Prong 1, we look to whether the claim recites a judicial exception, e.g., one of the following three groupings of abstract ideas: (1) mathematical concepts; (2) certain methods of organizing human activity, e.g., fundamental economic principles or practices, commercial or legal interactions; and (3) mental processes. 2019 Revised Guidance, 84 Fed. Reg. at 54. If so, we next consider whether the claim includes additional elements, beyond the judicial exception, that “integrate the [judicial] exception into a practical application,” i.e., that apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception (“Step 2A, Prong 2”). *Id.* at 54–55. Only if the claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application do we conclude that the claim is “directed to” the judicial exception, e.g., an abstract idea.

The Federal Circuit has explained that “the ‘directed to’ inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether ‘their character as a whole is directed to excluded subject matter.’” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) (quoting *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d

1343, 1346 (Fed. Cir. 2015)). In computer-implemented inventions, we ask whether the focus of the claims is on a specific improvement in relevant technology or on a process that itself qualifies as an “abstract idea” for which computers are invoked merely as a tool. *See id.* at 1335–36. Here, it is clear from the Specification (including the claim language) that the focus of the claim is on an abstract idea, and not on any improvement to technology.

The Specification is entitled “SELECTING TESTS FOR EXECUTION ON A SOFTWARE PRODUCT,” and states that some embodiments are directed “to performing a test optimization that is based on predicted test cost and test benefit of future test executions based on historical patterns.” Spec. ¶ 2. The Abstract of the Specification describes the invention as:

A method of automatically selecting tests for execution on a software product includes generating a cost model based on test performance history data that is based on results of past executions of a plurality of tests on the software product, wherein the cost model provides, for each test in the plurality of tests, a first expected monetary cost value associated with executing the test and a second expected monetary cost value associated with skipping execution of the test. The method includes automatically selecting tests in the plurality of tests for future execution based on the first and second expected monetary cost values.

The claimed invention is intended to optimize the testing of software products based on a comparison of the cost of executing a test with the cost of skipping the execution of the test. Spec. ¶ 2. To that end, claim 1 recites a method of selecting tests for execution on a software product, comprising four steps: (a) executing a plurality of tests on the software product; (b) generating a cost model based on test performance history data that is based

on results of the executions of the plurality of tests on the software product, wherein the cost model provides, for each test in the plurality of tests, a first expected monetary cost value associated with executing the test and a second expected monetary cost value associated with skipping execution of the test; (c) selecting tests in the plurality of tests for future execution based on the first and second expected monetary cost values; and (d) executing the selected tests on the software product. *See* claim 1 *supra*. Each of these steps is performed by “at least one processor.” *See id.*

Under the broadest reasonable interpretation, step (b) describes a mental process and a mathematical concept. For example “generating a cost model based on test performance history that is based on results of executions of the plurality of tests on the software product” as recited in step (b) involves a mathematical calculation because it is estimating the expected costs as it considers past executions to assess the expected cost values. *See* ¶¶ 57–61 (outlines formulas for cost functions C_{exec} and C_{skip}). As such, under the Guidance, step (b) falls under the mathematical concepts grouping, which includes mathematical calculations, and thus, recites an abstract idea. *See* 2019 Revised Guidance, 84 Fed. Reg. at 52. Such mathematical calculations have been determined to be an abstract idea. *See, e.g., In re Grams*, 888 F.2d 835, 837 (Fed. Cir. 1989) (“Mathematical algorithms join the list of non-patentable subject matter not within the scope of section 101.”); *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1163 (Fed. Cir. 2018) (holding that claims to a “series of mathematical calculations” are directed to an abstract idea); *Diamond v. Diehr*, 450 U.S. at 191 (“[a] mathematical formula . . . is not accorded the protection of our patent laws, and this principle cannot be circumvented by attempting to limit the use of

the formula to a particular technological environment”) (citation omitted). Moreover, such calculations can also be performed in the human mind or with the aid of a pen and paper.

Under the broadest reasonable interpretation step (c) also describes a mental process because selection of a future test execution based on a comparison of the predicted test cost and test benefit can practically be performed in the human mind. *See* Spec. ¶ 18 (“Manual test selection (e.g., one based on the experience of engineers) is possible and often employed”). Such mental process has been determined to be an abstract idea. *See* 2019 Revised Guidance 84 Fed. Reg. at 52 (“Mental processes—concepts performed in the human mind (including an observation, evaluation, judgment, opinion.”)

Having concluded that claim 1 recites a judicial exception, i.e. an abstract idea (Step 2A, Prong 1), we next consider whether the claim recites additional elements that integrate the judicial exception into a practical application (Step 2A, Prong 2). 2019 Revised Guidance, 84 Fed. Reg. at 51.

When a claim recites a judicial exception and fails to integrate the exception into a practical application, the claim is “directed to” the judicial exception. *Id.* Claim 1 may integrate the judicial exception when, for example, it reflects an improvement to technology or a technical field. *Id.* at 55.

The additional elements recited in claim 1 *supra* are *italicized*. These additional elements are “at least one processor” and the term “automatically,” which are disclosed in the Specification at a high degree of generality, i.e., generic computer components in a generic computing environment (*see* Spec. ¶¶ 24–26). For example, the Specification indicates

that such components include computer storage media (e.g., non-transitory computer-readable storage media storing computer-executable instructions that when executed by at least one processor cause the at least one processor to perform a method). Spec. ¶ 25.

The recitation of executing a plurality of tests on the software product in step (a) adds insignificant extra-solution activity to the judicial exception in the form of data-gathering because it is based on data gathered from past test executions. *See* Spec. ¶ 116 (“a cost model is generated based on test performance history data that is based on results of past executions of a plurality of tests on a software product”). Further, the recitation of executing the selected tests on the software product in step (d) is also insignificant extra-solution activity (i.e., post-solution activity) because it is incidental to the primary focus of claim 1, which is to select tests for execution on a software product. *See* MPEP § 2106.05 (g). (“An example of post-solution activity is an element that is not integrated into the claim as a whole, e.g., a printer that is used to output a report of fraudulent transactions, which is recited in a claim to a computer programmed to analyze and manipulate information about credit card transactions in order to detect whether the transactions were fraudulent.”).

As discussed above, steps (a) and (d) do not recite additional elements that integrate the abstract idea into a practical application because they add insignificant extra-solution activity to the judicial exception. The additional elements “at least one processor” and the term “automatically” are elements that do no more than generally link the use of a judicial exception to a particular technological environment or field of use. *See* 2019 Revised Guidance, 84 Fed. Reg. at 55. The focus of the invention is not on an

improvement in computers as tools, but an abstract idea that uses computers as tools to perform the claimed method.

We also find no indication in the Specification that the claimed invention effects a transformation or reduction of a particular article to a different state or thing. Nor do we find anything of record that attributes an improvement in computer technology and/or functionality to the claimed invention or that otherwise indicates that the claimed invention integrates the abstract idea into a “practical application,” as that phrase is used in the 2019 Revised Guidance.³

We conclude, for the reasons outlined above, that claim 1 recites an abstract idea, and the additional elements recited in the claim are no more than generic components used as tools to perform the recited abstract idea. As such, they do not integrate the abstract idea into a practical application. *See Alice Corp.*, 573 U.S. at 223-24 (“[W]holly generic computer implementation is not generally the sort of ‘additional featur[e]’ that provides any ‘practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself.’”) (alterations in original) (quoting *Mayo*, 566 U.S. at 77). Accordingly, we agree with the Examiner that claim 1 is directed to an abstract idea.

³ The 2019 Revised Guidance references MPEP § 2106.05(a)–(c) and (e) in describing the considerations that are indicative that an additional element or combination of elements integrates the judicial exception, e.g., the abstract idea, into a practical application. 2019 Revised Guidance, 84 Fed. Reg. at 55. If the recited judicial exception is integrated into a practical application, as determined under one or more of these MPEP sections, the claim is not “directed to” the judicial exception.

Step Two of the Alice Framework (2019 Revised Guidance, Step 2B)

Having determined under step one of the *Alice* framework that claim 1 is directed to an abstract idea, we next consider under Step 2B of the 2019 Revised Guidance, the second step of the *Alice* framework, whether claim 1 includes additional elements or a combination of elements that provides an “inventive concept,” i.e., whether the additional elements amount to “significantly more” than the judicial exception itself. 2019 Revised Guidance, 84 Fed. Reg. at 56.

The relevant inquiry is whether the claim includes additional elements, i.e., elements other than the abstract idea itself, that “transform the nature of the claim’ into a patent-eligible application.” *Alice Corp.*, 573 U.S. at 217 (quoting *Mayo*, 566 U.S. at 79, 78).

As discussed above, besides the extra-solution activity recited in steps (a) and (d), the only additional elements recited beyond the abstract idea are “at least one processor” and the term “automatically.” These elements do not amount to an inventive concept because they are generic computer components used to perform generic computer functions — a determination fully consistent with the Specification, as such, the use of such components in the manner recited is well understood, routine, or conventional. *See Spec.* ¶¶ 24–26. Considering the steps individually and in combination, claim 1 lacks additional elements to ensure that the claim amounts to significantly more than the abstract idea. Specifically, the recited steps, understood in light of the Specification, do not appear to require anything other than conventional computers and components.

Appellant contends the references cited by Examiner discuss a cost model but do not teach or suggest a cost model that provides two monetary

costs for each test or a selection of test for future execution based on the monetary cost values. *See* Appeal Br. 6–7, Reply Br. 3.

However, we see no relation between novelty and obviousness and 101 eligibility. Contrary to Appellant’s contention, neither a finding of novelty nor a non-obviousness determination automatically leads to the conclusion that the claimed subject matter is patent eligible. Although the second step in the *Alice* framework is termed a search for an “inventive concept,” the analysis is not an evaluation of novelty or non-obviousness, but rather, a search for “an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Alice Corp.*, 573 U.S. at 217–18. “Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry.” *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 591 (2013). A novel and non-obvious claim directed to a purely abstract idea is, nonetheless, patent ineligible. *See Mayo*, 566 U.S. at 90; *see also Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981) (“The ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.”).

We are not persuaded, on the present record, that the Examiner erred in rejecting independent claim 1 under 35 U.S.C. § 101. Accordingly, we sustain the rejection of independent claim 1 under 35 U.S.C. § 101, including dependent claims 2–13, which fall with claim 1.

CONCLUSION

The rejection of claims 1–13 under 35 U.S.C. § 101 is AFFIRMED.

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–13	101	Eligibility	1–13	

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

AFFIRMED