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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANDREW D. FLOCKHART, ROBERT C. STEINER, and
JOYLEE KOHLER

Appeal 2017-000259¹
Application 13/623,310
Technology Center 3600

Before BRUCE T. WIEDER, BRADLEY B. BAYAT, and
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge*
BRADLEY B. BAYAT.

Opinion Concurring filed by *Administrative Patent Judge*
ROBERT J. SILVERMAN.

BAYAT, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Our Decision references Appellants' Appeal Brief ("Appeal Br.," filed May 17, 2016), Reply Brief ("Reply Br.," filed Sept. 29, 2016), the Examiner's Answer ("Ans.," mailed July 29, 2016) and the Non-Final Office Action ("Non-Final Act.," mailed Dec. 17, 2015).

STATEMENT OF THE CASE

Andrew D. Flockhart et al. (“Appellants”)² appeal under 35 U.S.C. § 134(a) from the decision rejecting claims 1–5, 7, 9–14, 16, and 18–22. Appeal Br. 5. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Claimed Subject Matter

Appellants’ invention “is directed generally to contact centers and specifically to creating and attempting to satisfy multiple contact center objectives simultaneously.” Spec. ¶ 1.

Claims 1, 10, and 19 are the independent claims on appeal. Claim 1, reproduced below with added bracketed notations, is illustrative of the subject matter on appeal:

1. A method comprising:
 - [(a)] receiving, by a microprocessor of a contact center, a work item;
 - [(b)] simultaneously analyzing, by the microprocessor, a plurality of objectives, wherein simultaneously analyzing the plurality of objectives comprises:
 - normalizing, by the microprocessor, a first objective in the plurality of objectives with a second objective in the plurality of objectives, wherein normalizing, by the microprocessor, the first objective with the second objective comprises determining, by the microprocessor, time-adjusted target ratios for both the first and second objectives by a function of target ratios and time remaining and by dividing the target ratio by logN of time remaining, wherein N is between or equal to 2 and 10;

² Appellants identify “Avaya Inc.” as the real party in interest. Appeal Br. 2. Claims 6, 8, 15, and 17 have been canceled. *Id.*

[(c)] determining, by the microprocessor, an optimal resource to receive the work item based on the simultaneous analysis of the plurality of objectives; and

[(d)] routing, by the microprocessor, the work item to the optimal resource.

Appeal Br. 15 (Claims App'x).

Rejection on Appeal

Claims 1–5, 7, 9–14, 16, and 18–22 are rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more. Non-Final Act. 2–5.

ANALYSIS

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. § 101.³ 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. *See, e.g., Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014) (internal quotation marks and citation omitted).

The Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Incorporated*, 132 S. Ct. 1289 (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*, 134 S. Ct. at 2355. The first step in that framework is to “determine whether

³ The “Examiner agrees with Appellant[s’] position that each of independent claims 1, 10, and 19 are directed to a statutory category of invention.” Ans. 2.

the claims at issue are directed to one of those patent-ineligible concepts,” such as an abstract idea. *Id.* If the claims are not directed to a patent-ineligible concept, the inquiry ends. If so, the inquiry proceeds to step two to look at the claim for “something more” by “examin[ing] 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.” *Id.* at 2354, 2357 (quoting *Mayo*, 132 S. Ct. at 1294, 1298). This inventive concept must do more than simply recite “well-understood, routine, conventional activity.” *Mayo*, 132 S. Ct. at 1298.

Applying the framework in *Alice*, and as the first step of that analysis, the Examiner determined:

Claim 1 is directed to assigning tasks to resources based on objectives, which is an abstract idea similar to comparing new and stored information and using rules to identify options. The processes of receiving a work item and simultaneously analyzing a plurality of objectives, wherein simultaneously analyzing the plurality of objectives comprises normalizing a first objective with a second objective, wherein the normalizing comprises determining time-adjusted target ratios for both the first and second objectives by the claimed function (i.e., comparing new and stored information, applying rules to gathered data); and determining an optimal resource to receive the work item based on the simultaneous analysis (i.e., identifying option based on the applied rules), etc., all describe the abstract idea.

Non-Final Act. 2–3. Proceeding to the second step, the Examiner found “[t]he claim does not include additional elements that are sufficient to amount to significantly more than the judicial exception because a microprocessor is merely a generic computer component performing its conventional functions in implementing the abstract idea.” *Id.* at 3.

“Additionally, [the Examiner found] routing the work item to the optimum resource merely describes insignificant post-solution activity” (*id.*), which Appellants do not dispute.

As a preliminary matter, we note that Appellants argue all the pending claims as a group. *See* Appeal Br. 5–14; *see also* Reply Br. 2–6. We select independent claim 1 as representative for this group. Thus, claims 2–5, 7, 9–14, 16, and 18–22 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

Appellants initially contend that a proper foundation to support the rejection under § 101 is not present and, thus, “the burden has not been shifted to the Appellant[s] to rebut and overcome a *prima facie* case with regard to the patent eligibility of the subject matter recited in claims 1-5, 7, 9-14, 16, [and] 18-22.” Appeal Br. 7; Reply Br. 2.

35 U.S.C. § 132 sets forth a general notice requirement whereby the Applicant is notified of the reasons for a rejection together with such information as may be useful in judging the propriety of continuing with prosecution of the application. *See, e.g., In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011). We find the Examiner provided adequate explanation to meet the notice requirement. *See* Non-Final Act. 2–10. The Examiner set forth the statutory basis of the rejection, applied *Alice*’s two-part framework, and sufficiently articulated reasoning in an informative manner (*see supra*), including further analysis and explanation in response to Appellants’ arguments (*see* Non-Final Act. 5–10), thus, meeting the notice requirement of Section 132. *See Chester v. Miller*, 906 F.2d 1574, 1578 (Fed. Cir. 1990) (Section 132 “is violated when a rejection is so uninformative that it prevents the applicant from recognizing and seeking to counter the grounds for rejection.”). Appellants do not contend that they did not understand the

Examiner’s rejection. To the contrary, Appellants’ understanding of the rejection is manifested by their substantive response to the rejection as set forth in their briefs.

Alice Step One

“Appellant[s] submit[] that claims 1, 10, and 19 are not directed to an ‘abstract idea’ because the claims do not fall within a judicially-created category.” Appeal Br. 8 (emphasis omitted). We disagree.

According to *Alice* step one, we must determine whether the claims at issue are directed to a patent-ineligible concept, such as an abstract idea. *Alice*, 134 S. Ct. at 2355. The “directed to” inquiry applies a stage-one filter to the claims, considered in light of the Specification, based on whether “their character as a whole is directed to excluded subject matter.” *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015); *see also Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1376 (Fed. Cir. 2016); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016).

According to the Specification, Appellants’ “[m]ethods, devices, and systems are provided such that multiple contact center^[4] objectives can be simultaneously analyzed and normalized by a single algorithm.” Abstract. Representative claim 1 is drawn to a method, comprising four steps: (a) receiving a work item; (b) simultaneously analyzing a plurality of objectives,

⁴ “The phrase ‘contact center’ as used herein refers to a facility used by companies to manage client contacts made through a variety of mediums such as telephone, fax, letter, e-mail, and online chat. The majority of large organizations use contact centers as a means of managing their client interactions.” Spec. ¶ 35.

which comprises normalizing a first objective with a second objective of a plurality of objectives by applying an algorithm; (c) determining an optimal resource to receive the work item based on the simultaneous analysis of the plurality of objectives; and (d) routing the work item to the optimal resource. Each of the above-mentioned steps is performed by a microprocessor.

With respect to computer-enabled claimed subject matter, it is helpful to determine whether “the claims at issue . . . can readily be understood as simply adding conventional computer components to well-known business practices” or not. *Enfish*, 822 F.3d at 1338. In *Enfish*, the Federal Circuit noted “[s]oftware can make non-abstract improvements to computer technology just as hardware improvements can[.]” *Id.* at 1335. The court asked “whether the focus of the claims is on [a] specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Id.* at 1335–36. There, the “plain focus of the claims” was on an improvement to computer functionality itself, a self-referential table for a computer database designed to improve the way a computer carries out its basic functions of storing and retrieving data. *Id.* And, the court in *McRO* asked whether the claims as a whole “focus on a specific means or method that improves the relevant technology” or are “directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery.” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016).

Appellant[s] submit[] that parallels exist between the claims of the instant application and those considered in *Enfish*. In particular, the claims are not directed towards *any* form of routing decision making, but recite specific improvements are

made to a computing system whereby different objectives are to be satisfied and, if not, additional resources would be required to perform the operations in a less efficient manner in the absence of that which is claimed.

Appeal Br. 10; Reply Br. 3. Appellants' reliance on *Enfish* is misplaced.

We determine that claim 1 as a whole is focused on a result; that is, determining an optimal resource to receive a work assignment—a business management process, for which a computer is invoked merely as a tool. *See* Spec. ¶ 2 (“A contact center’s success is defined by whether or not the contact center meets or fails to meet multiple objectives. It is the ultimate responsibility of the contact center manager to ensure that the contact center meets its various business objectives.”). We find no parallel between claim 1 and the claims in *Enfish*, nor any comparable aspect in claim 1 that represents an improvement to computer functionality. *See* Ans. 4. And, Appellants have not shown how the recited steps of claim 1 are an improvement to computer capabilities. Unlike *Enfish*, claim 1 is not focused on an improvement to computer capabilities or functionality (i.e., an improved microprocessor). *Cf. In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 613 (Fed. Cir. 2016) (The claims’ focus “was not on an improved telephone unit or an improved server.”). There is a fundamental difference between computer functionality improvements, on the one hand, and uses of existing computers as tools to perform a particular task, on the other. “By considering multiple objectives in parallel when making work assignment decisions instead of considering single objectives, [Appellants utilize a computer as a tool to make] decisions and contact center adjustments . . .

with more efficiency and with a minimal use of resources.”⁵ Abstract. This asserted improvement in efficient decision making and use of human agents—by applying a mathematical algorithm to compare multiple task objectives in parallel, is not focused on a specific means or process that improves computer technology, but rather, on optimizing task assignment—a managerial decision making process, for which a computer is used for efficient data processing in its ordinary capacity.

“In determining whether a process claim recites an abstract idea, we must examine the claim as a whole, keeping in mind that an invention is not ineligible just because it relies upon a law of nature or mathematical algorithm.” *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1350 (Fed. Cir. 2014). As such, “[t]he ‘abstract idea’ step of the inquiry calls upon us to look at the ‘focus of the claimed advance over the prior art’ to determine if the claim’s ‘character as a whole’ is directed to excluded subject matter.” *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (citing *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016)); *see also English*, 822 F.3d at 1335, quoted in *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1241 (Fed. Cir. 2016).

Appellants’ invention enables contact center managers to administer business rules, which apply a number of traditionally known metrics, for

⁵ “The resources 112 can either be completely automated resources (e.g., Interactive Voice Response (IVR) units, processors, servers, or the like), human resources utilizing communication devices (e.g., human agents utilizing a computer, telephone, laptop, etc.), or any other resource known to be used in contact centers.” Spec. ¶ 39.

determining work assignment decisions based on one or more objectives. Spec. ¶¶ 2–4. The Specification describes the problem to be solved: “[w]hen an agent with multiple skills becomes available and the work assignment engine wishes to assign the next item of work, a question arises as to how the group of metrics measuring the contact center objectives can be incorporated into a single assignment decision.” *Id.* ¶ 3. Appellants resolved the problem of comparing the status of objectives of different metric types by normalizing the target ratios. *Id.* ¶ 10. Normalization is defined as calculating “‘target ratio/logN time-remaining,’ where N is 2-10.” *Id.* ¶ 13; *see* step (b) of Claim 1. Thus, “[a] solution is provided for executing an algorithm that is able to consider multiple objectives simultaneously rather than serially.” Abstract. The advance over the prior art and claim 1 as a whole is focused on the concept of normalizing data by executing a mathematical algorithm.

We conclude the character of claim 1 as a whole is directed to a mathematical algorithm for determining an optimal resource or “the best agent”⁶ to receive a work item, which is an abstract idea. *See Diamond v. Diehr*, 450 U.S. 175, 191 (1981) (“[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); *In re Grams*, 888 F.2d 835, 837 (Fed. Cir. 1989) (“[M]athematical algorithms join the list of non-patentable subject matter not within the scope of section 101.”). The “application of [only] human intelligence to the solution of practical

⁶ Spec. ¶ 67.

problems, [as here], is no more than a claim to a fundamental principle.” *In re Bilski*, 545 F.3d 943, 965 (Fed. Cir. 2008) (en banc), *aff’d*, 130 S. Ct. 3218 (2010) (quotation marks omitted). Claim 1’s focus is on normalizing task objectives by application of a logarithmic operation and comparing the results of the calculations.

“[T]he decisional mechanism courts now apply is to examine earlier cases in which a *similar or parallel* descriptive nature can be seen—what prior cases were about, and which way they were decided.” *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1294 (Fed. Cir. 2016) (emphasis added). Contrary to Appellants’ contention that “*the claims do not resemble anything that has been found by the courts to represent an abstract idea*” (Appeal Br. 8–9), we see little character difference between the concept here and the “abstract mathematical algorithm for calculating and comparing regions in space” in *Coffelt* before the Federal Circuit. *Coffelt v. NVIDIA Corp.*, 680 F. App’x 1010, 1011 (Fed. Cir. 2017), *cert. denied*, 137 S. Ct. 2143 (2017). There, the court determined “[t]he claims thus recite nothing more than a mathematical algorithm that could be implemented using a pen and paper” and noted: “[w]e have held that ‘analyzing information by steps people [can] go through in their minds, or by mathematical algorithms, without more . . . [are] mental processes within the abstract-idea category.’ *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146 (Fed. Cir. 2016).” *Id.* at 1011.

Appellants argue the Examiner erred in rejecting the independent claims under 35 U.S.C. § 101 because “[r]eceiving a work item, analyzing a plurality of objectives, normalizing the first objective with the second objective, applying time-adjusted target rations [sic] for both objectives by

application of a logarithmic operation, and routing the work item to a determined optimal resource is far beyond the ability of human imagination or mental activity.” Appeal Br. 8. This argument is unpersuasive of error at least because it does not address the Examiner’s actual determination of the abstract idea, which only encompassed steps (a) through (c) of claim 1. *See* Non-Final Act. 3. Moreover, as discussed, the “directed to” inquiry applies a stage-one filter to the claim, considered in light of the Specification, based on whether the character of the claim as a whole is directed to excluded subject matter, instead of a piecemeal analysis of the claim limitations.

Furthermore, although Appellants acknowledge that the claimed normalizing step is a mathematical operation, they nevertheless argue that “[t]he calculations are inherently time sensitive and performed simultaneously for plural objectives. While a human is capable of doing math, a human is not capable of performing, in his or her mind or with pen and paper, the steps as claimed.” Appeal Br. 9. We are unpersuaded by Appellants’ argument because mental processes like calculating time-adjusted ratios, as recited in claim 1, which is a purely arithmetic exercise, remains unpatentable even when automated to reduce the burden on the user of what once could have been done with pen and paper. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375 (Fed. Cir. 2011) (“That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson* [409 U.S. 63 (1972)].”). Whether it would be practical for a human to perform the method using pen and paper is immaterial because “relying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.” *OIP Techs., Inc. v.*

Amazon.com, Inc., 788 F.3d 1359, 1363 (Fed. Cir. 2015) (citing *Alice*, 134 S. Ct. at 2359). “[T]he inability for the human mind to perform each claim step does not alone confer patentability. As we have explained, ‘the fact that the required calculations could be performed more efficiently via a computer does not materially alter the patent eligibility of the claimed subject matter.’” *FairWarning IP, LLC v. Iatric Systems, Inc.*, 839 F.3d 1089, 1098 (Fed. Cir. 2016).

We also find unpersuasive Appellants’ argument that the “claims do not preempt a preexisting human activity as shown by the Examiner’s conclusion that claims 1-5, 7, 9-14, 16, [and] 18-22 are allowable over the prior art.” Appeal Br. 9. Indeed, the Supreme Court has explained that “the prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of [the idea] to a particular technological environment.” *Alice*, 134 S. Ct. at 2358. “The Supreme Court has made clear that the principle of preemption is the basis for the judicial exceptions to patentability” and “[f]or this reason, questions on preemption are inherent in and resolved by the § 101 analysis.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) (citing *Alice*, 134 S. Ct. at 2354). We are instructed that “[w]here a patent’s claims are deemed only to disclose patent ineligible subject matter under the [*Alice*] framework, [as they are in this case,] preemption concerns are fully addressed and made moot.” *Id.* Even though “preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.” *Id.*; see also *OIP Techs.*, 788 F.3d at 1362–63 (“[T]hat the claims do not preempt all price optimization or may be limited to price

optimization in the e-commerce setting do not make them any less abstract.”).

Alice Step Two

Turning to the second step of *Alice*, we agree with the Examiner and conclude that claim 1 does not contain an inventive concept sufficient to “transform the nature of the claim’ into a patent-eligible application.” *Alice*, 134 S. Ct. at 2355 (citation omitted). The introduction of a generic computer or a microprocessor into the claim does not alter the analysis. We are not apprised of anything in the claims, understood in light of the Specification, that requires components other than off-the-shelf, conventional computer, server, and network technology for gathering and analyzing information, that transforms the abstract idea into a patent-eligible application. For example, claim 1 is implemented on a generic microprocessor and the Specification discloses generic devices for performing the claimed invention. *See* Spec. ¶ 38 (“Examples of a suitable communication device 108 include, but are not limited to, a personal computer, laptop, Personal Digital Assistant (PDA), cellular phone, smart phone, telephone, or combinations thereof.”).

To qualify as an inventive concept, the implementation of the abstract idea must involve “more than performance of ‘well-understood, routine, [and] conventional activities previously known to the industry.’” *Content Extraction and Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*, 776 F.3d 1343, 1347–48 (Fed. Cir. 2014) (alteration in original) (quoting *Alice*, 134 S. Ct. at 2359).

Claim 1 covers a process performed via a generic device well known for its capability to perform the claimed functions as a matter of routine. For

example, as to step (a) of “receiving, by a microprocessor of a contact center, a work item,” paragraph 34 of the Specification indicates that the work item may be in the form of a message “transmitted as a telephone call, a packet or collection of packets (e.g., IP packets transmitted over an IP network), an email message, an Instant Message, an SMS message, a fax, and combinations thereof.” These modes of transmitting a work item have been routinely performed by the aforementioned generic devices. The analyzing step (b), which comprises *normalizing* by a mathematical algorithm, and the *determining* step (c), which performs a comparison of the analysis by the microprocessor, encompass the most basic functions of a computer—performing mathematical calculations and comparing data.⁷ See Spec. ¶ 44 (“The normalization module 136 may compare multiple objectives and the related ratios”). Finally, step (d) calls for routing, by a microprocessor, the work item to the optimal resource, which is nothing more than conventional computer activity of transmitting data, by sending the work item to the resource. Spec. ¶ 66 (“[T]he routing engine 132 may establish a communication channel or communication session between the communication device 108 associated with the work item and the customer communication device of the selected resource 112.”); *id.* ¶ 69 (“The routing engine 132 may send the work item to the assigned resource 112.”). Evaluating these claimed elements either individually or as an ordered

⁷ “[T]he use of a computer in an otherwise patent-ineligible process for no more than its most basic function—making calculations or computations—fails to circumvent the prohibition against patenting abstract ideas and mental processes.” *Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Canada (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012).

combination, we conclude that claimed steps recite no more than routine steps involving generic computer components and conventional computer data processing activities to implement the abstract idea.

To the extent that Appellants maintain that the elements of the claims necessarily amount to “significantly more” than the abstract idea because the claimed process is allegedly patentable over the prior art (*see* Appeal Br. 11), Appellants misapprehend the controlling precedent. 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 nonobviousness, 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*, 134 S. Ct. at 2355. A novel and nonobvious claim directed to a purely abstract idea is, nonetheless, patent ineligible. *See Mayo*, 566 U.S. at 90. Thus, an abstract idea is not transformed into an inventive concept just because the Examiner has not found prior art that discloses or suggests it. *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2117 (2013) (A “[g]roundbreaking, innovative, or even brilliant” claimed concept does not by “itself satisfy the § 101 inquiry.”). And, as noted by the court in *Coffelt*: “[t]he novelty of the algorithm, however, does not determine whether the claim recites an inventive concept. Instead, the inventive concept must ‘transform’ the patent-ineligible algorithm into a ‘patent-eligible application’ of the algorithm, and do so by more than merely implementing the algorithm on a generic computer.” *Coffelt*, 680 F. App’x at 1011 (citing *Alice*, 134 S. Ct. at 2355). Claim 1 fails to do so here.

Finally, we cannot agree with Appellants' contention that the claims before us are similar to the claims held eligible in *Diehr*. See Appeal Br. 12; Reply Br. 4–5. The claims in *Diehr* were directed to a process for curing synthetic rubber, and recited a series of steps (e.g., the loading of a mold with raw, uncured rubber, closing the mold, constantly determining the mold temperature, constantly recalculating the cure time, and automatically opening the press at the proper time) that together provided a significant and novel practical application of the abstract idea (i.e., the well-known Arrhenius equation). See *Diehr*, 450 U.S. at 184–87.

Unlike the process claimed in *Diehr*, which was directed to a specific industrial process, i.e., “a physical and chemical process for molding precision synthetic rubber products” (*id.* at 184), claim 1 merely recites a computer-implemented method of optimizing task assignment by mathematical manipulation of data. Achieving a better result by mathematical manipulation of data does not by itself transform an otherwise abstract idea into patentable subject matter. The Court held the claims in *Diehr* to be patent eligible *despite* the fact that several steps of the process used a mathematical equation, not because of it. *Id.* The only alleged improvement, as discussed above, lies in the normalization calculation, which is automated by a generic computer to analyze multiple objectives simultaneously. *Diehr*, in contrast, employed the result of its calculations to determine the cure time of the rubber and signal the mold to open.

In view of the foregoing, we are not persuaded that the Examiner erred in concluding that claim 1 is directed to non-statutory subject matter. Accordingly, we sustain the Examiner's rejection of claim 1 under 35 U.S.C. § 101, including claims 2–5, 7, 9–14, 16, and 18–22, which fall with claim 1.

Appeal 2017-000259
Application 13/623,310

DECISION

The rejection under 35 U.S.C. § 101 is affirmed.

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

AFFIRMED

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANDREW D. FLOCKHART, ROBERT C. STEINER, and
JOYLEE KOHLER

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Technology Center 3600

Before BRUCE T. WIEDER, BRADLEY B. BAYAT, and
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

SILVERMAN, *Administrative Patent Judge*, concurring.

I agree with the determination of the foregoing Decision and respectfully offer the following additional considerations.

I. Legal Framework

Laws of nature, natural phenomena, and abstract ideas are deemed ineligible for patenting, because they are regarded as the basic tools of scientific and technological work, such that their inclusion within the domain of patent protection would risk inhibiting future innovation premised upon them. *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2116 (2013) (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293, 1301 (2012)). As the Supreme Court

explains, “we tread carefully in construing this exclusionary principle lest it swallow all of patent law,” because “[a]t some level, ‘all inventions . . . embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.’” *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014) (citing *Mayo*, 132 S. Ct. at 1293–94). Accordingly, ascertaining ineligible subject matter involves a two-step framework for “distinguish[ing] between patents that claim the buildin[g] block[s] of human ingenuity and those that integrate the building blocks into something more, thereby transform[ing] them into a patent-eligible invention.” *Id.* (citing *Mayo*, 132 S. Ct. at 1294, 1303) (internal quotation marks and citation omitted). First, “we determine whether the claims at issue are directed to one of those patent-ineligible concepts,” such as an abstract idea. *Id.* at 2355 (citing *Mayo*, 132 S. Ct. at 1296–97). Second, we determine whether the claims contain “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.* (citing *Mayo*, 132 S. Ct. at 1294, 1297–98).

II. *The Appealed Rejection*

In applying the foregoing principles, the Non-Final Office Action — in regard to the first step of the *Alice/Mayo* analysis — states that claim 1 in the Appeal “is directed to assigning tasks to resources based on objectives, which is an abstract idea similar to comparing new and stored information and using rules to identify options” and goes on to explain:

The processes of receiving a work item and simultaneously analyzing a plurality of objectives, wherein simultaneously analyzing the plurality of objectives comprises normalizing a

first objective with a second objective, wherein the normalizing comprises determining time-adjusted target ratios for both the first and second objectives by the claimed function (i.e., comparing new and stored information, applying rules to gathered data); and determining an optimal resource to receive the work item based on the simultaneous analysis (i.e., identifying option based on the applied rules), etc., all describe the abstract idea.

Non-Final Act. 2–3. With regard to the second *Alice/Mayo* step, the Non-Final Office Action states that claim 1 does not include additional elements that are sufficient to amount to significantly more than the identified abstract idea, because the recited “microprocessor is merely a generic computer component performing its conventional functions in implementing the abstract idea” and the recited “routing . . . the work item to the optimal resource” merely describes insignificant post-solution activity. *See id.* at 3.

III. Discussion

The two steps of the *Alice/Mayo* methodology revolve around the identification of a judicial exception to patent eligibility, such as an abstract idea. The Federal Circuit recognizes that “[a]n abstract idea can generally be described at different levels of abstraction.” *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1240–41 (Fed. Cir. 2016). This formulation is likely indebted to the kindred field of copyright law, which has long observed the malleability of such characterizations (and the effects thereof) in the analogous practice of ascertaining the proper subject of copyright. Such an adoption is not surprising, because the legislative authority to craft the twin protections of patent and copyright law originates from a single Constitutional source. *See* U.S. Const. art. I, § 8, cl. 8 (“The Congress shall

have power . . . [t]o 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.”)

In a celebrated demonstration of the levels-of-abstraction approach, Judge Learned Hand contemplated to what extent copyright might attach to “an abstract of the whole” work:

Upon any work, and especially upon a play, a great number of patterns of increasing generality will fit equally well, as more and more of the incident is left out. The last may perhaps be no more than the most general statement of what the play is about, and at times might consist only of its title; but there is a point in this series of abstractions where they are no longer protected, since otherwise the playwright could prevent the use of his “ideas,” to which, apart from their expression, his property is never extended. . . . If *Twelfth Night* were copyrighted, it is quite possible that a second comer might so closely imitate Sir Toby Belch or Malvolio as to infringe, but it would not be enough that for one of his characters he cast a riotous knight who kept wassail to the discomfort of the household, or a vain and foppish steward who became amorous of his mistress. These would be no more than Shakespeare’s “ideas” in the play, as little capable of monopoly as Einstein’s Doctrine of Relativity, or Darwin’s theory of the Origin of Species. It follows that the less developed the characters, the less they can be copyrighted; that is the penalty an author must bear for marking them too indistinctly.

Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930).

Likewise, the level of abstraction selected in relation to a patent claim under the *Alice/Mayo* approach — so as to circumscribe a purported abstract idea — is not inconsequential. If narrowly drawn, the characterization might not fairly describe an abstract idea, which must be a “building block” of human ingenuity (*Alice*, 134 S. Ct. at 2354, 2356 (citations omitted)), such

as a “basic tool[] of scientific and technological work” (*Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). On the other hand, if cast broadly, more details of the claimed limitations would be ripe for consideration as to whether they might surpass the second step of the *Alice/Mayo* analysis, as constituting claim features that amount to significantly more than the abstract idea itself. *See Alice*, 134 S. Ct. at 2355.

Although the Appellants dispute the propriety of the rejection, the Appellants’ analysis applies the description of the identified abstract idea, as framed by the Examiner. In the instant Appeal, the rejection identifies the abstract idea as embracing nearly all the features of claim 1, leaving only the recited “microprocessor” itself and the feature of “routing . . . the work item to the optimal resource” available for consideration under the second *Alice/Mayo* step. *See Non-Final Act. 3.*

Alleging error in the rejection, the Appellants dispute the Examiner’s determination under the first *Alice/Mayo* step, because the identified abstract idea of claim 1 could not be “performed in a person’s head”:

Receiving a work item, analyzing a plurality of objectives, normalizing the first objective with the second objective, applying time-adjusted target rations for both objectives by application of a logarithmic operation, and routing the work item to a determined optimal resource is far beyond the ability of human imagination or mental activity.

Appeal Br. 8. This analysis is flawed, because the Appellants include the “routing” feature — a claim feature the rejection had explicitly excluded from the identified abstract idea. *See Non-Final Act. 3.*

Still further, the Appellants concede that claimed subject matter could be accomplished mentally, but contend that the “simultaneous[]” feature of

claim 1 prevents the claim as a whole from being directed to an abstract idea:

The claims require, simultaneously analyzing a plurality of objectives by normalizing first and second objectives via logarithmic calculations to determine an optimal resource and routing the work item to the optimal resource. The calculations are inherently time sensitive and performed simultaneously for plural objectives. While a human is capable of doing math, a human is not capable of performing, in his or her mind or with pen and paper, the steps as claimed — as the claims as a whole must be given due consideration — including, but not limited to, the simultaneous analysis.

Appeal Br. 9. The Appellants, again, include the “routing” feature in this discussion, which renders the analysis defective, as discussed above. In any event, the Appellants’ reliance upon the recited “simultane[ity]” is misplaced because claim 1 does not require “simultaneously analyzing a plurality of objectives . . . and routing the work item to the optimal resource” (*id.*) as the Appellants contend. Moreover, the “simultaneous[]” feature of claim 1 simply requires “simultaneously analyzing the plurality of objectives” and the Appellants do not contend that such an operation might surpass what could be accomplished mentally. The Appellants’ arguments are unpersuasive of error, as to the first *Alice/Mayo* step.

The Appellants’ critique of the rejection, under the second step of the *Alice/Mayo* methodology, involves shortcomings similar to those identified above, in regard to the first step. Specifically, the Appellants’ argument relies upon the recited “normalizing” feature for providing “significantly more” than the identified abstract idea itself. *See* Appeal Br. 12–13. Yet, having assented to the confines of the abstract idea, as identified in the

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rejection, such arguments violate the strictures of the *Alice/Mayo* methodology and, therefore, cannot demonstrate reversible error.