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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* MICHAEL L. ASHER

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Appeal 2019-001687  
Application 14/950,664  
Technology Center 2600

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Before CAROLYN D. THOMAS, CARL W. WHITEHEAD JR., and  
BRADLEY W. BAUMEISTER, *Administrative Patent Judges*.

THOMAS, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 24–43. Claims 1–23 are canceled. *See* Claim Appendix. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as AT&T Intellectual Property II, L.P. Appeal Br. 2.

The present invention relates generally to storing a plurality of data points representing a geographic location. *See Spec. Abstract.*

Independent claim 33, reproduced below, is representative of the appealed claims:

33. A method, comprising:  
storing a plurality of data points, wherein each data point comprises of a latitudinal and longitudinal coordinate; and  
removing a first data point from a first set of data points based on i) a first distance between a first coordinate represented by the first data point and a second coordinate represented by a second data point of a second set of data points, ii) a second distance between the first coordinate represented by the first data point and a third coordinate represented by a third data point of the first set of data points, and iii) a relationship between the first and second distances.

Appellant appeals the following rejection:

Claims 24–43 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to patent-ineligible subject matter. Final Act. 2–5.

We review the appealed rejections for error based upon the issues identified by Appellant, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

## ANALYSIS

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

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with the framework, we first determine what concept the claim is “directed to.” *See Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk.”); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4 in petitioners’ application explain the basic concept of hedging, or protecting against risk.”). For example, concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 69 (1972)).

The USPTO published revised guidance on the application of 35 U.S.C. § 101. USPTO’s 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Revised Guidance”), *updated by USPTO, October 2019 Update: Subject Matter Eligibility* (available at [https://www.uspto.gov/sites/default/files/documents/peg\\_oct\\_2019\\_update.pdf](https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf)) (jointly referred to as “Revised Guidance”); *see also* October 2019 Patent Eligibility Guidance Update, 84 Fed. Reg. 55942 (Oct. 18, 2019) (notifying the public of the availability of the October update).

Under the Revised Guidance “Step 2A,” the Office first looks to whether the claim recites:

(1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes); and

(2) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h)). 84 Fed. Reg. at 51–52, 55.

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, does the Office then (pursuant to the Revised Guidance “Step 2B”) look to whether the claim:

(3) adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); or

(4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception. 84 Fed. Reg. at 56.

Step 2A, Prong 1 (Does the Claim Recite a Judicial Exception?)

With respect to independent method claims 33 and 39, and similarly, system claim 24, the Examiner determines that the claims are directed to “removing data points and a relationship between distances” (Final Act. 2), which is an “idea of itself similar to collecting information, analyzing it, and displaying certain results of the collection and analysis” (*Id.* at 3), which we conclude are *mental processes*, which is a type of abstract idea. The Examiner also determines that the claims “can also be viewed as being directed to a mathematical relationship or formula” (*Id.*), which we conclude is a *mathematical concept*, another type of abstract idea. For at least the

following reasons, we are persuaded that representative claim 33 recites plural abstract ideas.

Representative claim 33 recites at least the following limitations: (1) “storing a plurality of data points, wherein each data point comprises of a latitudinal and longitudinal coordinate,” and (2) “removing a first data point from a set of data points based on [three specified distances].” These limitations, under their broadest reasonable interpretation, at least recite mental processes because the limitations all recite processes that can be performed in the human mind or pen and paper. *See, e.g., CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372–73 (Fed. Cir. 2011) (determining that a claim whose “steps can be performed in the human mind, or by a human using a pen and paper” is directed to an unpatentable mental process). This is true even if the claim recites that a generic computer component performs the acts. *See* claim 24 (i.e., a processor); *See, e.g., Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015) (“Courts have examined claims that required the use of a computer and still found that the underlying, patent-ineligible invention could be performed via pen and paper or in a person’s mind.”); *see also* Revised Guidance, 84 Fed. Reg. at 52 n.14 (“If a claim, under its broadest reasonable interpretation, covers performance in the mind but for the recitation of generic computer components, then it is still in the mental processes category unless the claim cannot practically be performed in the mind.”).

Specifically, people can perform the “storing” step by simply using pen and paper to preserve the data points. People can also perform the “removing” step by looking at data points and using pen and paper to determine a first and second distance between coordinates and observing a

relationship between the distances. *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146 (Fed. Cir. 2016) (“[W]e continue to ‘treat[ ] analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.’”) (citation omitted).

Here, Appellant’s Specification indicates “[i]t should be noted that other data reduction algorithms may be used to evaluate whether to exclude  $P_n$  from the data set. Another exemplary data reduction algorithm may evaluate  $P_n$  based on angular displacement.” Spec. ¶ 21. In other words, Appellant’s Specification illustrates using data reduction algorithms to evaluate whether to remove data from the data set. Furthermore, dependent claim 38 further evidences that the process of claim 33 is performed using mathematical calculations:

38. The method of claim 34 [which, in turn, depends from claim 33], wherein the removing is based on the following formula:

$$\|(P_n, P_{last})\| > T * \ln(1 + P_n, O),$$

where  $P_n$  is the first data point,  $P_{last}$  is a further data point of the first geometric object,  $T$  is a threshold value[,] and  $O$  is the second data point.

As such, we agree with the Examiner that claim 33 also recites a mathematical concept because claim 33 broadly recites “removing a first data point from a first set of data points based on . . . a first distance . . . a second distance . . . and a relationship between the first and second distances.” This limitation, under the broadest reasonable interpretation, and according to the Guidance, is directed to a mathematical concept because the data removal steps are illustrated in Appellant’s Specification, and evidenced by claim 38, as a data reduction algorithm, i.e., a mathematical

calculation. *See October 2019 Update: Subject Matter Eligibility*, 4 (Oct. 17, 2019) (“A claim that recites a numerical formula or equation will be considered as falling within the ‘mathematical concepts’ grouping. In addition, there are instances where a formula or equation is written in text format that should also be considered as falling within this grouping. For example, the phrase ‘determining a ratio of A to B’ is merely a textual replacement for the particular equation (ratio = A/B).”); *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1165, 1167 (Fed. Cir. 2018) (A claim reciting “performing a resampled statistical analysis” was directed to a mathematical concept.).

Appellant does not directly challenge whether the claims recite an abstract idea, but instead makes arguments more directly related to whether the claims integrate the judicial exception into a practical application and whether specific limitations are well-understood, routine, or conventional activities in the field. Such arguments are addressed below.

Therefore, for at least the aforementioned reasons, we agree with the Examiner that representative claim 33 recites an abstract idea within the meaning of the Office’s Revised Guidance, which we conclude are mental processes and/or mathematical concepts.

Step 2A—Prong 2 (integration into Practical Application)<sup>2</sup>

Under the Revised Guidance, we now must determine if additional elements in the claims integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h)).

Here, we consider the claim as a whole, i.e., “the limitations containing the judicial exception as well as the additional elements in the claim besides the judicial exception . . . evaluated together to determine whether the claim integrates the judicial exception into a practical application.” October 2019 Patent Eligibility Guidance Update, at 12, available at <http://www.uspto.gov/PatentEligibility>.

We discern no additional element (or combination of elements) recited in Appellant’s representative claim 33, much less any additional element that integrates the judicial exception into a practical application. *See* Revised Guidance, 84 Fed. Reg. at 54–55 (“Prong 2”). In fact, claim 33 recites no additional elements whatsoever.

Independent claim 24, for example, does recite two additional elements: “a data storage mechanism” (e.g., database) and “a processor.” However, these additional elements do not: (1) improve the functioning of a computer or other technology; (2) are not applied with any particular machine (only with a generic computer); (3) do not effect a transformation of a particular article to a different state; and (4) are not applied in any meaningful way beyond generally linking the use of the judicial exception to

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<sup>2</sup> We acknowledge that some of the considerations at Step 2A, Prong 2, properly may be evaluated under Step 2 of *Alice* (Step 2B of the Office revised guidance). For purposes of maintaining consistent treatment within the Office, we evaluate them under Step 1 of *Alice* (Step 2A of the Office revised guidance). *See* Revised Guidance, 84 Fed. Reg. at 55 n.25, 27–32.

a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception. *See* MPEP §§ 2106.05(a)–(c), (e)–(h).

Appellant contends that the claims are “directed to improving the functionality of processing systems, e.g., GIS systems” (Appeal Br. 4), “by reducing the amount of data that is required to be stored” (*id.* at 5), “an improvement in computer functionality” (*Id.*), “similar[] to *Enfish*.” *Id.* at 6. We disagree with Appellant.

The claims at issue in *Enfish* were directed to a specific type of data structure, i.e., 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. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016). In rejecting a § 101 challenge, the court in *Enfish* held that “the plain focus of the claims is on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity.” *Id.* at 1336.

Here, Appellant does not point to anything in the claim that resembles the inventive self-referential data structure at issue in *Enfish*. Instead, the claims merely manipulate data, i.e., storing and removing data points. Appellant also does not direct our attention to anything in the Specification to indicate that the invention provides an improvement in the computer’s technical functionality. *See generally* Appeal Br.

Instead, the claimed method merely reduces a data set size, which consequently limits processing requirements. *See* Spec. ¶ 28. That is, here the arguably innovative technique of the appealed claims is inextricably a part of the abstract idea of “removing data points.” Moreover, nothing in the

claims, understood in light of the Specification, requires anything other than an off-the-shelf conventional database and processor used for storing and processing data points. Therefore, unlike *Enfish*, the claims are directed not to an improvement in computer capabilities, but to the results of applying purported improvements to an abstract idea.

For at least the reason noted *supra*, we determine that representative claim 33 (and claim 24) (1) recite a judicial exception and (2) do not integrate that exception into a practical application. Thus, representative claim 33 (and claim 24) are directed to the aforementioned abstract idea.

*Alice/Mayo—Step 2 (Inventive Concept)*  
*Step 2B identified in the Revised Guidance*

Turning to the second step of the *Alice* inquiry, we now look to whether claim 33 contains any “inventive concept” or adds anything “significantly more” to transform the abstract concept into a patent-eligible application. *Alice*, 573 U.S. at 216. As recognized by the Revised Guidance, an “inventive concept” under *Alice* step 2 can be evaluated based on whether an additional element or combination of elements:

- (1) adds a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field, which is indicative that an inventive concept may be present; or
- (2) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception, which is indicative that an inventive concept may not be present.

*See* Revised Guidance, 84 Fed. Reg. at 56; *see* MPEP § 2106.05(d).

Appellant contends “reducing data in a data storage mechanism of a GIS system to limit storage and/or processing requirements is not a well

understood, routine or conventional activity within the GIS system industry.” Appeal Br. 8. Appellant further contends that “the Examiner has not provided any factual support for concluding that the subject matter of claim [33] is well-understood, routine and/or conventional, e.g., in the GIS industry.” *Id.*

We find no element or combination of elements recited in Appellant’s claim 33 (or claim 24) that contains any “inventive concept” or adds anything “significantly more” to transform the abstract concept into a patent-eligible application. Appellant has not adequately explained how claim 33 (or claim 24) is performed such that it is not a routine and conventional function of a generic computer. Here, the Examiner provides a rational basis for concluding, “[t]he ‘data storage mechanism’ and ‘processor’ are recited at a high level of generality, and are recited as performing generic computer functions routinely used in computer applications.” Final Act. 3; *see also* Ans. 12. This determination is consistent with Appellant’s Specification, which describes the “processor” and “data storage mechanism” at a high level of generality, as follows:

A system having a memory for storing a set of instructions and a processor to execute the set of instructions.

Spec. ¶ 6.

Fig. 2 shows an exemplary GIS system 100 according to the present invention. The GIS system 100 may store each of the geometric objects in a data storage 110 (e.g., a database) as a set of points or nodes. . . . Those skilled in the art will understand that the use of a database as a data storage mechanism 110 is only exemplary. Other known data storage mechanisms 110 may also be used.

Spec. ¶ 14.

The Court in *Alice* noted that “[s]imply appending conventional steps, specified at a high level of generality,’ was not ‘enough’ [in *Mayo*] to supply an ‘inventive concept.’” *Alice*, 573 U.S. at 222 (quoting *Mayo*, 566 U.S. 79). Here, we determine that the claimed “data storage mechanism” and “processor” are not enough to supply an inventive concept.

The Examiner’s analysis is a factual determination. *See Berkheimer v. HP Inc.*, 881 F.3d 1360, 1369 (Fed. Cir. 2018) (“Whether something is well-understood, routine, and conventional to a skilled artisan at the time of the patent is a factual determination.”). We find the Examiner’s noting of the generic nature of the component parts recited in the claims provides sufficient evidence of a generic computer system used to implement the abstraction. *See Credit Acceptance Corp. v. Westlake Services*, 859 F.3d 1044, 1057 (Fed. Cir. 2017) (“Significantly, the claims do not provide details as to any non-conventional software for enhancing the financing process.”). *See Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1342 (Fed. Cir. 2017) (explaining that “[o]ur law demands more” than claim language that “provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it”).

Furthermore, a finding of novelty or non-obviousness does not require the conclusion that the claimed subject matter is patent-eligible. Although the second step in the *Mayo/Alice* framework is termed a search for an “inventive concept,” the analysis is not an evaluation of novelty or nonobviousness, but, rather, is 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*, 573 U.S. at 216. “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.”).

Because Appellant’s independent claim 33 (and claim 24) are directed to a patent-ineligible abstract concept, do not include additional elements that integrate the judicial exception into a practical application, and do not add a specific limitation beyond the judicial exception that is not “well-understood, routine, and conventional,” we sustain the Examiner’s rejection of the claims under 35 U.S.C. § 101 as being directed to a judicial exception to patent-eligible subject matter without reciting significantly more in light of *Alice*, its progeny, and the Revised Guidance.

### CONCLUSION

The Examiner’s rejection of claims 24–43 under 35 U.S.C. § 101 is affirmed.

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
24–43	101	Eligibility	24–43	

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

Appeal 2019-001687  
Application 14/950,664

AFFIRMED