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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BLAKE ANDERSON, CURTIS STORLIE, and
JOSEPH SEXTON

Appeal 2019-001769
Application 15/098,422
Technology Center 2400

Before JEFFREY S. SMITH, TREVOR M. JEFFERSON, and
AMBER L. HAGY, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the rejection of claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Illustrative Claim

1. A computer-implemented method, comprising:

automatically labeling each subroutine in a program, by a computing system, in a function call graph;

applying a probabilistic approach, by the computing system, to identify at least one subroutine as potentially indicative of malware; and

providing an indication of the at least one identified subroutine, by the computing system, to an analyst for further analysis.

Prior Art

Name	Reference	Date
Anderson	US 2013/0326625 A1	Dec. 5, 2013
Gupta	US 2015/0161024 A1	June 11, 2015

Examiner's Rejections

Claims 1–20 stand rejected under 35 U.S.C. § 101 as directed to patent-ineligible subject matter.

Claims 1, 2, 4–18, and 20 stand rejected under 35 U.S.C. § 102(a)(1) as anticipated by Anderson.

Claims 3 and 19 stand rejected under 35 U.S.C. § 103 as unpatentable over Anderson and Gupta.

ANALYSIS

I. Section 101 Rejection¹

The Examiner rejects all of the pending claims under 35 U.S.C. § 101 as patent-ineligible because they are directed to a judicial exception without significantly more. Final Act. 5–7. Appellant argues that the claims are not directed to an abstract idea, are directed to patent-eligible subject matter, and the Examiner’s rejection should be reversed. Appeal Br. 6–17. For the reasons explained below, we are not persuaded of Examiner error in the § 101 rejection, and we, therefore, sustain that rejection.

A. Principles of Law

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 U.S. Supreme Court, however, has 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) (citation omitted).

The Court, in *Alice*, reiterated the two-part framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66, 75–77 (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*, 573 U.S. at 217. The first part in the analysis is to “determine whether the claims at issue are directed

¹ With regard to the Examiner’s § 101 rejection, Appellant argues all claims together with claim 1 (Appeal Br. 17), and we consider claim 1 representative of the claimed subject matter on appeal. *See* 37 C.F.R. § 41.37(c)(1)(iv).

to one of those patent-ineligible concepts.” *Id.* For example, abstract ideas include, but are not limited to, fundamental economic practices, methods of organizing human activities, an idea of itself, and mathematical formulas or relationships. *Id.* at 218–20. The “directed to” inquiry asks not whether “the claims *involve* a patent-ineligible concept,” but instead whether, “considered in light of the specification, . . . ‘their character as a whole is directed to excluded subject matter.’” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016). In that regard, we determine whether the claims “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).

If, in the first part of the *Alice/Mayo* analysis, we conclude that the claims are not directed to a patent-ineligible concept, they are considered patent eligible under § 101 and the inquiry ends. *Rapid Litig. Mgmt. Ltd. v. CellzDirect, Inc.*, 827 F.3d 1042, 1047 (Fed. Cir. 2016).

If the claims are directed to a patent-ineligible concept, the second part in the *Alice/Mayo* analysis is to consider the elements of the claims “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.” *Alice*, 573 U.S. at 217 (quoting *Mayo*, 566 U.S. at 79, 78). In other words, the second part is to “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 (alterations in original) (quoting *Mayo*, 566 U.S. at 72–73). The prohibition against patenting an

abstract idea “cannot be circumvented by attempting to limit the use of the formula to a particular technological environment’ or adding ‘insignificant postsolution activity.’” *Bilski v. Kappos*, 561 U.S. 593, 610–11 (2010) (internal citation omitted).

The U.S. Patent and Trademark Office (the “Office”) has published revised guidance on the application of 35 U.S.C. § 101. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50–57 (Jan. 7, 2019) (“2019 Guidance”). Under the 2019 Guidance, 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* 2019 Guidance at 52, 54–55; *see also* MPEP § 2106.05(a)–(c), (e)–(h).²

Only if a claim (1) recites a judicial exception, and (2) does not integrate that exception into a practical application, does the Office then look to whether the claim: (3) adds a specific limitation beyond the judicial exception that are 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. *See* 2019 Guidance at 56. We follow this guidance here.³

² Unless otherwise specified herein, all references to the MPEP are to Rev. 08.2017 (Jan. 2018).

³ “All USPTO personnel are, as a matter of internal agency management, expected to follow the guidance.” 2019 Guidance at 51; *see also* October 2019 Update: Subject Matter Eligibility, 2 (Oct. 17, 2019) (“October 2019

In reviewing the Examiner's rejection under § 101, we group claims 1–7 together and claims 8–20 together. 37 C.F.R. § 31.47(c)(1)(iv). Accordingly, claims 2–7 stand or fall with claim 1, and claims 9–20 stand or fall with claim 8.

B. Application of Legal Principles

1. Step 2A of 2019 Guidance

Prong 1: Do Claims 1–20 Recite an Abstract Idea

In applying the framework set out in *Alice/Mayo*, and as the first part of that analysis, the Examiner concludes the claims are directed to the abstract idea of an algorithm for calculating parameters indicating an abnormal condition, such as malware. Final Act. 4. The Examiner finds that the algorithm is recited in claim 1 by the steps of “labeling,” “applying,” and “providing;” in claim 12 by the steps of “receive,” “learn,” and “label;” and in claim 17 by the steps of “receive,” “learn,” “label,” and “apply.” *Id.*

In challenging the Examiner's determination that the claims recite an abstract idea, Appellant argues that the claim limitations are more than a mental process performed on a computer, because “the claimed invention improves the computing system upon which it operates by providing new malware detection capabilities and a novel data structure.” Reply Br. 4; Appeal Br. 38–41.

We evaluate the Examiner's § 101 rejection by applying the 2019 Guidance, which uses enumerated groupings of abstract ideas that are rooted

Update”) (“Note, the feedback received was primarily directed to examination procedures and, accordingly, this update focuses on clarifying practice for patent examiners. However, all USPTO personnel are expected to follow the guidance.”).

in U.S. Supreme Court precedent, as well as Federal Circuit decisions interpreting that precedent. *See* 2019 Guidance at 51–52. By grouping the abstract ideas, the 2019 Guidance synthesizes the holdings of various court decisions to facilitate examination. The 2019 Guidance describes one category of abstract ideas as including “[m]ental processes”; that is, “concepts performed in the human mind (including an observation, evaluation, judgment, opinion).” *Id.* at 52 (footnotes omitted). The October 2019 Update⁴ provides additional clarification on “mental processes” by providing an example of claims that recite mental processes as including “a claim to ‘collecting information, analyzing it, and displaying certain results of the collection and analysis,’ where the data analysis steps are recited at a high level of generality such that they could practically be performed in the human mind” October 2019 Update at 7 (citing *Electric Power Group*⁵). The October 2019 Update also gives as an example of a claim reciting a “mental process” a “claim to collecting and comparing known information . . . , which are steps that can be practically performed in the human mind” *Id.* at 8 (citing *Classen*).

We find that the claims recite steps that fall within the category of mental processes, consistent with the 2019 Guidance. *See* 2019 Guidance at 52; *see also* October 2019 Update at 7–8. In particular, claim 1 recites “automatically labeling each subroutine in a program . . . in a function call graph;” “applying a probabilistic approach . . . to identify at least one subroutine as potentially indicative of malware; and” “providing an

⁴ Available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf.

⁵ *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1356 (Fed. Cir. 2016).

indication . . . to an analyst for further analysis.” Claim 12 recites “receive a training program and a list of subroutines labeled in a plurality of categories;” “learn an identification strategy of how to identify the categories based on the received subroutines and labels; and” “label new subroutines based on the learned identification strategy.” Claim 17 recites “receive a training program . . .; learn an identification strategy . . .; automatically label new subroutines in a function call graph . . .; and apply a probabilistic approach to identify at least one subroutine as potentially indicative of malware.”

Each step in claims 1, 12, and 17 qualifies as a step of collecting information, analyzing it, comparing it to known information, and/or providing results. Each of these steps could be performed in the human mind or with the aid of pen and paper; hence, they each fall within the category of mental processes, and, thus, the claim recites an abstract idea.

Appellant’s reasoning that the steps would not be performed in the human mind in the same way as a processor would perform them is not persuasive, as this is not the proper test. As the 2019 Guidance states, “[i]f 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.” *See* 2019 Guidance at 52 n.14 (emphasis omitted). Here, with the exception of generic computer implemented functions or steps, there is nothing in the claims themselves that foreclose them from being performed by a human, mentally, or with pen and paper. *See Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1318 (Fed. Cir. 2016) (holding that claims to screening messages in the context of

electronic communications were directed to an abstract idea because they could, but for the recitation of generic computer-implemented steps, be done by a human with the aid of pen and paper); *see also* October 2019 Update at 8 (“The courts have found claims requiring a generic computer or nominally reciting a generic computer may still recite a mental process even though the claim limitations are not performed entirely in the human mind.”).

Thus, under Prong 1 of Step 2A in accordance with the 2019 Guidance, we conclude the claims recite a judicial exception of mental processes, and we, therefore, agree with the Examiner’s conclusions that the claims recite an abstract idea.

Prong 2: Do the Claims Integrate the Abstract
Idea Into a Practical Application⁶

In accordance with Prong 2 of Step 2A of the 2019 Guidance, we evaluate the claims to determine whether they recite *additional elements beyond the abstract idea*, and, if so, we evaluate the additional elements to determine whether they integrate the abstract idea into a practical application. 2019 Guidance at 54. The 2019 Guidance at page 55 provides exemplary considerations, including whether an additional element:

- “reflects an improvement in the functioning of a computer, or an improvement to other technology or technical field”;
- “implements a judicial exception with, or uses a judicial exception in conjunction with, a particular machine or

⁶ We acknowledge that some of these considerations may be properly evaluated under the second part of the *Alice/Mayo* analysis (Step 2B of the 2019 Guidance). For purposes of maintaining consistent treatment within the Office, we evaluate them under the first part of the *Alice/Mayo* analysis (Step 2A of the 2019 Guidance). *See* 2019 Guidance at 54–55.

manufacture that is integral to the claim”;

- “effects a transformation or reduction of a particular article [or thing] to a different state or thing”; or
- “applies or uses the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment.”

The 2019 Guidance also highlights certain examples in which courts have held that “a judicial exception has *not* been integrated into a practical application,” such as where the claims “merely use[] a computer as a tool to perform an abstract idea” or the additional element adds “insignificant extra-solution activity” to the abstract idea. 2019 Guidance at 55 (emphasis added); *see also* October 2019 Update at 11–15. The Examiner determines that the additional elements recited in the claim are “a generic recitation of a computer and a computer network performing their generic computer functions.” Final Act. 4.

Appellant argues that the claims are not directed to an abstract idea because they are analogous to claims determined to be patent-eligible in *Finjan*⁷, *Enfish*⁸, and *McRO*⁹. Reply Br. 3; Appeal Br. 27–36. With respect to *Finjan*, Appellant argues,

Finjan generates a security profile and links it to a Downloadable; independent claim 1 of the subject application, for instance, automatically labels each subroutine in a program in a function call graph, applies a probabilistic approach to identify at least one subroutine as potentially indicative of

⁷ *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299, 1303-04 (Fed. Cir. 2018).

⁸ *Enfish, LLC, v. Microsoft Corp.*, 822 F.3d 1327 (Fed Cir. 2016).

⁹ *McRO, Inc. dba Planet Blue v. Bandai Namco Games America Inc.*, 120 USPQ2d 1091 (Fed. Cir. 2016).

malware, and provides an indication of the at least one identified subroutine to an analyst for further analysis. Thus, the claimed invention takes the further step of actually providing an output, and not merely “linking” as its final step. Since *Finjan* is not directed to an abstract idea, Appellant respectfully submits that the claimed invention also cannot be.

Appeal Br. 30.

We are not persuaded by Appellant’s comparison of the claims on appeal to the patent-eligible subject claim considered by the court in *Finjan*. In *Finjan*, the court found the claimed behavior-based virus scan constituted an improvement in computer functionality over the “traditional, ‘code-matching’ virus scans.” *Finjan*, 879 F.3d at 1304. The court determined that the claimed method of *Finjan* employed a new kind of file that allowed access to be tailored for different users, and allowed the system to accumulate and use newly available, behavior-based information regarding potential threats. *Id.* at 1305. The court ultimately held that the *Finjan* claims were “directed to a non-abstract improvement in computer functionality, rather than the abstract idea of computer security,” and “recite[d] specific steps-- generating a security profile that identifies suspicious code and linking it to a downloadable--that accomplish the desired result.” *Id.*

Unlike the subject claims of *Finjan*, Appellant’s claims fail to employ a newly generated file containing a security profile in a downloadable, and does not use a new file to enable a computer security system to improve on or add a computer functionality by reciting specific steps accomplishing the desired improved security results. We have considered Appellant’s argument that “the claimed invention takes the further step of actually

providing an output” (Appeal Br. 30), and are not persuaded that actually providing an output is sufficiently analogous to the subject claims in *Finjan*.

Appellant argues that its claims are not directed to an abstract idea in view of *Enfish*. Appeal Br. 31. According to Appellant, *Enfish* mandates that both the scope of the claims and the disclosure of the specification must be consulted. Appeal Br. 32. Appellant contends that paragraphs 28 and 31 of Appellant’s specification disclose advantages over the prior art, namely, that the subroutine-based approach allows for identifying other malware programs and new malware subroutines. Appeal Br. 34–35.

We are not persuaded by Appellant’s contention that the claims provide an improvement over existing technology, as was the case in *Enfish*, because Appellant’s Specification discloses advantages over the prior art. Any analysis based upon anticipation or obviousness is not relevant to our analysis for patent eligibility under 35 U.S.C. § 101. *See Return Mail, Inc. v. U.S. Postal Service*, 868 F.3d 1350, 1370 (Fed. Cir. 2017). Although the second step in the *Alice/Mayo* test is a search for an “inventive concept,” the analysis is not directed to novelty or nonobviousness, but rather searches for elements sufficient to ensure that the claimed invention is directed to more than a patent ineligible concept, such as an abstract idea. *See Alice*, 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.*, 579 U.S. 513, 536 (2013); *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.”); *Affinity Labs of Texas, LLC v.*

DIRECTV, LLC, 838 F.3d 1253, 1263 n.3 (Fed. Cir. 2016) (noting that an eligibility finding does not turn on the novelty of using a user-downloadable application for the particular purpose recited in the claims). Moreover, an improved abstract idea is still an abstract idea. *See Mayo*, 566 U.S. at 90 (holding that a novel and nonobvious claim directed to a purely abstract idea is nonetheless patent-ineligible).

As set forth in MPEP § 2106.05(a):

To show that the involvement of a computer assists in *improving the technology*, the claims *must recite the details regarding how a computer aids the method, the extent to which the computer aids the method, or the significance of a computer to the performance of the method*. Merely adding generic computer components to perform the method is not sufficient. Thus, the claim must include more than mere instructions to perform the method on a generic component or machinery to qualify as an improvement to an existing technology.

(Emphasis added).

Here, Appellant has not provided sufficient details regarding how the claimed “computer-implemented method” performed “by a computing system” includes more than mere instructions to perform the recited steps to qualify as an improvement to an existing technology. As discussed above, we conclude Appellant’s generic computer implementation performs mental processes. *See* independent claim 1. *See also Trading Techs. Int’l, Inc. v. IBG LLC*, 921 F.3d 1378, 1384 (Fed. Cir. 2019) (The ““mere automation of manual processes using generic computers’ . . . ‘does not constitute a patentable improvement in computer technology.’” Quoting *Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1055 (Fed. Cir. 2017)).

Accordingly, on this record, we conclude independent claims 1, 12, and 17, unlike those of *Enfish*, do not recite an improvement to the

functionality of a computer or other technology or technical field. *See* MPEP § 2106.05(a).

Appellant argues that its claims are not directed to an abstract idea because they are analogous to those of *McRo*. Appeal Br. 35–36. According to Appellant, the claimed rules in *McRo* transformed a process performed by humans into a mathematically automated process performed on computers. Appeal Br. 35; Reply Br. 3. Appellant argues that while humans may perform labeling of subroutines to help train some embodiments initially, the claimed invention may further identify new malware subroutines that have not been previously labeled. Appeal Br. 36.

We disagree that Appellant’s claims are analogous to those deemed patent eligible in *McRO*. In *McRO*, the claims described a way of animating characters that represented a technological improvement over the existing, manual 3-D animation techniques. *McRO*, 837 F.3d at 1316. Appellant’s claims, on the other hand, do not produce any improved product, such as a visual animation. Claim 1 recites a computer-implemented method of “automatically labeling” data, “applying a probabilistic approach” to data, and “providing” an indication of data. Claim 12 recites a computer program to “receive” data, “learn” based on the received data, and “label” data. Claim 17 recites “receive” data, “learn” based on the received data, “automatically label” data, and “apply a probabilistic approach” to identify data.

Claim 12’s and 17’s data-gathering steps reasonably can be characterized as merely constituting insignificant extra-solution activity:

An example of pre-solution activity is a step of gathering data for use in a claimed process, *e.g.*, a step of obtaining information about credit card transactions [that] is recited as part of a claimed

process of analyzing and manipulating the gathered information by a series of steps in order to detect whether the transactions were fraudulent.

MPEP § 2106.05(g). As our reviewing court has explained, such data gathering simply provides data for other method steps. *See, e.g., CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1370 (Fed. Cir. 2011) (“We have held that mere ‘[data-gathering] step[s] cannot make an otherwise nonstatutory claim statutory.’” (alterations in original) (quoting *In re Grams*, 888 F.2d 835, 840 (Fed. Cir. 1989))); *see also* 2019 Guidance at 55 (identifying “add[ing] insignificant extrasolution activity to the” abstract idea as an example of when an abstract idea has not been integrated into a practical application).

The other steps of the claims entail using a computer to process data to generate identified data. But the act of identifying constitutes the underlying abstract ideas—the mental processes that, as we determine above—can be performed in the human mind or with pencil and paper. *See BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018) (“It has been clear since *Alice* that a claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.”); *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) (“[A] claim for a new abstract idea is still an abstract idea.” (emphasis omitted)); *SAP America, Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018) (“What is needed is an inventive concept in the non-abstract application realm.”).

Consistent with the Examiner’s determination, we determine the claims do not include an improvement to another technology or technical

field or an improvement to the functioning of the computer itself; we also find the claims do not include a transformation of an article or meaningful limitations beyond generally linking the use of an abstract idea to a particular technological environment. *See* Ans. 3–6. As the U.S. Supreme Court has explained, “if a patent’s recitation of a computer amounts to a mere instruction to ‘implemen[t]’ an abstract idea ‘on . . . a computer,’ that addition cannot impart patent eligibility.” *Alice*, 573 U.S. at 223 (quoting *Mayo*, 566 U.S. at 84).

In summary, we conclude the claims do not integrate the abstract idea into a practical application so as to remove them from the realm of reciting patent-ineligible abstract ideas. Accordingly, in the first part of the *Alice/Mayo* analysis, we conclude that the claims are directed to an abstract idea.

2. Step 2B of 2019 Guidance – Do the Claims Recite Significantly More Than the Abstract Idea

Regarding the second part of the *Alice/Mayo* analysis, the Examiner finds the elements of the claims, when considered individually or as an ordered combination, do not recite *significantly more* than the abstract idea. Ans. 4. In particular, the Examiner finds the claims “do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional elements are simply a generic recitation of a computer and a computer network performing their generic functions.” *Id.*

Appellant argues that the claims have an inventive concept when considered as an ordered combination, namely, implementing a new malware identification approach based on analysis of labeled subroutines,

similar to that of *BASCOM Global Internet Services v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016). Appeal Br. 42–45. According to Appellant, the Specification makes explicit that the claimed functions are not well-understood, routine, and conventional, because the “use of a probabilistic approach to find signatures of malware is also a novel feature of some embodiments that is lacking from conventional analysis software.” Appeal Br. 47 (citing Spec. ¶ 28).

We disagree that the claims are analogous to those determined to be patent-eligible in *BASCOM*. The inventions recited in claims 1, 12, and 17 do not improve the performance of the computer system itself. Thus, this case is unlike *BASCOM*, in which an inventive concept was found in the ordered combination of limitations providing for “the installation of a filtering tool at a specific location, remote from the end users, with customizable filtering features specific to each end user.” 827 F.3d at 1350. Here, the claim elements beyond the abstract idea recite only generic computer functions and components that are well-understood, routine, and conventional—that is, “a computer-implemented method” performed by “a computing system”; such generic computer functions and components do not convey an inventive concept. *See Alice*, 573 U.S. at 217. Appellant is reminded that in most cases, “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 (citing *Alice*, 573 U.S. at 224 (holding that “use of a computer to create electronic records, track multiple transactions, and issue simultaneous instructions” is not an inventive concept)); *Intellectual Ventures I LLC v. Capital One Bank*, 792 F.3d 1363, 1370 (“[M]erely adding computer functionality to increase

the speed or efficiency of the process does not confer patent eligibility on an otherwise abstract idea.”).

To the extent Appellant relies on the particular manipulation of data recited as indicative of an inventive concept, we have determined above that such steps amount to mental processes, which is categorized in the 2019 Guidance as an abstract idea. Appellant is reminded that “the ‘inventive concept’ [under the second part of the *Mayo/Alice* test] cannot be the abstract idea itself” and “*Berkheimer* . . . leave[s] untouched the numerous cases from this court which have held claims ineligible because the only alleged ‘inventive concept’ is the abstract idea.” *Berkheimer v. HP Inc.*, 890 F.3d 1369, 1374 (Fed. Cir. 2018) (Moore, J., concurring). “It has been clear since *Alice* that a claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.” *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018).

We determine that the functions recited in Appellant’s claims do not add any meaningful limitations beyond generally linking the abstract idea to the particular technological environment. Accordingly, we sustain the Examiner’s rejection of claims 1–20 under 35 U.S.C. § 101 as patent-ineligible.

II. Section 102 Rejection

Independent claim 1 recites “automatically labeling each subroutine in a program, by a computing system, in a function call graph.” Independent claims 12 and 17 contain a similar limitation. The Examiner finds that Anderson discloses this limitation in describing dynamic traces to identify

and categorize computer programs. Final Act. 5. Appellant contends that a dynamic trace does not identify or categorize subroutines. Reply Br. 5–6; Appeal Br. 57–61. In response, the Examiner finds that Anderson discloses that “instances of programs (i.e. subroutines) labeled as malware can be collected.” Ans. 4.

We agree with Appellant for the reasons given in the Appeal and Reply Briefs. In particular, the Examiner has not persuasively explained how Anderson’s disclosure of instances of programs describes “subroutines” as claimed. Therefore, we do not sustain the rejection of claims 1, 2, 4–18, and 20 under 35 U.S.C. § 102.

III. Section 103 Rejection

Claim 3 recites “labeling each subroutine, by the computing system, as file I/O, process/thread, network, GUI, registry, and/or exploit.” Claim 19 recites a similar limitation. The Examiner finds that Figure 4 and paragraph 117 of Gupta teach this limitation. Final Act. 11; Ans. 3. Appellant contends that Gupta does not teach this limitation because (1) Gupta does not discuss subroutines, and (2) the sections of Gupta cited by the Examiner do not disclose the claimed labels. Reply Br. 13; Appeal Br. 82.

We agree with Appellant for the reasons given by Appellant in the Appeal and Reply Briefs. Therefore, we do not sustain the rejection of claims 3 and 19 under 35 U.S.C. § 103.

DECISION

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–20	101	Eligibility	1–20	
1, 2, 4–18, 20	102	Anderson		1, 2, 4–18, 20
3, 19	103	Anderson, Gupta		3, 19
Overall Outcome			1–20	

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. § 41.50(f).

AFFIRMED