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Maschoff Brennan/ PayPal
1389 Center Drive, Ste 300
Park City, UT 84098

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte PALASH NANDY

Appeal 2017-002810
Application 14/558,582
Technology Center 3600

Before JUSTIN BUSCH, SCOTT B. HOWARD, and SCOTT E. BAIN, *Administrative Patent Judges*.

BUSCH, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant appeals from the Examiner's decision to reject claims 1–20, which constitute all the claims pending in this application. We have jurisdiction over the pending claims under 35 U.S.C. § 6(b). We affirm.

CLAIMED SUBJECT MATTER

Appellant's invention "relates generally to the technical field of algorithms and programming and, [specifically], to the use of genetic algorithms and programming to optimize fraud prevention rules as embodied in software as implemented in a computer." Spec. ¶ 2. More specifically, the claimed invention is directed to receiving a rule set used for detecting

fraud, mapping a set of accounts identified as fraudulent to a rule set, creating and evaluating the fitness of a rule tree based on the rule set, and providing a new rule set to a rules engine. *See* Spec. ¶ 64. Claims 1, 11, and 18 are independent claims. Claim 1 is illustrative and reproduced below:

> 1. A system comprising:
> a receiver configured to receive a set of rules for use in detecting fraudulent transactions;
> a server, operatively connected to the receiver, the server configured to:
> identify a set of accounts that facilitated the detected fraudulent transactions;
> access a rule set to identify fraudulent accounts based on a series of transactions;
> map the rule set to a target set of fraudulent accounts;
> generate a plurality of rule trees, each rule tree comprising a random combination of rules of the rule set;
> for each rule tree of the plurality of rule trees, determine a fitness of the rule tree with respect to other rule trees based on applying the rule tree to the target set of fraudulent accounts and tabulating the amount of fraudulent accounts detected by the rule tree; and
> provide the new rule set to a rules engine of the server according to the fitness of the new rule set.

REJECTIONS

Claims 1–20 stand rejected under 35 U.S.C. § 101 as being directed to ineligible subject matter. Final Act. 2–5.

ANALYSIS

We have reviewed the Examiner's rejections in light of Appellant's arguments that the Examiner erred. In reaching this decision, we have considered all evidence presented and all arguments Appellant made.

Arguments Appellant could have made, but chose not to make in the Briefs, are deemed waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner concludes claims 1–20 are directed to judicially excepted subject matter. Final Act. 2. Appellant argues the § 101 rejection of claims 1–20 as a group. *See* App. Br. 7–14. With respect to Appellant's arguments applicable to the group, we select claim 1 as representative. *See* 37 C.F.R. § 41.37(c)(1)(iv). Appellant also separately argues the additional limitations recited in claims 3, 8, and 13 are significantly more than the abstract idea. App. Br. 15.

ALICE/MAYO FRAMEWORK

The Patent Act defines patent-eligible subject matter broadly: "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101. There is no dispute that claims 1–20 are directed to one of these categories.

In *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66, 70 (2012) and *Alice Corp. Pty. Ltd. v. CLS Bank International*, 134 S. Ct. 2347, 2354 (2014), the Supreme Court explained that § 101 "contains an important implicit exception" for laws of nature, natural phenomena, and abstract ideas. *See Diamond v. Diehr*, 450 U.S. 175, 185 (1981). In *Mayo* and *Alice*, the Court set forth a two-step analytical framework for evaluating patent-eligible subject matter: (1) "determine whether the claims at issue are directed to" a patent-ineligible concept, such as an abstract idea; and, if so, (2) "consider the elements of each claim both individually and 'as an ordered combination' to determine whether the

additional elements" add enough to transform the "nature of the claim" into "significantly more" than a patent-ineligible concept. *Alice*, 134 S. Ct. at 2355 (quoting *Mayo*, 566 U.S. at 79); *see Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016).

Step one in the *Mayo/Alice* framework involves looking at the "focus" of the claims at issue and their "character as a whole." *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016). Step two involves the search for an "inventive concept." *Alice*, 134 S. Ct. at 2355; *Elec. Power*, 830 F.3d at 1353. For an inventive concept, "more is required than 'well-understood, routine, conventional activity already engaged in'" by the relevant community. *Rapid Litig. Mgmt. Ltd. v. CellzDirect, Inc.*, 827 F.3d 1042, 1047 (Fed. Cir. 2016) (quoting *Mayo*, 566 U.S. at 79–80).

STEP ONE OF ALICE FRAMEWORK

Turning to step one of the *Alice* framework, the Examiner finds the claims are directed to a math-heavy algorithm for receiving data used to detect fraudulent transactions and creating new rule sets to be used in detecting fraudulent transactions. Final Act. 3; Ans. 3–4. The Examiner finds the core of the claims could be done by humans using a computer as an aid or tool. Final Act. 3. The Examiner compares the claims' use of an algorithm for receiving, creating, and transmitting rule sets for detecting fraud to the algorithms found ineligible by the Supreme Court. Ans. 3–4 (citing *Gottschalk v. Benson*, 409 U.S. 63, 64, 71–72 (1972); *Parker v. Flook*, 437 U.S. 584, 594–95 (1978); *Alice*, 134 S. Ct. 2347).

Appellant argues the Examiner improperly imports the term "algorithm" into their claims and overgeneralizes the claims using too high a level of abstraction that is untether from the actual claim language. App.

Br. 9; Reply Br. 4–6. Appellant contends their claims are not similar to the claims in *Gottschalk*, *Parker*, and *Alice* because the Examiner has not identified a claimed concept similar to the concepts identified as abstract in those cases. App. Br. 9; Reply Br. 7–8. Instead, Appellant argues their claims are similar to those in *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016) because Appellant's claims are "directed toward a specific configuration of database storage and organization that improve the technological field of 'the use of genetic algorithms and programming to optimize fraud prevention rules' by" carrying out the recited steps. App. Br. 9–10 (citing Spec. ¶¶ 2, 68); *See* Reply Br. 10–11.

As discussed above, step one of the analysis evaluates the focus or character of the claims as a whole. Simply because the Examiner characterizes the claims, as a whole, as being directed to an algorithm or process for receiving, processing, and outputting information, that does not equate to importing a limitation into the claim. The purpose of this step is to identify what the claims are focused on when construed under the broadest reasonable interpretation. Similarly, characterizing the claims by summarizing or paraphrasing what they recite does not result in describing the claims at a level untethered from the language of the claims.

Claim 1 is directed to retrieving existing rules and accounts, mapping the rules to the accounts, generating rule trees, and determining the fitness of each rule tree to identify a new rule to be added to a rules engine. In other words, claim 1 is just a high-level application of an algorithm for creating a new rule limited to the particular use of detecting fraudulent transactions.

In fact, Appellant's own description of its claims is consistent with the Examiner's characterization of the abstract idea encapsulated by Appellant's

claims. For example, Appellant acknowledges the claims are directed toward a specific configuration of database storage and organization" to improve the use of genetic algorithms to optimize fraud prevention rules. App. Br. 10. Appellant's Specification also supports the Examiner's characterization of the invention, disclosing that the invention relates "generally to the technical field of algorithms and programming . . . to optimize fraud prevention rules." Spec. ¶ 2. Appellant's Specification includes a flow chart of exemplary embodiments that discloses an embodiment very similar to claim 1. Spec., Fig. 10; *see* Spec. ¶ 64 (describing the process as receiving a rule set and target set of data, generating rules, which the Specification discloses may be "manually generated" by an agent or analyst using a graphical user interface, determining new rules based on the rules' fitness).

The purpose of step 1 is to identify the abstract idea by identifying the character of the claims as a whole, which involves summarizing or paraphrasing the claim and, by its nature, omitting certain details of the implementation. Notably, courts identify abstract ideas by similarly paraphrases and characterizes the claims to identify the abstract idea. For example, in *Gottschalk* the Supreme Court found claims reciting specific steps that stored signals in particular registers and modified the data in the registers by various steps involving shifting, masking, and adding a binary 1 to a particular position of the register were directed to the abstract idea of converting binary-coded-decimal numerals into pure binary numerals. *Gottschalk*, 409 U.S. 63.

The focus of claim 1 is on creating a new rule by receiving rules and accounts, mapping rules to accounts, generating rule trees. Accordingly, we

are not persuaded the Examiner's characterization of claim 1 as being directed to an algorithm (the process or set of rules followed to ultimately create a new rule from a given set of rules and accounts) for receiving information (the set of rules used in fraud detection and accounts), processing the information (identifying fraudulent accounts, mapping rule sets to accounts, generating rule trees from the rule sets, and testing each tree for "fitness" using), and outputting information (providing the new rule set) is overly broad or untethered from the claim language.

The Federal Circuit has "treated *collecting information*, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas." *Elec. Power*, 830 F.3d at 1353–54 (emphasis added) (finding collecting, analyzing, and displaying information, regardless of particular content, is an abstract idea); *Content Extraction*, 776 F.3d at 1347 (finding collecting, recognizing, and storing information is an abstract idea); *Digitech*, 758 F.3d at 1350 ("The method in the '415 patent claims an abstract idea because it describes a process of *organizing information through mathematical correlations* and is not tied to a specific structure or machine" (emphasis added)); *see also Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1348–49 (Fed. Cir. 2015); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015). Although claim 1 limits the information to fraudulent transaction and account data, the particular content of the data manipulated does not change the nature of the claim. As can be seen by evaluating the limitations recited in the above-cited cases, the Federal Circuit characterized claims that include at least as much detail as recited in claim 1 as being "directed to" abstract ideas.

Contrary to Appellant's argument that the claims are directed to "a specific configuration of database storage and organization," App. Br. 10, claim 1 recites no specific configuration of storage or organization. Instead, claim 1 recites a receiver that receives information and a server that identifies, accesses, and maps certain information. Claim 1 further generically recites generating rule trees and determining their fitness by applying the rule trees to the accessed account information and providing the new rule set to an engine. Nothing in claim 1 recites any particular configuration of storage or organization. Claim 1 generically recites using rule trees, but does not provide any details on a specific configuration or organization.

Moreover, Appellant's Specification acknowledges that storage in the invention may create tables, insert data into and select data from those tables, and organize the tables in a database by known methods. Spec. ¶ 68. The Specification discloses that embodiments of the invention may use various tree structures to organize data, but acknowledges those structures are known and claim 1 does not recite any particular configuration for storing or organizing information, let alone a configuration that is allegedly an improvement in such technology. The involvement of computer components in claim 1 does not show that the claimed invention is "an improvement in computers as tools," like those claims found patent-eligible. *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016).

Rather, claim 1 invokes computers merely as a tool in aid of a process focused on an abstract idea. *See BSG Tech LLC v. BuySeasons, Inc.*, No. 2017-1980, 2018 WL 3862646, at *5 (Fed. Cir. Aug. 15, 2018)

(disagreeing with BSG "that its claims focus on a non-abstract improvement in database functionality" by improving the quality and organization of information in the database because the recited benefits "are not improvements to database functionality" but instead are "benefits that flow from performing an abstract idea in conjunction with a well-known database structure"). Like the claims in *BSG Tech*, claim 1 does not relate to how databases function, but how conventional database techniques are used to store and organize information in a way that allegedly improves process of creating fraud detection rules. *See BSG Tech*, 2018 WL 3862646, at *5.

We also agree with the Examiner that the core of claim 1 can be performed by a human, using a computer as a tool. Final Act. 3. In determining whether claims are directed to an abstract idea, the Federal Circuit has considered whether the claim covers a method that human beings can perform without a computer. *See Mortgage Grader, Inc. v. First Choice Loan Servs.*, 811 F.3d 1314, 1324 (Fed. Cir. 2016) (explaining "[t]he series of steps covered by the asserted claims . . . could all be performed by humans without a computer" in concluding that the claims are directed to an abstract idea). Here, claim 1 does not recite a specific computer-based algorithm for making those determinations, like those processes found patent-eligible. *See McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314–15 (Fed. Cir. 2016) (finding that claims involving a specific structure of the rules for automated lip-synchronization of 3-D characters were patent-eligible). Instead, claim 1 broadly and abstractly recites a series of determinations that a human can make by reviewing the received data.

Appellant contends humans could not "carry out the recited 'rule trees'" and the associated requirements and use of the trees to determine

their fitness. App. Br. 14. Other than identifying that the recited limitations are complex, Appellant, however, provides no persuasive reason a human could not perform those limitations. In fact, Appellant's Specification discloses that, in some embodiments, an agent or analyst may use a graphical user interface to manually generate rules and provide them to the rules engine. Spec. ¶ 64.

We are also not persuaded by Appellant's argument that claim 1 does not pre-empt all ways of performing the abstract idea because claim 1 recites a specific implementation of the abstract idea. App. Br. 13–14. "While preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility . . . . Where a patent's claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework, as they are in this case, preemption concerns are fully addressed and made moot." *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015); *see also OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015) ("And [the fact] that the claims do not preempt all price optimization or may be limited to price optimization in the e-commerce setting do[es] not make them any less abstract.").

For the above reasons, we are unpersuaded the Examiner erred in concluding the claims are directed to an abstract idea.

STEP TWO OF ALICE FRAMEWORK

Next, we turn to step two of *Alice* to determine whether the limitations, when considered both "individually and 'as an ordered combination'" contain an "inventive concept" sufficient to transform the claimed "abstract idea" into a patent-eligible application. *Alice*, 134 S. Ct. at

2355–58. The Examiner concludes the particular elements (i.e., the computer components) recited in the claims impose insufficient meaningful limitations to transform the abstract idea into patent-eligible subject matter because they perform routine functions (i.e., receiving and accessing information, mapping, data analysis, and outputting information) that are well-understood and conventional activities, amounting to no more than implementing the abstract idea on a computer. Final Act. 3–5; Ans. 4–5, 7–8. Finally, the Examiner finds the lack of a prior art rejection does not render the claimed subject matter eligible. Ans. 6

Appellant argues the claims are rooted in computer technology and "overcome the technical problem of not being able to quickly and reliably detect 'online fraud.'" App. Br. 11–12. Appellant contends the lack of a prior art rejection under 35 U.S.C. §§ 102 and 103, by definition, shows Appellant's claims are more than the conventional and generic arrangement of known conventional pieces. App. Br. 12–13; Reply Br. 8–10. Appellant also argues claim 8's recitation of using "crossover" or "mutation" to generate "the new rule set" and claims 3 and 13's recitation of generating "a set of hash tables based on the new rule set" add significantly more to the abstract idea. App. Br. 15; Reply Br. 12.

As discussed above, notwithstanding the complexity of generating and evaluating the rules trees, Appellant's claims can be performed by a person using a computer as a tool. *See* Spec. ¶ 64. Reviewing, analyzing, and generating rules for rule sets that can be applied to transactions is not rooted in computer technology. Using computers to perform the claimed steps may improve the speed or efficiency at which the rules are created and/or evaluated, but the claimed process itself (or the system claimed to execute

the process) is not rooted in technology any more than other claims using computers as tools. *See Alice*, 134 S. Ct. at 2358 ("the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention").

Appellant's argument that the alleged novelty or nonobviousness of Appellant's claims requires a determination that Appellant's claims are more than a conventional and generic arrangement of known conventional pieces is not persuasive. As the Examiner explained, the lack of a prior art rejection does not necessarily lead to the conclusion that subject matter is patentable eligible. *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2117 (2013) ("Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry."). "A claim for a *new* abstract idea is still an abstract idea." *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016).

Moreover, an inventive concept "cannot be furnished by the unpatentable law of nature (or natural phenomenon or abstract idea) itself." *Genetic Techs.Ltd. v. Merial L.L.C.,* 818 F.3d 1369, 1376 (Fed. Cir. 2016); *see also Alice,* 134 S. Ct. at 2355 (explaining that, after determining a claim is directed to a judicial exception, "we then ask, '*[w]hat else* is there in the claims before us?'") (emphasis added, brackets in original) (quoting *Mayo,* 566 U.S. at 78)). Instead, an "inventive concept" is furnished by an element or combination of elements that is recited in the claim *in addition to* the judicial exception and sufficient to ensure the claim as a whole amounts to significantly more than the judicial exception itself. *Alice Corp.,* 134 S. Ct. at 2355 (citing *Mayo,* 566 U.S. at 72–73); *see BSG Tech*, 2018 WL 3862646, at *7 (explaining that the Supreme Court in

Alice "only assessed whether the claim limitations *other than the invention's use of the ineligible concept* to which it was directed were well-understood, routine and conventional" (emphasis added)).

On the other hand, "[i]f a claim's only 'inventive concept' is the application of an abstract idea using conventional and well-understood techniques, the claim has not been transformed into a patent-eligible application of an abstract idea." *BSG Tech*, 2018 WL 3862646, at *7 (citing *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1370 (Fed. Cir. 2018)). "[I]t is irrelevant whether [the claimed abstract idea] may have been non-routine or unconventional as a factual matter . . . narrowing or reformulating an abstract idea does not add 'significantly more' to it." *BSG Tech*, 2018 WL 3862646, at *7. Thus, the inquiry of looking at the claim as a whole to identify an inventive concept involves analyzing the portion of the claims that falls outside the scope of the abstract idea recited in the claims.

In this case, claim 1's limitations that lie outside the claimed abstract idea (i.e., the algorithm for receiving and analyzing information and generating and transmitting a new rule set) include the recited receiver and server. The particularly recited steps are merely steps involved in the abstract idea that is ultimately directed to providing a new rule set to a rules engine. As the Examiner finds, claim 1's receiver and server are simply generic computing components that perform the routine, well-understood, and conventional computing functions of receiving/accessing data, mapping data, generating data structures from that data, applying rules to data, and providing the newly created rule to an engine. Accordingly, we agree with the Examiner that claim 1 does not recite an inventive concept sufficient to transform the recited abstract idea into eligible subject matter.

Similarly, generating "a set of hash tables based on the new rule set," as recited in claims 3 and 13 is a conventional, well-understood, and routine technique for storing and indexing (i.e., mapping) data sets and, moreover, is insignificant post-solution activity. Accordingly, the additionally recited limitations in claims 3 and 13 fail to transform the recited abstract idea into eligible subject matter.

Claim 8 recites that "the new rule set is generated via crossover or mutation of the respective rules." This step simply further defines how the abstract idea generates new data from prior data. Accordingly, claim 8 does not add significantly more to the abstract idea but, instead, further refines the particular computing functions applied to the received/accessed data.

The fact that the recited process and systems can more efficiently perform a human process does not improve a computer or technology, but rather improves the process itself. *See Gottschalk*, 409 U.S. at 67 (explaining that the claimed steps could easily "be carried out in existing computers long in use, no new machinery being necessary."). Accordingly, the claimed limitations, considered both individually and together, do not add significantly more to the abstract idea and, therefore, do not render the subject matter patent eligible.

SUMMARY

For the above reasons, Appellant has not persuaded us the Examiner erred in rejecting claims 1–20 under 35 U.S.C. § 101 as being directed to merely an abstract idea, rendering the claimed subject matter ineligible.

DECISION

We affirm the Examiner's decision to reject claims 1–20 as directed to ineligible subject matter under 35 U.S.C. § 101.

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

AFFIRMED