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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* DEBASIS DUTTA, BRIAN GASPAR,  
JULIAN CHALLENGER, and DINESH ARORA

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Appeal 2017-010745  
Application 12/815,799<sup>1</sup>  
Technology Center 3600

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Before JASON V. MORGAN, IRVIN E. BRANCH, and  
MICHAEL M. BARRY, *Administrative Patent Judges*.

MORGAN, *Administrative Patent Judge*.

DECISION ON APPEAL  
STATEMENT OF THE CASE

*Introduction*

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1, 3, 5–7, 9, 11, 14, 16, and 19–23. Claims 2, 4, 8, 10, 12, 13, 15, 17, and 18 are canceled. Appeal Br. 22–25. This appeal is related to appeal number 2017-009329 (Application No. 12/814,756), decided December 28, 2018, request for hearing denied April 10, 2019. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> Appellants identify Oracle International Corporation as the real party in interest. Appeal Br. 2.

*Summary of disclosure*

Appellants disclose “applying a data mining tool to . . . attributes [associated with a worker] and [a] proposed personnel action to identify [or predict] an impact of the proposed personnel action.” Abstract.

*Exemplary claims (key limitations emphasized)*

1. A non-transitory computer-readable medium having instructions stored thereon that, when executed by a processor, cause the processor to graphically display an impact of a proposed personnel action, the graphically displaying comprising:

collecting a plurality of attributes associated with each of a plurality of workers;

receiving the proposed personnel action directed at an individual worker within the plurality of workers;

*applying a data mining tool to the attributes and the proposed personnel action to predict the impact of the proposed personnel action on a predicted attrition and a predicted performance of the individual worker; and*

outputting the impact of the proposed personnel action based on the result produced by the data mining tool, wherein the outputting comprises graphically representing the individual worker on an XY chart based on the predicted attrition and the predicted performance of the individual worker, wherein the XY chart has a first axis and a second axis, and the second axis shows the predicted attrition and the first axis shows the predicted performance.

5. The computer-readable medium according to claim 1, wherein the predicted performance of the individual worker is predicted using a first data mining tool and the predicted attrition of the individual worker is predicted *using a second data mining tool different than the first data mining tool.*

*Rejections*

The Examiner rejects claims 5 and 20 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Final Act. 5–6; Ans. 2.

The Examiner rejects claims 1, 3, 5–7, 9, 11, 14, 16, and 19–23 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 6–10.

35 U.S.C. § 112, FIRST PARAGRAPH

In rejecting claim 5 as failing to comply with the written description requirement, the Examiner finds that “[w]hile the specification supports embodiments using two different tools, one for regression and one for classification, it does not specifically support that they must be different tools.” Final Act. 5–6. Appellants argue “the Specification’s support for using different tools of regression and classification for predicting a respective one of performance and attrition *does* provide sufficient support for the claimed feature of ‘using a second data mining tool different than the first data mining tool.’” Appeal Br. 4 (emphasis added). The Examiner alternatively posits that “[n]owhere is there any description that each *technique* is effectuated by a different ‘tool’ . . . there are different algorithms, [and] . . . techniques described, but there are no delineations as to what comprises *a tool* nor any description of the correspondence between the notion of a *tool* and a *technique*.” Ans. 3.

The Examiner’s findings are insufficient to demonstrate Appellants did not possess the invention of claim 5 at the time the application as filed. The Specification describes the use of data mining as a tool, with two commonly used data mining techniques (i.e., two data mining tools) being

classification and regression. Spec. ¶ 41. The Specification discloses predicting the risk of leaving using classification and predicting the future performance of an employee using regression. *Id.* ¶¶ 43, 49. The Specification further discloses using “data mining tools,” plural, “to analyze employee attributes . . . . to predict whether a specific employee is likely to leave as well as their likely future performance.” *Id.* ¶ 72.

These disclosures show that Appellants’ claimed use of first and second different data mining tools refers to the use of different data mining techniques. That is, Appellants use the term *tool* to refer to a *technique*, regardless how the technique is implemented. *See also* Spec. ¶¶ 3, 30, 35, 37, 74 (describing the flexibility, in terms of hardware and software, of embodiments implementing the disclosed invention).

Accordingly, we do not sustain the Examiner’s 35 U.S.C. § 112, first paragraph, rejection of claim 5, and claim 20, which is similarly rejected. *See* Ans. 2.

Although the Examiner’s 35 U.S.C. § 112, first paragraph, rejection of claim 5 is unsustainable, the disputed claim recitation does not make sense as a consequence of claim 5 depending from claim 1. Specifically, dependent claim 5 details the use of a first data mining tool and a second (different) data mining tool to predict performance and attrition respectively. Independent claim 1, however, recites “applying *a* data mining tool” (emphasis added) to predict both attrition and performance.

It is unclear, for example, whether the data mining tool of claim 1 comprises the first and second data mining tools of claim 5, whether Appellants intended to claim applying *at least one* data mining tool in claim 1, or whether Appellants sought to claim (perhaps with inadequate support)

applying three data mining tools (the data mining tool of claim 1, and the first and second data mining tools of claim 5). Dependent claim 20 has the same issue as a consequence of its dependency from claim 14.

In the event of further prosecution, it is incumbent on Appellants and the Examiner to resolve this issue with claims 5 and 20.

35 U.S.C. § 101

*Principles of law*

To be statutorily patentable, the subject matter of an invention must be a “new and useful process, machine, manufacture, or composition of matter, or [a] new and useful improvement thereof.” 35 U.S.C. § 101. There are implicit exceptions to the categories of patentable subject matter identified in § 101, including: (1) laws of nature; (2) natural phenomena; and (3) abstract ideas. *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014). The Supreme Court has set forth a framework for distinguishing patents with claims directed to these implicit exceptions “from those that claim patent-eligible applications of those concepts.” *Id.* at 217 (*citing Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012)). The evaluation follows a two-part analysis: (1) determine whether the claim is *directed to* a patent-ineligible concept, e.g., an abstract idea; and (2) if so, then determine whether any element, or combination of elements, in the claim is sufficient to ensure that the claim amounts to *significantly more* than the patent-ineligible concept itself. *See id.* at 217–18.

“[A]ll inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Mayo*, 566 U.S. at 71. We ““must be careful to avoid oversimplifying the claims’ by looking at them generally and failing to account for the specific requirements of the

claims.” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1313 (Fed. Cir. 2016) (quoting *TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 611 (Fed. Cir. 2016)). We, therefore, look to whether: (1) the claims focus on a specific means or method that improves the relevant technology or (2) the claims are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016). That is, we look to whether the claims are “specifically designed to achieve an improved *technological* result in conventional industry practice.” *McRO*, 837 F.3d at 1316 (emphasis added) (citing *Alice*, 573 U.S. at 222–24).

Although the second step in the *Alice/Mayo* framework is termed a search for an “inventive concept,” the analysis is not an evaluation of novelty or non-obviousness, but rather a search for “an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Alice*, 573 U.S. at 217–18 (citation omitted). A novel and nonobvious claim directed to a purely abstract idea is, nonetheless, patent-ineligible. *See Mayo*, 566 U.S. at 90; *see also Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 591 (2013) (“Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry”).

If a claim proves to be unpatentable as a result of the two-part analysis, no additional determination regarding preemption is necessary. “While preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility,” as “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) (internal quotation marks and citation omitted).

The U.S. Patent and Trademark Office (USPTO) recently published revised guidance on the application of the two-part analysis. USPTO Memorandum of January 7, 2019, *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (“Memorandum”). Under that guidance, we first look 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) (*see id.* at 54 (step 2A – prong one)); and
- (2) additional elements that integrate the judicial exception into a practical application (*see id.* at 54–55 (step 2A – prong two); MPEP § 2106.05(a)–(c), (e)–(h)).

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we 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* Memorandum, 84 Fed. Reg. at 56 (step 2B).

*Memorandum step 2A – prong one*

In rejecting claim 1 as being directed to non-statutory subject matter, the Examiner determines claim 1 is directed to “graphically displaying the

impact of a proposed personnel action as to the risk of employee attrition and performance and therefore [is] specifically directed to a species of fundamental economic practices, and certain methods of organizing, assessing and predicting human activities.” Final Act. 7. Appellants contend the Examiner erred “by abstracting and generalizing the claimed limitations at such a high level that the alleged abstract idea no longer has **ANY** relationship to the actual recited limitations.” Appeal Br. 8; *see also* Reply Br. 2.

Claim 1 recites “applying a data mining tool” to attributes of a work and a proposed personnel action “to predict the impact of the proposed personnel action on a predicted attrition and a predicted performance of the individual worker.” The idea of predicting how a personnel action may affect worker performance and attrition represents a form of risk management—an attempt to ensure that the action being considered will likely lead to the desired outcome (e.g., improved performance with a low likelihood of attrition). Moreover, using “a data mining tool” is an ordinary business concept representing extrapolating from the past (i.e., existing data) into the possible future (i.e., a prediction). The Specification even acknowledges that “[o]rganizations utilize human resource management processes to attract appropriately skilled employees, integrate them into the organization, assess and develop their competencies, and retain their commitment.” Spec. ¶ 2.

Accordingly, like methods of hedging against price fluctuation risk or mitigating settlement risk, the claimed invention is directed to a certain method of organizing human activity (i.e., a fundamental economic practice) that represents an abstract idea. *See Alice*, 573 U.S. at 219–21.

*Memorandum step 2A – prong two*

To evaluate a claim under step 2A, prong two, we: “(a) [i]dentify[] whether there are any additional elements recited in the claim beyond the judicial exception(s); and (b) evaluat[e] those additional elements individually and in combination to determine whether they integrate the exception into a practical application.” Memorandum, 84 Fed. Reg. 54–55. Additional elements that merely add insignificant extra-solution activity to an abstract idea fail to integrate the abstract idea into a patent-eligible practical application. *See id.* at 55.

In addition to having recitations directed to the idea of predicting how a personnel action may affect worker performance and attrition represents a form of risk management, claim 1 includes recitations directed to *collecting a plurality of attributes, receiving the proposed personnel action, and outputting the predicted impact of the proposed personnel action*. These additional recitations merely represent generic data gathering steps that fail to confer patentability or data output techniques that can be performed by a human using pen and paper. *See, e.g., CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372 (Fed. Cir. 2011) (citing *In re Grams*, 888 F.2d 835, 839–40 (Fed. Cir. 1989)); *see also Ex parte Dutta*, Appeal No. 2017-009329, slip op. at 8–9 (PTAB Dec. 28, 2018) (presentation of data on an XY chart, “a basic visualization of two-dimensional data points that has its origins in the first half of the nineteenth century,” did not make claim to abstract idea patent-eligible).

Appellants submit the *outputting* recitation “provides **additional** functionality beyond the content of the data. Specifically, the recited charts help managers easily identify those employees or teams that are predicted

high performers and are also predicted to be at a high risk of loss.” Reply Br. 3. Thus, Appellants argue claim 1 recites functionality similar to that found in the patent-eligible technology of *Trading Techs. Int’l, Inc. v. CQG, Inc.*, 675 F. App’x 1001 (Fed. Cir. 2017) (“*Trading Techs. I*”). Reply Br. 3. That is, Appellants argue claim 1 is similar to a claim directed to solving “problems with prior graphical user interfaces used in the computerized trading area, specifically improving speed, accuracy and usability.” *Id.*

Appellants’ arguments are unpersuasive because the challenged patents in *Trading Technologies* did “not simply claim displaying information on a graphical user interface,” (*Trading Techs. I*, 675 F. App’x at 1004) as is the case here. Rather, the claims in *Trading Technologies I* required “a specific, structured graphical user interface paired with a prescribed functionality directly related to the graphical user interface’s structure that [was] addressed to and resolve[d] a specifically identified problem in the prior state of the art.” *Id.* Specifically, the *Trading Technologies I* invention addressed the “problems that arise when a trader attempts to enter an order at a particular price, but misses the price because the market moved before the order was entered and executed” (*id.* at 1002) by dynamically displaying a plurality of bid and ask prices in the market along a static display of prices corresponding to a plurality of bids and asks, where “the system pairs orders with the static display of prices and prevents order entry at a changed price” (*id.* at 1003). Appellants do not identify any comparable structure in the recitations of claim 1.

Furthermore, the Federal Circuit recently held that making a trader faster and more efficient, rather than improving a computer, “is not a technical solution to a technical problem.” *Trading Techs. Int’l v. IBG LLC*,

Case No. 17-2257, slip op. at 9 (Fed. Cir. Apr. 18, 2019) (“*Trading Techs. IP*”); *see also Trading Techs. Int’l v. IBG LLC*, Case No. 17-2323, slip op. at 13 (Fed. Cir. Apr. 30, 2019). Because the claims did “not improve the functioning of the computer, make it operate more efficiently, or solve any technological problem,” “the claims [were] directed to the abstract idea of graphing bids and offers to assist a trader to make an order.” *Trading Techs. II*, Case No 17-2257, slip op. at 15.

The Federal Circuit further emphasized that arguments based on non-binding, non-precedential decisions holding other patents patent-eligible are unpersuasive, particularly when such decisions address “different patents, different specifications, or different claims.” *Id.* at 19.

Appellants’ argument that the claimed “charts help *managers* easily identify those employees or teams that are predicted high performance and are also predicted to be at a high risk of loss” (Appeal Br. 13) (emphasis added) illustrates that the precedential holding in *Trading Technologies II* is more applicable here than the non-precedential holding in *Trading Technologies I*. Specifically, rather than improve the functioning of a computer, the claimed invention improves the capability of a manager. Therefore, the claimed invention, like an invention directed to improving the speed and efficiency of a trader, is not directed to a technical solution to a technical problem (i.e., to a patent-eligible practical application). *Trading Techs. II*, Case No. 17-2257, slip op. at 9.

Furthermore, despite Appellants’ arguments (Appeal Br. 11), we cannot identify how the additional recitations, even in combination, integrate the claimed abstract idea into a practical application. In particular, claim 1 fails to recite limited rules structured to reflect a *specific implementation* that

differs from what a data analyst engaged in predicting the impact of a proposed personnel action on employee performance and attrition would likely have used. *See McRO*, 837 F.3d at 1316.

Accordingly, we determine claim 1 fails to integrate the underlying abstract idea into a patent-eligible practical application.

*Memorandum step 2B*

Appellants argue

the present specification discloses that the computer provides a graphical representation including an XY chart where a worker placed in the right, bottom square on the XY chart would have high predicted performance and low likelihood of attrition; while a worker in the center square of the XY chart would have medium predicted performance and a medium likelihood of attrition. Accordingly, such an XY chart helps managers easily identify those employees or teams that are predicted high performers and are also predicted to be at a high risk of loss. Specification at ¶ [0058]. Thus, in comparison to the prior art, the claimed functionality leads to better results by providing an improvement in the functioning of the computer.

Appeal Br. 18.

Contrary to Appellants' argument, the claimed invention does not improve the computer itself. Instead, the claimed invention merely uses a computer as a tool for implementing the abstract idea. That is, as noted above, the claimed data gather and data output techniques can be performed by a human using pen and paper. “[M]ere automation of manual processes using generic computers does not constitute a patentable improvement in computer technology.” *Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1055 (Fed. Cir. 2017). Moreover, the Specification generically describes a number of computer technologies that could perform the

claimed data mining without detailing how such computer technologies are improved. *See, e.g.*, Spec. ¶¶ 27 (“Processor 22 may be any type of general or specific purpose processor”), 37 (“functionality may be performed by hardware . . . or any combination of hardware and software”), 73–77, Fig. 1. Therefore, the Specification illustrates that the additional recitations merely append well-understood, routine, and conventional technologies to the underlying abstract idea. *See* Memorandum, 84 Fed. Reg. at 56.

Furthermore, contrary to Appellants’ arguments that the claimed solution cannot be performed “using routine computer data storage and mathematical operations” (Appeal Br. 16), the Specification describes both the storage and mathematics at issue as well-understood, routine, and conventional technologies and techniques. For example, the Specification discloses that “[c]omputer readable media may be any available media that can be accessed by processor 22 and includes both volatile and nonvolatile media, removable and non-removable media, and communication media.” Spec. ¶ 28. The Specification also discloses multiple classification and regression techniques (“commonly used data mining techniques”), denoting some simply by name. *See, e.g., id.* ¶¶ 41 (“classification algorithms include Naive Bayes, Decision Tree, . . .”), 42 (“regression algorithms include Multiple Regression . . .”).

Appellants further posit that the Examiner erroneously failed to determine “that the pending claims at least recite a ‘non-conventional and non-generic arrangement of known, conventional pieces’, meaning all of the pending claims recite an inventive concept per” *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016). Appeal Br. 12; *see also id.* at 19–20. Nonetheless, Appellants do not, and we

cannot, identify any such “non-conventional and non-generic” arrangement embodied in the additional recitations of claim 1.

Appellants contend that the Examiner would have identified a non-conventional, non-generic arrangement of additional recitations if the Examiner had undertaken “a proper analysis” by considering “the claim elements in combination.” *Id.* The Examiner, however, plainly considers the claim elements in combination, as evidenced, for example, by the Examiner’s finding that “determining correlations as in a scatter plot based on statistical analysis necessarily requires . . . some collecting and/or receiving steps.” Final Act. 9; *see also* Ans. 9–10.

Furthermore, Appellants’ argument that the Examiner fails “to consider the innovative combined use of data mining tools to predict [the] likelihood of attrition and performance and graphical[ly] represent both of them on the recited XY chart” (Appeal Br. 19–20) unpersuasively relies on recitations central to the underlying abstract idea and to insignificant post-solution activity rather than to *additional* recitations that add significantly more to the underlying abstract idea.

For these reasons, we agree with the Examiner that claim 1 does not have additional limitations that, even when considered as an ordered combination, are sufficient to transform the underlying abstract idea into patent-eligible subject matter. Final Act. 8–10; *see also* Memorandum, 84 Fed. Reg. at 56.

Accordingly, we sustain the Examiner’s 35 U.S.C. § 101 rejection of claim 1, and claims 3, 5–7, 9, 11, 14, 16, and 19–23, which Appellants do not argue separately with respect to this rejection.

DECISION

We reverse the Examiner's decision rejecting claims 5 and 20 under 35 U.S.C. § 112, first paragraph.

We affirm the Examiner's decision rejecting claims 1, 3, 5–7, 9, 11, 14, 16, and 19–23 under 35 U.S.C. § 101.

Because we affirm at least one rejection of each claim, we affirm the Examiner's decision rejecting claims 1, 3, 5–7, 9, 11, 14, 16, and 19–23.

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