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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANUSHKA ANAND, JOCK DOUGLAS
MACKINLAY, and KANIT WONGSUPHASAWAT¹

Appeal 2018-000714
Application 14/242,857²
Technology Center 2100

Before JAMES R. HUGHES, LARRY J. HUME, and
JOHN P. PINKERTON, *Administrative Patent Judges*.

PINKERTON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 from the Examiner’s Final Rejection of claims 1–3 and 6–25. Claims 4 and 5 are canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ Tableau Software, Inc. (“Appellant”) is the applicant as provided in 37 C.F.R. § 1.46 and is identified as the real party in interest. App. Br. 4

² This application on appeal has an effective filing date of Apr. 1, 2014. Therefore, the Leahy-Smith America Invents Act (AIA) amendments to the U.S. Code (§§ 102, 103) are applicable. *See* MPEP § 2159.02 (9th ed. 2018) (the amended sections “apply to any patent application that contains . . . a claimed invention that has an effective filing date that is on or after March 16, 2013.”).

STATEMENT OF THE CASE

Introduction

Appellant generally describes the disclosed and claimed invention as follows:

A method ranks data visualizations. A user selects a set of data fields from a set of data. A device identifies a plurality of data visualizations that use each data field in the user-selected set of data fields and identifies a plurality of respective alternative data visualizations. Each respective alternative data visualization uses each data field in a respective modified set of data fields. Each respective modified set differs from the user-selected set by a limited sequence of atomic operations. For each of the data visualizations and each of the alternative data visualizations, the device computes a score based on a set of ranking criteria. At least one criterion used to compute each score uses values of one or more of the data fields in the set of data. The list of high scoring data visualizations and alternative data visualizations is presented to the user.

Abstract.³

Claims 1, 14, and 21 are independent claims. Claim 1 is representative of the subject matter on appeal and reads as follows (with format changes and paragraph lettering added):

1. A method of ranking data visualizations, comprising:
 - (a) at a computing device having one or more processors and memory, wherein the memory stores one or more programs for execution by the one or more processors:

³ Our Decision refers to the Final Office Action mailed Aug. 8, 2016 (“Final Act.”), Appellant’s Appeal Brief filed Mar. 29, 2017 (“App. Br.”) and Reply Brief filed Oct. 27, 2017 (“Reply Br.”), the Examiner’s Answer mailed Aug. 28, 2017 (“Ans.”), and the original Specification filed Apr. 1, 2014 (“Spec.”).

- (b) receiving user selection of a set of data fields from a set of data;
- (c) identifying a plurality of data visualizations that use each data field in the user-selected set of data fields;
- (d) automatically forming a plurality of modified sets of data fields, each differing from the user selected set by a limited sequence of at most two atomic operations, wherein each of the atomic operations is selected from the group consisting of:
 - (e) removing a single data field from the user-selected set;
 - (f) adding a single data field to the user-selected set;
 - (g) replacing a user-selected data field with a hierarchically narrower data field from the set of data;
 - (h) replacing a user-selected data field with a hierarchically broader data field from the set of data;
 - (i) adding a filter to a data field that limits values retrieved to a specified subset of values;
 - (j) removing a user-selected filter from a data field so that there is no limit on values retrieved for the data field; and;
 - (k) modifying a filter for a data field, thereby altering values retrieved for the data field;
- (l) identifying a plurality of respective alternative data visualizations, each respective alternative data visualization using each data field in a respective one of the modified sets of data fields;
- (m) for each of the data visualizations and each of the alternative data visualizations, computing a score based on a set of ranking criteria, wherein at least one ranking criterion used to compute each score is based on visual patterns corresponding to statistical properties of data values of one or more of the data fields in the set of data; and
- (n) presenting data visualization options to the user, wherein the presented options correspond to high scoring data visualizations and high scoring alternative data visualizations.

App. Br. 24–25 (Claims App’x).

*Rejections on Appeal*⁴

Claims 1–3 and 6–25 stand rejected under 35 U.S.C. § 101 as being directed to a judicial exception (i.e., an abstract idea) without significantly more.⁵ Ans. 2–6.

Claims 1–3 and 6–25 stand rejected under 35 U.S.C. § 102(a)(1) as being anticipated by Mackinlay et al. (US 2007/0061611 A1; published Mar. 15, 2007) (“Mackinlay”). Final Act. 4–9.

ANALYSIS

I. Section 101 Rejection

A. Applicable Law

Section 101 of the Patent Act provides that “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof” is patent eligible. 35 U.S.C. § 101. But the Supreme Court has long recognized an implicit exception to this section: “Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)). To determine whether a claim falls within one of these excluded categories, the Court has set out a two-part framework. The framework requires us first to consider whether the claim is “directed to one of those patent-ineligible

⁴ Although the Examiner provisionally rejected claims 1–3 and 6–25 on the ground of nonstatutory double patenting as being unpatentable over claims 1–26 of co-pending Application No. 14/242,849, this rejection was withdrawn by the Examiner. Ans. 14.

⁵ This was made as a New Ground of Rejection by the Examiner, and it was approved by the Director of Technology Center 2100. *See* Ans. 16.

concepts.” *Alice*, 573 U.S. at 217. If so, we then examine “the elements of [the] claim both individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the nature of the claim’ into a patent-eligible application.” *Alice*, 573 U.S. at 217 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 78, 79 (2012)). That is, we examine the claim for an “inventive concept,” “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 (alteration in original) (quoting *Mayo*, 566 U.S. at 72–73).

The Patent Office recently issued guidance about this framework. *See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Revised Guidance”). Under the Revised Guidance, to decide whether a claim is directed to an abstract idea, we evaluate whether the claim (1) recites one of the abstract ideas listed in the Revised Guidance (“Prong One”) and (2) fails to integrate the recited abstract idea into a practical application (“Prong Two”). *See* Revised Guidance, 84 Fed. Reg. at 51, 54. If the claim is directed to an abstract idea, as noted above, we then determine whether the claim has an inventive concept. The Revised Guidance explains that when making this determination, we should consider whether the additional claim elements add “a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field” or “simply append[] well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality.” Revised Guidance, 84 Fed. Reg. at 56.

With these principles in mind, we first analyze whether claim 1 is directed to an abstract idea.⁶

B. Abstract Idea

In analyzing the limitations of the claims, the Examiner concludes that claim 1 describes “the concept of ‘collecting information, analyzing it, and displaying certain results of the collection and analysis,’ that the Federal Circuit determined is an example of an abstract idea. Ans. 3 (citing *Electric Power Group, LLC v. Alstom*, 830 F.3d 1350 (Fed. Cir. 2016) (emphasis omitted). The Examiner also finds that all of these concepts “relate to ‘**an idea of itself**’ wherein data is collected, analyzed, and certain results or ranked results of the collection and analysis are displayed.” *Id.* Thus, the Examiner determines that the claim elements, and claim 1 as a whole, are directed to a judicial exception (i.e., an abstract idea). *Id.* at 4.

Appellant contends that the claims are not directed to an abstract idea, but instead are directed to a specific way of visualizing data by taking a user-selected set of data fields and automatically forming a plurality of modified sets of data fields, which provides a user with additional data visualization options. Reply Br. 7. Appellant makes several arguments in support of this contention. First, Appellant argues that the Examiner failed to construe the claims under the broadest reasonable interpretation standard before concluding the claims are directed to analyzing data. *Id.* at 7–8. Second, Appellant argues that the claims are not directed to the general concept of “collecting information, analyzing it, and displaying certain

⁶ Appellant argues claims 1–3 and 6–25 together. Reply Br. 7–12. Thus, we decide the appeal based on representative claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

results” because the “claims recite a technological solution for taking a user-selected set of data fields and automatically forming a plurality of *modified* sets of data fields differing from the user-selected set, so as to provide a user with additional data visualization options.” *Id.* at 9. Third, according to Appellant, *Electric Power* is inapposite here, and does not support the Examiner’s rejection, because

[t]he current claims, in addition to identifying data visualizations for a user-selected data set, *transform* the user-selected set of data fields to intelligently provide additional recommendations. This process automatically forms *modified sets* and determines whether to present data visualizations using the modified sets.

Id. at 10.

Fourth, Appellant argues that even if the claims touch on the abstract idea of “analyzing data,” “the specific techniques recited in the claims, involving ‘automatically forming a plurality of modified sets of data fields, each differing from the user selected set by a limited sequence of at most two atomic operations,’ confirm that the claims do not preempt all techniques of ‘analyzing data.’” *Id.* at 10 (citing *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299, 1312, 1315–16 (Fed. Cir. 2016)). Fifth, Appellant argues that like the claims in *Enfish*, the claims here are directed to a specific improvement to the way computers operate “by recommending alternative data visualizations based on automatic consideration of data that differs from user-selected data through limited modification.” *Id.* at 11 (citing *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016)). Appellant further argues that the claims demonstrate “a process specifically designed to achieve an improved

technological results in conventional industry practice.” *Id.* (citing *McRO*, 837 F.3d at 1316).

1. USPTO Step 2A, Prong One

Beginning with prong one of the first step of *Alice*, we must determine “whether the claims at issue are directed to one of those patent-ineligible concepts,” including the abstract ideas enumerated in the Revised Guidance. *Alice*, 573 U.S. at 217. One of the subject matter groupings identified as an abstract idea in the Revised Guidance is “mental processes—concepts performed in the human mind (including an observation, evaluation, judgment, opinion).” *See* Revised Guidance, 84 Fed. Reg. at 52, 53. The Revised Guidance explains that “mental processes” include acts that people can perform in their minds or using pen and paper, even if the claim recites that a generic computer component performs the acts. *See* 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.”) Claim 1 recites limitations (a)–(n), which are reproduced in full above. Because people can perform the functions recited in several of these limitations using their minds or pen and paper, we conclude these limitations recite the abstract idea of “mental processes.”

For example, limitation (b) recites “receiving user selection of a set of data fields from a set of data.” The function of receiving a set of data fields from a set of data can be performed by a person using a pen to write on paper the specific data fields selected by the person from an observed set of data. Limitation (c), which recites “identifying a plurality of data

visualizations that use each data field in the user-selected set of data fields,” can be performed by a person using pen and paper to draw two or more graphs, charts, tables, or other displays depicting the data in the user-selected set of data fields.

Limitations (d)–(k) relate to “automatically forming a plurality of modified sets of data fields.” Specifically, these limitations recite: (d) “automatically forming a plurality of modified sets of data fields, each differing from the user selected set by a limited sequence of at most two atomic operations, wherein each of the atomic operations is selected from the group consisting of:” (e) “removing a single data field from the user-selected set;” (f) “adding a single data field to the user-selected set;” (g) “replacing a user-selected data field with a hierarchically narrower data field from the set of data;” (h) “replacing a user-selected data field with a hierarchically broader data field from the set of data;” (i) “adding a filter to a data field that limits values retrieved to a specified subset of values;” (j) “removing a user-selected filter from a data field so that there is no limit on values retrieved for the data field;” and; (k) “modifying a filter for a data field, thereby altering values retrieved for the data field.” A person can perform the functions of “forming a plurality of modified sets of data fields” by “removing,” “adding,” or “replacing” a field, as recited in limitations (e)–(h), or by “adding,” “removing,” or “modifying” a filter, as recited in limitations (i)–(k), by using a pen to make the appropriate change to the original list of selected fields recorded on paper.

Similar to limitation (c), a person can perform the function of limitation (l) of “identifying a plurality of respective alternative data visualizations . . . using each data field in a respective one of the modified

sets of data fields” by using pen and paper to draw two or more graphs, charts, tables, or other displays depicting the data in the modified sets of data fields.

The Revised Guidance also identifies the subject matter grouping of “mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations”—as an abstract idea. *See* Revised Guidance, 84 Fed. Reg. at 52. Here, limitation (m) of claim 1 recites mathematical calculations and relationships. Limitation (m) states:

for each of the data visualizations and each of the alternative data visualizations, computing a score based on a set of ranking criteria, wherein at least one ranking criterion used to compute each score is based on visual patterns corresponding to statistical properties of data values of one or more of the data fields in the set of data.

(Emphasis added). The term “computing,” as used in limitation (m), means “to determine especially by mathematical means.” *See* WEBSTER’S NINTH NEW COLLEGIATE DICTIONARY, 271 (1985). The Specification also describes “computing” as a mathematical calculation. For example, paragraph 23 describes that for each generated data visualization option, “the computing device calculates a score based on a set of ranking criteria.” Paragraph 168 describes that for each of the data visualizations, “ranking module 226 computes (1722) a score based on a set of ranking criteria.” Limitation (m) also recites a mathematical relationship because it recites that at least one ranking criteria used to “compute each score is based on visual patterns corresponding to statistical properties of data values of one or more of the data fields.” (Emphasis added).

Claim 1 is, therefore, directed to a combination of features that we conclude are similar or analogous to claims in other cases that courts have

found are directed to an abstract idea. The Federal Circuit has found claims reciting collecting and manipulating data in a certain way, and mathematical relationships and calculations, as being directed to abstract ideas. *See, e.g., Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017) (identifying the abstract idea of collecting, displaying, and manipulating data); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (characterizing collecting information, analyzing information by steps people go through in their minds, or by mathematical algorithms, and presenting the results of collecting and analyzing information, without more, as matters within the realm of abstract ideas); *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can. (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012) (“[T]he fact that the required calculations could be performed more efficiently via a computer does not materially alter the patent eligibility of the claimed subject matter.”); *see also SAP America, Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018) (“As many cases make clear, even if a process of collecting and analyzing information is ‘limited to particular content’ or a particular ‘source,’ that limitation does not make the collection and analysis other than abstract.” (quoting *Elec. Power Grp.*, 830 F.3d at 1353, 1355 (citing cases))).

We are not persuaded by Appellant’s arguments that the claims are not directed to an abstract idea because they are directed to “automatically forming a plurality of modified sets of data fields,” as recited in limitation (d), as mere automation of an abstract idea, without improving a technical aspect, does not confer patent eligibility on that process. *See* Reply Br. 7, 9; *see Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015); *SmartGene, Inc. v. Advanced Biological Labs, S.A.*,

555 F. App'x 950, 954–55 (Fed. Cir. 2014). We also are not persuaded by Appellant's argument that the Examiner erred by failing to construe the claims under the broadest reasonable interpretation standard before concluding the claims are directed to analyzing data. *See* Reply Br. 7–8. This argument is unpersuasive because it is conclusory and unsupported as Appellant fails to identify any specific limitation of the claims that should be construed and fails to set forth any proposed construction for any of the claim terms or phrases.⁷

Based on the analysis above, we determine that the individual limitations of claim 1 recite several abstract ideas, including mental processes and mathematical concepts (functions or operations that can be performed in the human mind or with pen and paper and mathematical calculations) for ranking data visualizations. In that regard, we note that merely combining several abstract ideas does not render the combination any less abstract. *RecogniCorp, LLC v. Nintendo Co., Ltd.*, 855 F.3d 1322, 1327 (Fed. Cir. 2017) (“Adding one abstract idea . . . to another abstract idea . . . does not render the claim non-abstract.”); *see also FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1094 (Fed. Cir. 2016) (determining the pending claims were directed to a combination of abstract ideas). Accordingly, we conclude that claim 1, as a whole, recites a method of ranking data visualizations using mental processes and mathematical concepts, two of the abstract idea groupings in the Revised Guidance. *See*

⁷ In addition, as the Federal Circuit has held, “[t]here has never been a requirement for an examiner to make an on-the-record claim construction of every term in every rejected claim and to explain every possible difference between the prior art and the claimed invention in order to make out a prima facie rejection.” *In re Jung*, 637 F.3d 1356, 1363 (Fed. Cir. 2011).

Revised Guidance, 84 Fed. Reg. at 52. Thus, we also conclude that claim 1 recites an abstract idea.

2. *USPTO Step 2A, Prong Two*

Because we determine that claim 1 recites an abstract idea, we turn to prong two of the first step of the *Alice* analysis and consider whether claim 1 integrates this abstract idea into a practical application. *See* Revised Guidance, 84 Fed. Reg. at 51. In doing so, we consider whether there are any additional elements beyond the abstract idea that, individually or in combination, “integrate the [abstract idea] into a practical application, using one or more of the considerations laid out by the Supreme Court and the Federal Circuit.”⁸ Revised Guidance, 84 Fed. Reg. at 54–55.

The Examiner finds that the claims do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the only other element in the claims besides the abstract ideas is “a generic computer structure, ‘processor’, and ‘memory’ that is merely performing or applying the abstract ideas.” Ans. 4 (emphasis omitted). The Examiner also finds that Figure 1, and the Specification, show and describe that any generic computer system can be used to perform the method. *Id.* The Examiner further concludes that taken alone, and as an ordered combination, the additional elements do not improve the functioning of a computer or any other technology, but “merely provide conventional computer implementation.” *Id.* at 4–5.

⁸ We acknowledge that some of these considerations may be properly evaluated under step 2 of *Alice* (step 2B of the Revised Guidance). Solely for purposes of maintaining consistent treatment within the Office, we evaluate it under step 1 of *Alice* (step 2A, prong two, of the Revised Guidance). *See* Revised Guidance, 84 Fed. Reg. at 54–55.

As stated, Appellant argues that *Electric Power* is inapposite because the claimed process “automatically forms *modified sets* and determines whether to present data visualizations using the modified sets.” Reply Br. 10. Appellant also argues that the claims are directed to “improvements in computer capabilities,” as in *Enfish* and *McRO*, “by recommending alternative data visualizations based on automatic consideration of data that differs from user-selected data through limited modification.” *Id.* at 11.

We are not persuaded by these arguments. First, Appellant’s arguments are based on automating the process of forming modified sets of data fields, but as discussed *supra*, the mere automation of a process that can be performed by a human is not sufficient to show an improvement in computer functionality. *See Intellectual Ventures*, 792 F.3d at 1370 (holding that “merely adding computer functionality to increase the speed or efficiency of the process does not confer patent eligibility on an otherwise abstract idea”); *see also FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1095 (Fed. Cir. 2016)). Appellant has failed to demonstrate that automating the formation of modified sets of data fields as recited in limitation (d) of claim 1 requires any asserted inventive programming, requires any specialized computer hardware or other inventive computer components, i.e., a particular machine, or that the claimed invention is performed using other than generic computer components. Nor has Appellant identified any disclosure in the Specification of any inventive techniques or specialized computer components to perform the claimed operation of “automatically forming a plurality of modified sets of data fields,” as recited in limitation (d) of claim 1.

Second, we are not persuaded claim 1 is analogous or similar to the claim in *McRO* that the court determined was not directed to an abstract idea. In *McRO*, the Federal Circuit concluded that the claim, when considered as a whole, was directed to a “technological improvement over the existing, manual 3-D animation techniques” and “uses the limited rules in a process specifically designed to achieve an improved technological result in conventional industry practice.” *McRO*, 837 F.3d at 1316. Specifically, the Federal Circuit found that the claimed rules allow computers to produce accurate and realistic lip synchronization and facial expressions in animated characters that previously could only be produced by human animators; and the rules are limiting because they define morph weight sets as a function of phoneme sub-sequences. *Id.* at 1313.

Here, Appellant has not identified any analogous improvement that is attributable to the claimed invention. Although “automatically forming a plurality of modified sets of data fields” as recited in limitation (d) of claim 1 may improve the efficiency of the process of ranking data visualizations, it does not achieve an improved technological result. We see no parallel between the limiting rules described in *McRO* and automating the formation of modified sets of data fields, as recited in claim 1.

Third, the claims here are not like those found patent eligible in *Enfish*. In that case, the claims were “specifically directed to a *self-referential* table for a computer database.” *Enfish*, 822 F.3d at 1337. The claims were, therefore, “directed to a specific improvement to the way computers operate,” rather than an abstract idea implemented on a computer. *Id.* at 1336. The claims here, in contrast, are not directed to an improvement

in the way computers operate, nor has Appellant identified any technical advance or improvement or specialized computer components.

We note that limitation (n) of claim 1 recites “presenting data visualization options to the user, wherein the presented options correspond to high scoring data visualizations and high scoring alternative data visualizations.” Thus, the scores determined pursuant to limitation (m) are used in limitation (n) to determine which data visualizations and alternative data visualizations to present to the user. We determine that this “presenting” step of claim 1 is insignificant post-solution activity because it merely uses the highest scoring visualizations, as determined in limitation (m), to determine which visualizations, as determined in limitations (c) and (l), to present to the user.

Moreover, we are not persuaded by Appellant’s argument that “the specific techniques recited in the claims” confirm that the claims “do not preempt all techniques of ‘analyzing data.’” Reply Br. 10–11. “[Q]uestions on preemption are inherent in and resolved by the § 101 analysis.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) (citing *Alice*, 573 U.S. at 216). Although “preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.” *Id.*

Appellant does not specifically argue that the Examiner erred in determining that the only element in claim 1 besides the abstract ideas is a generic computer structure, having one or more processors and memory. Ans. 4. We see nothing in the claims or the Specification that suggests otherwise. Thus, we determine that the additional elements recited in claim 1 do not integrate the recited abstract ideas into a practical application. *See*

Affinity Labs of Tex., LLC v. DIRECTV, LLC, 838 F.3d 1253, 1262 (Fed. Cir. 2016) (“In this case, the claims are directed not to an improvement in cellular telephones but simply to the use of cellular telephones as tools in the aid of a process focused on an abstract idea. That is not enough to constitute patentable subject matter.”); Revised Guidance, 84 Fed. Reg. at 55 (explaining that courts have identified “merely us[ing] a computer as a tool to perform an abstract idea” as an example of when a judicial exception may not have been integrated into a practical application). Further, consistent with the Examiner’s findings, and in view of Appellant’s Specification (e.g., ¶¶ 15–17, 23), we conclude that claim 1 does not integrate the judicial exception into a practical application, and thus is directed to the judicial exception. In particular, we determine claim 1 does not recite:

- (i) an improvement to the functioning of a computer;
- (ii) an improvement to another technology or technical field;
- (iii) an application of the abstract idea with, or by use of, a particular machine;
- (iv) a transformation or reduction of a particular article to a different state or thing; or
- (v) other meaningful limitations beyond generally linking the use of the abstract idea to a particular technological environment.

See MPEP §§ 2106.05(a)–(c), (e)–(h).

3. USPTO Step 2B – Inventive Concept

Finally, we consider whether claim 1 has an inventive concept, that is, whether any additional claim elements “‘transform the nature of the claim’ into a patent-eligible application.” *Alice*, 573 U.S. at 217 (quoting *Mayo*, 566 U.S. at 78, 79). This requires us to evaluate whether the additional claim elements add “a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field” or

“simply append[] well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality.” Revised Guidance, 84 Fed. Reg. at 56.

As stated *supra*, the Examiner finds that the additional elements, taken alone and as an ordered combination, do not improve the functioning of a computer or any other technology, but “merely provide conventional computer implementation.” *Id.* at 4–5. Appellant argues that the claims amount to significantly more than the abstract idea because they “solve the technology-centric challenge of presenting highly ranked data visualizations based on automatically modifying user-selected data fields to provide additional options.” Reply Br. 12. Appellant also argues that “[t]hese techniques are neither routine nor conventional, and they solve a problem for which no non-technological analog exists.” *Id.* (citing *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257–58 (Fed. Cir. 2014)).

We are not persuaded by Appellant’s arguments. As discussed *supra*, we are not persuaded by Appellant’s argument that it is not routine or conventional to automatically modify user selected data, because merely automating a known mental process, without improving a technical aspect, does not confer patent eligibility on that process. *See Intellectual Ventures*, 792 F.3d at 1370. To the extent Appellant argues that claim 1 “improves on the technology” of ranking data visualizations, we are not persuaded because Appellant’s arguments are conclusory and unsupported by persuasive evidence and technical reasoning identifying or explaining any alleged technical advance in computer software or hardware. Moreover, we see nothing in the claims or the Specification suggesting that the “computing device having one or more processors and memory,” as recited in limitation

(a) of claim 1, is anything but a generic computer that performs well-understand, routine, and conventional activities. *See, e.g.*, Spec. ¶¶ 15–17, 23.

Appellant’s reliance on *DDR* is also unpersuasive. The method claim in *DDR* “address[ed] the problem of retaining website visitors that, if adhering to the routine, conventional functioning of Internet hyperlink protocol, would be instantly transported away from a host’s website after ‘clicking’ on an advertisement and activating a hyperlink.” *DDR Holdings*, 773 F.3d at 1257. In contrast, the problem addressed here by the method of claim 1 is ranking data visualizations based on original and modified sets of data fields, which is not “necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks,” as in *DDR*. *Id.*

Thus, considering claim 1 as a whole, we determine that the additional elements recited in claim 1 do not provide “a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field.” Revised Guidance, 84 Fed. Reg. at 56. Rather, these elements “simply append[] well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality.” *Id.* Accordingly, we agree with the Examiner that claim 1 does not have an inventive concept.

5. Conclusion

Because we determine that claim 1 is directed to an abstract idea and does not contain an inventive concept, we sustain the Examiner’s rejection of claim 1 under 35 U.S.C. § 101. For the same reasons, we sustain the Examiner’s rejection under 35 U.S.C. § 101 of independent claims 14 and

21, and dependent claims 2, 3, 6–13, 15–20, and 22–25, which are not separately argued.

II. Section 102(a)(1) Rejection

The Examiner rejects claims 1–3 and 6–25 under 35 U.S.C. § 102(a)(1) as being anticipated by Mackinlay. Final Act. 4–9. In particular, regarding the limitation of “automatically forming a plurality of modified sets of data fields, each differing from the user selected set,” as recited in claims 1, 14, and 21, the Examiner finds that Mackinlay describes that “the user may drag a new field from a list of available fields and drop the field onto a view or double click it to automatically form a new view.” Ans. 7–8 (citing ¶ 42); *see also* Final Act. 5 (citing ¶¶ 42, 45).

Appellant argues that the Examiner’s finding that “[a] user may drag a new field” does not correspond to “automatically forming a plurality of modified sets of data fields, each differing from the user selected set.” Reply Br. 13; *see also* App. Br. 16. According to Appellant, “[a] set formed by a user dragging a field would not be an automatically formed set that differs from a user selected set.” Reply Br. 13.

We are persuaded by Appellant’s arguments that the Examiner erred. “A rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference.” *See In re Buszard*, 504 F.3d 1364, 1366 (Fed. Cir. 2007) (quoting *In re Paulsen*, 30 F.3d 1475, 1478–79 (Fed. Cir. 1994)). Here, we are persuaded by Appellant’s arguments that the Examiner erred in finding Mackinlay anticipates claim 1 because the Examiner has not persuasively shown or explained how the cited portions of Mackinlay disclose, either

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expressly or inherently, “automatically forming a plurality of modified sets of data fields, each differing from the user selected set.”

Accordingly, we do not sustain the Examiner’s rejection of claims 1, 14, and 21, and dependent claims 2, 3, 6–13, 15–20, and 22–25, under 35 U.S.C. § 102(a)(1).

DECISION

We affirm the Examiner’s rejection of claims 1–3 and 6–25 under 35 U.S.C. § 101.

We reverse the Examiner’s rejection of claims 1–3 and 6–25 under 35 U.S.C. § 102(a)(1).

No period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv). *See* 37 C.F.R. § 41.50(f).

AFFIRMED