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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte NIGEL GREENWOOD

Appeal 2018-004479[1]
Application 13/849,181[2]
Technology Center 3600

Before MICHEL R. ZECHER, KENNETH G. SCHOPFER, and TARA L. HUTCHINGS, *Administrative Patent Judges*.

HUTCHINGS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 53, 54, 56, 57, 59–63, 66–81, and 86. Claims 1–52, 55, 58, 64, 65, and 82–85 were cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] Our Decision references Appellant's Appeal Brief ("Br.," filed Sept. 12, 2017), the Examiner's Answer ("Ans.," mailed Jan. 17, 2018), and the Final Office Action ("Final Act.," mailed Feb. 14, 2017).

[2] Appellant identifies Neurotech Research Pty. Ltd. as the real party in interest. Br. 2.

CLAIMED INVENTION

Appellant's claimed invention general relates to "a method and apparatus for determining a program for a subject, and to a method and apparatus for determining subject parameter values representing the effect of a condition on a subject." Spec. 1, ll. 4–6.

Claims 53, 81, and 86 are the independent claims on appeal. Claim 53, reproduced below, is illustrative of the claimed subject matter:

> 53. A method of determining a treatment program for a subject, the method being performed by a processing system, the method comprising:
>
> a) obtaining subject data, the subject data representing a condition of the subject;
>
> b) determining a partial set of system values from the subject data;
>
> c) determining a plurality of mathematical models, each mathematical model comprising one or more differential equations representing a progression of the condition, the progression being a development of the condition over time;
>
> d) determining a complete set of system values using the processing system, the subject data and the mathematical models;
>
> e) selecting one of the plurality of mathematical models in accordance with a determined complete set of system values by:
>
> i) for each mathematical model, determining a candidate set of system values in accordance with the determined partial set of system values and the differential equations;
>
> ii) comparing the candidate set of system values to at least one of the partial set of system values and predetermined thresholds; and
>
> iii) selecting one of the plurality of the mathematical model[s] in accordance with the result of the comparison; and

> f) determining a control program comprising a sequence of control variable values for the selected mathematical model by:
>
> i) determining, using the processing system, one or more solution trajectories, the solution trajectories being solutions to the differential equations and representing potential routes of progression of the condition within the subject, the solution trajectories being determined in accordance with the mathematical model and the determined candidate set of system values;
>
> ii) determining a set of target points, the target points comprising stable or otherwise desirable points for the subject equation(s);
>
> iii) defining a Liapunov function for which the gradient defines solution trajectories moving towards the target points;
>
> iv) defining constraints on the control variable values; and
>
> v) determining control variable values that result in solution trajectories travelling down the gradient of the Liapunov function in accordance with the constraints; [and]
>
> g) determining a treatment program in accordance with the control program, medication being provided to the subject based on the determined treatment program, thereby at least partially treating the subject.

Br. 19–20 (Claim Appendix).

REJECTION

Claims 53, 54, 56, 57, 59–63, 66–81, and 86 are rejected under 35 U.S.C. § 101 as judicially excepted from statutory subject matter.[3]

[3] We treat the Examiner's identification of canceled claims 58, 64, and 65 in the rejection heading as inadvertent. *See* Final Act. 2; *see also* Ans. 3 (stating the same).

ANALYSIS

Appellant argues the pending claims together. Br. 8–18. We select claim 53 as representative. The remaining claims stand or fall with claim 53. *See* 37 C.F.R. §41.37(c)(1)(iv).

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 Supreme Court, however, has long 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).

The Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (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 Corp.*, 573 U.S. at 217. The first step in that analysis is to "determine whether the claims at issue are directed to one of those patent-ineligible concepts." *Id.* If the claims are not directed to a patent-ineligible concept, e.g., an abstract idea, the inquiry ends. Otherwise, the inquiry proceeds to the second step where the elements of the claims are considered "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." *Id.* (quoting *Mayo*, 566 U.S. at 79, 78). This is "a 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 (alteration in original).

The Supreme Court acknowledged in *Mayo*, that "all 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. Therefore, the U.S. Court of Appeals for the Federal Circuit has instructed that claims are to be considered in their entirety to determine "whether their character as a whole is directed to excluded subject matter." *McRO, Inc. v. Bandai Namco Games Am., Inc.*, 837 F.3d 1299, 1312 (Fed. Cir. 2016) (quoting *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015)).

The U.S. Patent and Trademark Office (the "USPTO") published revised guidance on January 7, 2019, for use by USPTO personnel in evaluating subject matter eligibility under 35 U.S.C. § 101. That guidance "extracts and synthesizes key concepts identified by the courts as abstract ideas to explain that the abstract idea exception includes" the following three groupings: (1) mathematical concepts; (2) certain methods of organizing human activity, e.g., fundamental economic principles or practices, commercial or legal interactions; and (3) mental processes. 2019 REVISED PATENT SUBJECT MATTER ELIGIBILITY GUIDANCE, 84 Fed. Reg. 50, 52 (Jan. 7, 2019) (the "2019 Revised Guidance").[4]

Under the 2019 Revised Guidance, in determining whether a claim is patent-eligible, we first look to whether the claim recites a judicial

[4] The 2019 Revised Guidance, by its terms, applies to all applications, and to all patents resulting from applications, filed before, on, or after January 7, 2019. 84 Fed. Reg. 50.

exception, including one of the enumerated groupings of abstract ideas ("Step 2A, Prong One"). *Id.* at 54. If so, we next consider whether the claim includes additional elements, beyond the judicial exception, "that integrate the [judicial] exception into a practical application," i.e., apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception. ("Step 2A, Prong Two"). *Id.* at 54–55.

Only if the 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 "[a]dds a specific limitation or combination of limitations" that is not "well-understood, routine, conventional activity in the field" or simply "appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception" ("Step 2B"). *Id.* at 56.

With the legal principles outlined above, and the 2019 Revised Guidance in mind, we turn to the Examiner's § 101 rejection. In rejecting the pending claims under 35 U.S.C. § 101, the Examiner notified Appellant that the claims are directed to "performing a mathematical analysis of patient data to determine a treatment program" (Final Act 2) and cites to judicial precedent in determining that the claims recite an abstract idea (*id.* at 2–3). The Examiner also considered the additional elements individually and as an ordered combination, and concluded that they are not sufficient to amount to significantly more than the abstract idea. *Id.* at 3–4. Specifically, the Examiner determined that the additional elements are generically-recited computer components, e.g., processing system, that perform generic

computer functions, which are well-understood, routine, and conventional activities. *Id.*

As an initial matter, the Examiner, in our view, set forth the statutory basis of the rejection in a sufficiently articulate and informative manner as to meet the notice requirement of 35 U.S.C. § 132. In doing so, we find that the Examiner established a prima facie case of patent-ineligibility. *See In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011) (holding that the USPTO carries its procedural burden of establishing a prima facie case when its rejection satisfies the notice requirements of 35 U.S.C. § 132 by notifying the applicant of the reasons for the rejection, "together with such information and references as may be useful in judging the propriety of continuing [] prosecution"). Appellant's arguments to the contrary are unpersuasive. *See* Br. 8–10.

Judicial Exception: Step One of the Mayo/Alice Framework; *Step 2A, Prong 1 of the 2019 Revised Guidance*

We are not persuaded here by Appellant's arguments that the Examiner erred in determining that claim 1 is directed to an abstract idea because the Examiner failed to consider the claims, as a whole. Br. 10–11. The Federal Circuit has explained that "the 'directed to' inquiry applies a stage-one filter to claims, considered in light of the [S]pecification, based on whether 'their character as a whole is directed to excluded subject matter.'" *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) (quoting *Internet Patents Corp.*, 790 F.3d at 1346). Here, the Specification, including the claim language, makes clear that the claims focus on an abstract idea, and not on any improvement to computer technology and/or functionality. The Specification is entitled "CONDITION ANALYSIS." Spec. 1, l. 1. The Specification describes, in the Background section, that

the present invention relates to "determining a program for a subject," and "determining subject parameter values representing the effect of the condition on the subject." *Id.* at 1, ll. 4–6. The Specification provides that it is known to "determine medication programs to allow drugs to be administered for different medical conditions." *Id*. at 1, ll. 13–14. However, conventional medication programs "typically require[] years of experimentation" to develop and, once developed, are "fairly simplistic," requiring a patient to take a specified dose of medication at a specified time interval. *Id.* at 1, ll. 14–16.

Rather than focusing on a specific patient, conventional medication programs typically focus on the condition being treated. *Id.* at 1, ll. 18–19. Patients, however, are known to respond differently to a given medication program. *Id.* at 1, ll. 19–20. It is possible to tailor a medication program for a patient; however, such tailoring can occur only after monitoring the effect of the medication program on the patient's health, causing a detrimental effect to the patient during the observation period. *Id.* at 1, ll. 20–23.

Monitoring also has its share of challenges. For example, the effects of medication are not always readily apparent, making assessment of the effects of the program difficult. *Id.* at 1, ll. 23–25. Exacerbating this challenge, assessment is usually a subjective inquiry with no quantified absolutes. *Id.* at 1, ll. 28–29.

Finally, given the complex, non-linear progression and adaptation of many diseases over time, it is difficult to predict effectiveness of a particular medication program over the long term. *Id.* at 2, ll. 3–4. Likewise, it is difficult to predict the effect of the medication itself over the long term. *Id.* at 1, ll. 1, l. 25–2, l. 1. Appellant's invention ostensibly seeks to address

these shortcomings with prior art methods for determining a medication program for a subject.

Consistent with this disclosure, claim 53 recites a method of determining a treatment program for a subject that involves steps a) through g), reproduced below:

> a) obtaining subject data, the subject data representing a condition of the subject;
>
> b) determining a partial set of system values from the subject data;
>
> c) determining a plurality of mathematical models, each mathematical model comprising one or more differential equations representing a progression of the condition, the progression being a development of the condition over time;
>
> d) determining a complete set of system values using the processing system, the subject data and the mathematical models;
>
> e) selecting one of the plurality of mathematical models in accordance with a determined complete set of system values by:
>
> i) for each mathematical model, determining a candidate set of system values in accordance with the determined partial set of system values and the differential equations;
>
> ii) comparing the candidate set of system values to at least one of the partial set of system values and predetermined thresholds; and
>
> iii) selecting one of the plurality of the mathematical models in accordance with the
> result of the comparison; and
>
> f) determining a control program comprising a sequence of control variable values for the selected mathematical model by:
>
> i) determining, using the processing system, one or more solution trajectories, the solution trajectories being solutions to the differential equations and representing potential routes of progression of the condition within the subject, the solution trajectories being determined in

> accordance with the mathematical model and the determined candidate set of system values;
>
> ii) determining a set of target points, the target points comprising stable or otherwise desirable points for the subject equation(s);
>
> iii) defining a Liapunov function for which the gradient defines solution trajectories moving towards the target points;
>
> iv) defining constraints on the control variable values; and
>
> v) determining control variable values that result in solution trajectories travelling down the gradient of the Liapunov function in accordance with the constraints;
>
> g) determining a treatment program in accordance with the control program, medication being provided to the subject based on the determined treatment program, thereby at least partially treating the subject.

Br. 19–20 (Claim Appendix). These limitations, when given their broadest reasonable interpretation, recite rules or instructions for collecting and processing patient data to determine a treatment program to provide a medication treatment program for the patient, i.e., managing an interaction between people, which is a method of organizing human activity and, therefore, an abstract idea. *See* 2019 Revised Guidance 52. In addition, these limitations are concepts, e.g., observation, evaluation, judgment, opinion, that could be performed in the human mind with pen and paper, i.e., a mental process, which is an abstract idea. *Id.*

Practical Application: Step One of the Mayo/Alice Framework; *Step 2A, Prong 2 of the 2019 Revised Guidance*

Having concluded that claim 53 recites a judicial exception (Step 2A, Prong 1), i.e., an abstract idea, we next consider whether the claim recites any additional elements that integrate the judicial exception into a practical application (Step 2A, Prong 2). Here, the only additional element recited in

claim 53, beyond the abstract idea, is the claimed "processing system," which is used to perform steps (d) and (i). However, the processing system is described in the Specification at a high level of generality, i.e., as a generic computer component. *See, e.g.*, Spec. 13, ll. 4–7 ("the processing system may be any form of processing system suitably programmed to perform the analysis . . . [, such as] a suitably programmed computer, laptop, palm computer, or the like.").

We find no indication in the Specification, nor does Appellant direct us to any indication, that the operations recited in claim 1 require any specialized computer hardware or other inventive computer components, i.e., a particular machine, invoke any assertedly inventive programming, or are implemented using other than generic computer components to perform generic computer functions. *See DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1256 (Fed. Cir. 2014) ("[A]fter *Alice*, there can remain no doubt: recitation of generic computer limitations does not make an otherwise ineligible claim patent-eligible.").

We also find no indication in the Specification that the claimed invention effects a transformation or reduction of a particular article to a different state or thing. Nor do we find anything of record, short of attorney argument, that attributes an improvement in technology and/or a technical field to the claimed invention or that otherwise indicates that the claimed

invention integrates the abstract idea into a "practical application," as that phrase is used in the 2019 Revised Guidance.[5]

We are not persuaded by Appellant's preemption argument. *See* Br. 16–18. Although preemption is the concern that drives the exclusion of abstract ideas from patent eligible subject matter (*see Alice*, 573 U.S. at 216), it is not a separate test for patent eligibility. Instead, the proper test for determining whether a claim recites patent eligible subject matter is to apply the two-step framework that the Supreme Court delineated in *Alice* and *Mayo*. "Where a patent's claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework . . . , preemption concerns are fully addressed and made moot." *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). "[P]reemption may signal patent ineligible subject matter, [but] the absence of complete preemption does not demonstrate patent eligibility." *Id.*

Appellant argues that, similar to the claims in *Enfish* and *McRO*, claim 53 provides an improvement to computer-related technology. Br. 11–14. Specifically, Appellant alleges that prior to the claimed invention, determination of a medication program required 15 years of experimentation, e.g., collecting data on medical conditions and patient responses to medication, and the resulting program was fairly simplistic,

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[5] The 2019 Revised Guidance references to the Manual of Patent Examining Procedure § 2106.05(a)–(c) and (e) (9th ed., Revision 08-2017, Jan. 2018) ("MPEP") in describing the considerations that are indicative that an additional element or combination of elements integrates the judicial exception, e.g., the abstract idea, into a practical application. *Id.* at 55. If the recited judicial exception is integrated into a practical application, as determined under one or more of these MPEP sections, the claim is not "directed to" the judicial exception.

e.g., relying on the patient to take a specified quantity of medication at a prescribed time interval. *Id.* at 12. The prior techniques also suffered from the limited number of factors considered when determining medication regimes. *Id.* As a result, these medication programs were "impossible to be applied [across] various patients with various medical conditions" while being patient-specific and condition-specific. *Id.* The "prior technology could not provide any dynamic modeling for treatment program/medication to adapt [to] the progression of [the] patient's condition." *Id.* at 13. Appellant contends that it is readily apparent that the determination of medication programs of claim 53 is "for a great number of patients with various conditions and other variables," rendering the claim "squarely in the field of computer-related technology." *Id.* Appellant also asserts that a human could not perform these steps "quickly and efficiently enough to reflect any real-time changes or updates." *Id.*

However, there is a fundamental difference between improvements to the functionality of a computer, on the one hand, and uses of existing computers as tools to perform a particular task, on the other. In *Enfish*, for example, the Federal Circuit noted that "[s]oftware can make non-abstract improvements to computer technology[,] just as hardware improvements can." *Enfish*, 822 F.3d at 1335. "[T]he first step in the *Alice* inquiry . . . asks whether the focus of the claims is on [a] specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool." *Id.* at 1335–36. In *Enfish*, the Federal Circuit found that the "plain focus of the claims" was on an improvement to computer functionality itself, i.e., a self-referential table for a computer database, designed to improve the

way a computer carries out its basic functions of storing and retrieving data, not on a task for which a computer is used in its ordinary capacity. *Id.* at 1336.

Here, Appellant has not offered any persuasive evidence or technical reasoning that the modeling recited in claim 53 improves the functioning of a computer itself. Appellant's model may well cover a "great number of patients" with "various variables" and perform these steps "quickly and efficiently enough to reflect any real time changes." Br. 13. However, we are not persuaded that any of the features identified by Appellant reflect an improvement to the functioning of the claimed processing system, rather than an improvement to the abstract idea that is implemented using a computer as a tool. *See OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) ("[R]elying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.").

Attempting to liken claim 53 to the claims at issue in *McRO*, Appellant contends that an improvement in computer-related technology is not limited to the functionality of a computer but can be claimed "as a set of 'rules' (basically mathematical relationships) that improve computer-related technology by allowing computer performance of a function not previously performable by a computer." Br. 12 (citation and emphasis omitted). In this regard, Appellant contends that the claimed invention "combin[es] the Liapunov function with the candidate model equations, enab[ling] values required for control variables to be chosen such that the solution trajectories will flow in a particular direction through state space in an asymptotically stable manner." *Id.* at 14; *see also id.* at 13 (arguing there is innovation in

determining a treatment program by selecting a mathematical model based on system values and determining a control program based on the selected model via steps (i)–(v) under limitation (f) (e.g., using Liapunov function)).

However, in *McRO* an improvement in computer animation was realized using rules to define an output morph weight set stream as a function of phoneme sequence and time of said phoneme sequence, obviating the need of human animators to make visual and subjective determinations for the morph weight sets. *McRO*, 837 F.3d at 1306, 1313. The Federal Circuit determined that the claimed invention was directed to a "technological improvement over the existing, manual 3-D animation techniques" through the use of "limited rules in a process specifically designed to achieve an improved technological result in conventional industry practice." *Id.* at 1316.

Here, despite Appellant's assertions to the contrary, there is no analogous specific set of rules that result in an improvement to technology. Instead, claim 53 recites results-based rules for each of limitations (a) through (g), without providing sufficient technological details for how to achieve the desired results. *See Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1342 (Fed. Cir. 2017) (explaining that "[o]ur law demands more" than claim language that "provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it").

For example, limitation (c) recites "determining a plurality of mathematical models, each mathematical model comprising one or more differential equations representing a progression of the condition, the progression being a development of the condition over time." No particular manner for determining the model is provided that would indicate any

improvement in technology. The Specification also does not provide such technical details. *See, e.g.*, Spec. 14, l. 33–15, l. 9 (describing generally that several different models having one or more ordinary differential equations may be provided for each condition).

Similarly, limitation (f) recites determining a control program that broadly makes use of any known Liapunov function. Liapunov functions are known for imposing desired qualitative behavior on system trajectories. *See* Spec. 20, ll. 19–20. Appellant does not specify any particular manner of determining the Liapunov function to indicate an improvement to technology, or otherwise indicate that claim 53's application of a Liapunov function is somehow an improvement in technology. The Specification supports our understanding. *See, e.g.*, Spec. 3, ll. 22–23 ("[t]he method can include using a Liapunov function to determine the one or more control programs, although other techniques may also be used"); 20, ll. 20–22 ("it will . . . be appreciated that a number of different Liapunov functions may be selected for any [] particular scenario"); 20, ll. 24–25 ("[i]t will . . . be something of an art for a user of the system to select the most advantageous Liapunov function").

We do not see any parallel between the limiting rules described in *McRO* that result in an improvement technology and the result-based functional limitations recited in Appellant's claim 53 that may result in an improvement in the abstract idea itself. We are not persuaded that the additional limitations in Appellant's claim 53 do more than implement the abstract idea, i.e., a method of organizing human activity and mental process, on a computer, i.e., the claimed processing system.

We find no indication in the record that attributes the additional elements recited in claim 1 to an improvement in the functioning of a computer or to technology, to implementing the abstract idea with a particular machine that is integral to the claim, that effects a transformation or reduction of a particular article to a different state or thing, that applies the abstract idea in some other meaningful way beyond using a computer as a tool to perform an abstract idea, or that otherwise indicates that the claimed invention integrates the abstract idea into a "practical application," as that phrase is used in the 2019 Revised Guidance.

Inventive Concept: Step Two of the Mayo/Alice Framework; *Step 2B of the 2019 Revised Guidance*

Having determined under Step 2A of the 2019 Revised Guidance that claim 53 is directed to an abstract idea, we next consider under Step 2B, the second step of the *Mayo*/*Alice* framework, whether claim 53 adds specific limitations beyond the judicial exception that are not "well-understood, routine, conventional" in the field, or simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

As described above, the only claim elements beyond the abstract idea is the claimed generic "processing system" used to perform the recited steps of claim 53. Appellant cannot reasonably maintain, nor does Appellant, that there is a genuine issue of material fact regarding whether operation of this component is well-understood, routine, or conventional, where, as here, there is nothing in the Specification to indicate that the operations recited in claim 53 require any specialized hardware or inventive computer components or that the claimed invention is implemented using other than

generic computer components to perform generic computer functions, e.g., obtaining, determining, and selecting information.

Appellant argues that claim 53 recites significantly more than the abstract idea for the same reasons that Appellant argues that the claim reflects an improvement in technology. *See* Br. 16. We find these arguments equally unpersuasive at step two of the *Mayo*/*Alice* test. The steps of determining a plurality of models and determining a control program, for example, are part of the abstract idea itself and, thus, cannot be the inventive concept:

> It is clear from *Mayo* that the "inventive concept" cannot be the abstract idea itself, and *Berkheimer* [*v. HP, Inc.*, 881 F.3d 1360 (Fed. Cir. 2018)] . . . 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 in denial of petition for rehearing en banc). Moreover, as described above, claim 53 does not recite any unconventional manner for determining that indicates any inventive concept amounting to significantly more than the abstract idea.

To the extent Appellant argues these features are novel (*see* Br. 16), neither a finding of novelty nor a non-obviousness determination automatically leads to the conclusion that the claimed subject matter is patent-eligible. Although the second step in the *Mayo*/*Alice* framework is termed a search for an "inventive concept," the analysis is not an evaluation of novelty or 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 Corp.*, 573 U.S. at 217–18 (citation omitted).

"Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry." *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 591 (2013). A novel and non-obvious claim directed to a purely abstract idea is, nonetheless, patent-ineligible. *See Mayo*, 566 U.S. at 90; *see also Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981) ("The 'novelty' of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.").

We are not persuaded, on the present record, that the Examiner erred in rejecting independent claim 53 under 35 U.S.C. § 101. Therefore, we sustain the Examiner's 35 U.S.C. § 101 rejection of claim 53, and claims 54, 56, 57, 59–63, 66–81, and 86, which fall with claim 53.

CONCLUSION

In summary:

Claims Rejected	Basis	Affirmed	Reversed
53, 54, 56, 57, 59−63, 66–81, 86	§ 101	53, 54, 56, 57, 59–63, 66–81, 86	

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