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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAN JOHANNES GERARDUS DE VRIES,
ALEKSANDRA TESANOVIC, and GIJS GELEIJNSE

Appeal 2017-008406
Application 14/105,633[1]
Technology Center 3600

Before JOHN A. JEFFERY, JENNIFER L. McKEOWN, and
JAMES W. DEJMEK, *Administrative Patent Judges*.

DEJMEK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from a Final Rejection of claims 1–7 and 9–21. Appellants canceled claim 8. *See* Final Act. 2. We have jurisdiction over the remaining pending claims under 35 U.S.C. § 6(b).

We affirm.

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[1] Appellants identify Koninklijke Philips N.V. as the real party in interest. App. Br. 1.

STATEMENT OF THE CASE

Introduction

Appellants' disclosed and claimed invention generally relates to determining an optimal time to discharge a patient from a medical facility. *See* Spec. 2:16–18, Abstract. In a disclosed embodiment, the health score of a patient may be calculated based on samples of patient data and when provided with a plurality of samples, a health score curve can be determined for the patient. Spec. 7:29–34. Additionally, Appellants describe comparing a patient's health score curve to a reference curve to determine a recommended moment of discharge (e.g., if the difference is small, the moment of discharge may be relatively soon). Spec. 4:12–28. According to the Specification, a curve shape that indicates a patient stabilization over time, "in particular a curve . . . that saturates or converges to an end value," is suitable. Spec. 5:18–20. Thus, for a reference curve, when the curve has reached a saturation threshold, this indicates a moment in time when the reference curve has saturated enough for patient discharge. Spec. 7:10–13.

Claim 1 is representative of the subject matter on appeal and is reproduced below with the disputed limitation emphasized in *italics*:

> 1. A clinical support system comprising a processor and a non-transitory computer-readable storage medium, wherein the computer-readable storage medium contains instructions for execution by the processor, wherein the instructions cause the processor to perform the steps of:
>
> obtaining a health score curve over time of a patient, for whom a recommendation for a moment of discharge from a medical facility shall be provided,
>
> obtaining a reference curve to the health score curve, wherein said reference curve indicates a patient stabilization over time,

> computing a difference between the health score curve and said reference curve, and
>
> computing a recommended moment of discharge from the medical facility based on the difference between said health score curve and said reference curve,
>
> *wherein computing a recommended moment of discharge from the medical facility includes calculating a moment of saturation, when the reference curve has reached a saturation threshold, the saturation threshold indicating a moment in time when reference curve has saturated enough for patient discharge.*

The Examiner's Rejections

1. Claims 1–7 and 9–21 stand rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 2–3.

2. Claims 1–7 and 9–21 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Rothman et al. (US 2009/0105550 A1; Apr. 23, 2009) ("Rothman") and Rognin et al. (US 2012/0237098 A1; Sept. 20, 2012) ("Rognin"). Final Act. 5–21.

ANALYSIS[2]

Rejection under 35 U.S.C. § 101

Appellants dispute the Examiner's conclusion that the pending claims are directed to patent-ineligible subject matter. App. Br. 8–11; Reply Br. 3–7. In particular, Appellants argue the Examiner failed to consider all of the

[2] Throughout this Decision, we have considered the Appeal Brief, filed November 21, 2016 ("App. Br."); the Reply Brief, filed May 18, 2017 ("Reply Br."); the Examiner's Answer, mailed March 20, 2017 ("Ans."); and the Final Office Action, mailed July 1, 2016 ("Final Act."), from which this Appeal is taken.

claim limitations and, thus, erred in concluding the claims are directed to an abstract idea. App. Br. 9–11. Rather, Appellants assert the claims are directed to computing a moment of discharge for a patient from a medical facility (independent claims 1, 15, and 16) or generating vital sign information (independent claims 12 and 13), both of which, Appellants assert, are not abstract ideas. App. Br. 10. Further, Appellants argue the claims recite "a specific implementation of a solution to a problem." App. Br. 11. Moreover, Appellants contend the claims recite significantly more than the alleged abstract idea. App. Br. 11; Reply Br. 5–7.

The Supreme Court's two-step framework guides our analysis of patent eligibility under 35 U.S.C. § 101. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014). If a claim falls within one of the statutory categories of patent eligibility (i.e., a process, machine, manufacture, or composition of matter) then the first inquiry is whether the claim is directed to one of the judicially recognized exceptions (i.e., a law of nature, a natural phenomenon, or an abstract idea). *Alice*, 134 S. Ct. at 2355. If so, the second step is to determine whether any element, or combination of elements, amounts to significantly more than the judicial exception. *Alice*, 134 S. Ct. at 2355.

Although the independent claims each broadly fall within the statutory categories of patentability, the Examiner concludes the claims are directed to a judicially recognized exception—i.e., an abstract idea. Final Act. 2–3. In particular, the Examiner concludes the claims are directed to the abstract idea of "analyzing patient data and recommending discharge." Final Act. 2–3 (emphasis omitted). Further, the Examiner concludes the claims do not recite significantly more to transform the abstract idea into a patent eligible

application. Final Act. 3. Instead, the Examiner finds the claims recite generic computer functions/elements performing generic computer functions that are well-understood, routine, and conventional. Final Act. 3.

Instead of using a definition of an abstract idea, "the decisional mechanism courts now apply is to examine earlier cases in which a similar or parallel descriptive nature can be seen—what prior cases were about, and which way they were decided." *Amdocs (Isr.) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1294 (Fed. Cir. 2016) (citing *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016)); *accord* United States Patent and Trademark Office, JULY 2015 UPDATE: SUBJECT MATTER ELIGIBILITY 3 (July 30, 2015), https://www.uspto.gov/sites/default/files/documents/ieg-july-2015-update.pdf (instructing Examiners that "a claimed concept is not identified as an abstract idea unless it is similar to at least one concept that the courts have identified as an abstract idea."). As part of this inquiry, we must "look at the 'focus of the claimed advance over the prior art' to determine if the claim's 'character as a whole' is directed to excluded subject matter." *Affinity Labs of Tex., LLC v. DirecTV, LLC*, 838 F.3d 1253, 1257–58 (Fed. Cir. 2016) (internal citations omitted).

Our reviewing court has concluded that abstract ideas include the concepts such as the collection and analysis of information. *Elec. Power*, 830 F.3d at 1353. Additionally, the collecting of data, recognizing certain data within the collected data set, and storing the data in memory are also abstract ideas. *Content Extraction & Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343, 1347 (Fed. Cir. 2014). Similarly, "collecting, displaying, and manipulating data" is an abstract idea. *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017); *see*

also SAP Am., Inc. v. InvestPic, LLC, 890 F.3d 1016, 1021 (Fed. Cir. 2018) ("merely presenting the results of abstract processes of collecting and analyzing information . . . is abstract as an ancillary part of such collection and analysis") (internal citation and quotations omitted). Moreover, "a process of organizing information through mathematical correlations and is not tied to a specific structure or machine" is abstract. *Digitech Image Techs., LLC v. Elec. for Imaging, Inc.*, 758 F.3d 1344, 1350 (Fed. Cir. 2014).

Further, 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 (math) to another abstract idea . . . does not render the claim non-abstract."); *see also FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1093–94 (Fed. Cir. 2016) (determining the pending claims were directed to a combination of abstract ideas).

Here, Appellants' claims are generally directed to computing a recommended moment of discharge from a medical facility. This is consistent with how Appellants summarize the disclosed and claimed invention. *See* Spec. 2:17–18. To compute the recommended moment of discharge, the claims recite obtaining certain information (e.g., a health score curve of the patient and a reference curve), performing various computations on the obtained information (e.g., computing a difference), and recognizing certain information from the obtained and computed information (e.g., calculating a moment of saturation). It cannot be disputed that patients are discharged from medical facilities every day. As Appellants acknowledge in the Background section of the Specification, determining an

"optimal point in time" for discharge is critical to balance the concerns of treatment expenses, resource utilization, and the likelihood of readmission, to name but a few. Spec. 1:9–16. Appellants acknowledge it is known to use various models to predict a patient's length of stay (LOS). Spec. 1:17–28. Further, it is known to generate a health score of a patient, plot the health scores over a period of time to generate a health score curve, and for a clinician to compare the generated health score curve with a standard health score curve to determine a moment of discharge. Spec. 2:1–7.

Similar to the collection and analysis of data in *Electric Power*, the pending claims obtain (collect) health score curves (or data to generate a health score curve) and reference curves and perform an analysis on the obtained information to make a determination (i.e., a recommended time of discharge). *See Elec. Power*, 830 F.3d at 1354; *see also HealthTrio LLC v. Aetna, Inc.*, 673 F. App'x 1006 (mem.) (Fed. Cir. 2017) (affirming district court decision holding "collection of data from various sources with the goal of compiling a single, comprehensive, patient health record" is patent ineligible). Additionally, "computing a recommended moment of discharge . . . includ[ing] calculating a moment of saturation, when the reference curve has reached a saturation threshold" is similar to the type of analysis and recognition of data determined to be abstract. *See Elec. Power*, 830 F.3d at 1354 ("analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category"); *Content Extraction*, 776 F.3d at 1347; *Intellectual Ventures*, 850 F.3d at 1340.

Additional recited claim limitations detail different computations to be performed on the obtained information. Examples of these computations

include: scaling the difference between the patient's health score curve and the reference curve (claim 2); computing the difference between the two curves as a function of area between the curves (claim 3); using curve fitting techniques to obtain reference curve information (claim 4); computing a difference between the two curves over a portion of the curves (claim 5); finding local minima and maxima of the health score curve (claim 6); finding zero-crossings of a curve indicative of the difference between the health score curve and reference curve (claim 7); obtaining samples of patient data to calculate a health score further using modelling data (claims 10 and 11); and displaying at least one of the health score curve, the reference curve, and the discharge time (claim 16). None of these limitations alters the character of the claims, which is directed to an abstract idea, discussed *supra*. Additionally, here—as in *Electric Power* (*see* 830 F.3d at 1354)—the claims are distinguishable from the claims at issue in *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016) because "the focus of the claims is not on . . . an improvement in computers as tools, but on certain independently abstract ideas that use computers as tools." *Elec. Power*, 830 F.3d at 1354.

Because we determine the claims are directed to an abstract idea or combination of abstract ideas, we analyze the claims under step two of *Alice* to determine if there are additional limitations that individually, or as an ordered combination, ensure the claims amount to "significantly more" than the abstract idea. *Alice*, 134 S. Ct. at 2355 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72–73, 77–79 (2012)). The implementation of the abstract idea involved must be "more than [the] performance of 'well-understood, routine, [and] conventional activities

previously known to the industry.'" *Content Extraction*, 776 F.3d at 1347–48 (quoting *Alice*, 134 S. Ct. at 2359) (alteration in original).

Appellants generally assert the claims "set forth something significantly more," but fail to specifically identify what that is. App. Br. 11. Moreover, Appellants argue obtaining health curves and calculating a recommended moment of discharge "cannot be performed without the help of computer technology, and would require specific processes and programs to analyze the obtained data and perform calculations based thereon. Thus, 'common sense' dictates that the claims are directed to 'significantly more' than an abstract idea." Reply Br. 5.

As an initial matter, Appellants appear to conflate the two steps of the *Alice* patent eligibility framework. *See Alice*, 134 S. Ct. at 2355. As discussed above, under step one of the *Alice* framework, we conclude the claims to be directed to computing a recommended moment of discharge from a medical facility—an abstract idea of collecting, analyzing, and organizing information through mathematical correlations. *See Digitech*, 758 F.3d at 1350. Further, under step two of the *Alice* framework, we agree with the Examiner (*see* Final Act. 3; Ans. 5) that the independent claims do not recite significantly more than the abstract idea itself. Further, as discussed above, the limitations of the dependent claims do not amount to more than the abstract idea either. As the Examiner notes, the additional limitations merely recite functions that were well-known, routine, and conventional in the industry. Ans. 5; *see also* Spec. 1:8–2:14 (Background). Additionally, "relying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible." *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015).

For the reasons discussed *supra*, we are unpersuaded that the Examiner erred in rejecting under 35 U.S.C. § 101 claim 1 as being directed to patent-ineligible subject matter. Accordingly, we sustain the Examiner's rejection of claim 1. Additionally, we sustain the Examiner's rejection of independent claims 12, 13, 15, and 16, which recite similar limitations and were not argued separately. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2016). Further, we sustain the Examiner's rejection of claims 2–7, 9–11, 14, and 17–21, which depend directly or indirectly therefrom and were not argued separately. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Rejection under pre-AIA 35 U.S.C. § 103(a)

Appellants assert Rothman, as relied on by the Examiner, fails to teach "calculating a moment of saturation, when the reference curve has reached a saturation threshold, the saturation threshold indicating a moment in time when [the] reference curve has saturated enough for patient discharge." App. Br. 13–14; Reply Br. 7–8. Appellants acknowledge Rothman describes using a health score to predict a length of stay for a patient, Appellants argue Rothman does not disclose calculating a moment of saturation based on the difference between a health score curve and a reference curve. App. Br. 14. Specifically, Appellants assert Rothman "does not disclose calculating a moment of saturation at all." App. Br. 14.

In response, the Examiner finds: "A moment of saturation is a term of art in mathematics describing when two curves match. This is a standard feature of health curves." Ans. 7. Additionally, the Examiner explains Rothman teaches predicting patient discharge using curves and, therefore, "implicitly this [(patient discharge time)] is predicted using a moment of

saturation because that is when the patient curve is predicted to match a reference curve." Ans. 7.

Appellants dispute the Examiner's explanation that a moment of saturation is a term of art in mathematics. Reply Br. 7–8. Rather, as described in the Specification, Appellants contend the concept of saturation relates to when a curve converges to an end value. Reply Br. 8 (citing Spec. 5:18–19). Additionally, Appellants note the Specification provides an example health score curve in Figure 1 and describes a point on the curve ($t=t_4$) when the health score curve "flattens and starts to saturate." Reply Br. 7–8 (quoting Spec. 9:11–13, emphasis omitted). Appellants further note, there is only one curve illustrated in Figure 1—thus, challenging the Examiner's definition that the moment of saturation is when two curves match. Reply Br. 8. Thus, Appellants contend "the moment of saturation of the present claims involves more than simply determining when two curves match." Reply Br. 8.

When construing claim terminology during prosecution before the Office, claims are to be given their broadest reasonable interpretation consistent with the Specification, reading claim language in light of the Specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). However, the broadest *reasonable* interpretation differs from the broadest *possible* interpretation. *In re Smith Int'l, Inc.*, 871 F.3d 1375, 1383 (Fed. Cir. 2017). The correct inquiry in giving a claim term its broadest reasonable interpretation in light of the specification is "an interpretation that corresponds with what and how the inventor describes his invention in the specification, *i.e.*, an interpretation that is 'consistent with the

specification.'" *Smith*, 871 F.3d at 1382–83 (quoting *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997)). Additionally, we are mindful that limitations are not to be read into the claims from the Specification. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

Here, we agree with Appellants that, in light of the Specification, a moment of saturation of a curve is when the curve begins to flatten and converges to an end value. *See, e.g.*, Spec. 5:18–20. Also, the Examiner provides no evidence or support for an interpretation that a moment of saturation is a term of art in mathematics or that it is defined by when two curves match.

Rothman is generally directed to providing a health score for a patient. Rothman ¶¶ 2, 10, Title. Rothman also describes the health score may be continually plotted and displayed (i.e., a health score curve) to chart a patient's progress. Rothman ¶ 31. Rothman describes using the disclosed "Health Score arrangement" to predict an expected length of stay (ELOS) of a patient in a medical facility. Rothman ¶ 39. Further, a patient's Health Score may be compared to a standard recovery curve to determine resource needs (i.e., staffing) or discharges. Rothman ¶¶ 35, 41–42.

However, the Examiner has not identified within Rothman, nor provided persuasive technical reasoning, that Rothman teaches or reasonably suggests calculating a moment of saturation—i.e., when the standard curve (or reference curve) begins to flatten and converges to an end value—to predict a discharge time (i.e., compute a recommended moment of discharge). Instead, Rothman *suggests* the using a comparison of a patient's health score curve to a standard curve as part to predict patient discharge,

but, on this record, it is not evident that such a comparison calculates or otherwise determines a moment of saturation of the standard curve.

Because we find it dispositive that Rothman, as relied on by the Examiner, does not teach calculating a moment of saturation of the standard (reference) curve, as required by independent claims 1, 12, 13, 15, and 16, we need not address other issues raised by Appellants' arguments.

For the reasons discussed *supra*, and constrained by the record before us, we do not sustain the Examiner's rejection of independent claim 1. For similar reasons we do not sustain the Examiner's rejection of independent claims 12, 13, 15, and 16, which recite similar limitations. Additionally, we do not sustain the Examiner's rejection of claims 2–7, 9–11, 14, and 17–21, which depend directly or indirectly therefrom.

DECISION

We affirm the Examiner's decision rejecting claims 1–7 and 9–21 under 35 U.S.C. § 101.

We reverse the Examiner's decision rejecting claims 1–7 and 9–21 under pre-AIA 35 U.S.C. § 103(a).

Because we affirm at least one ground of rejection with respect to each claim on appeal, the Examiner's decision rejecting claims 1–7 and 9–21 is affirmed. *See* 37 C.F.R. § 41.50(a)(1).

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). *See* 37 C.F.R. § 41.50(f).

AFFIRMED