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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 MARK MEARS, ABHISHEK S. SONI, PAUL J. GALLEY,
DAVID L. DUKE, and STEVEN BOUSAMRA
_____

Appeal 2018-008046
Application 13/912,318
Technology Center 1600
_____

Before JOHN E. SCHNEIDER, TIMOTHY G. MAJORS, and
MICHAEL A. VALEK, *Administrative Patent Judges*.

VALEK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant[1] submits this appeal under 35 U.S.C. § 134(a) involving claims to a system and method for automatically displaying patterns in glucose and other biological monitoring data, which have been rejected as directed to patent-ineligible subject matter. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies Roche Diabetes Care, Inc. as the real party in interest. Appeal Br. 2.

STATEMENT OF THE CASE

The background section of the Specification explains that biological

monitoring data such as

> continuous glucose monitoring (CGM) can provide glucose
> data related to the amount of glucose contained within the
> blood of a person with diabetes (PwDs). The glucose data can
> be indexed to time and/or any other method suitable to correlate
> the glucose data to contextual data such as, for example, meal
> tags, time of day, day-of-the-week, and the like.

Spec. ¶ 3.

According to the Specification, identifying patterns "within the

glucose data can be useful for altering patient behavior or patient therapy."

Id. ¶ 4. Health care providers and patients "can identify patterns in the

glucose data by sorting based upon contextual data." *Id.* However, the

Specification explains such data is "often unavailable" and there may not be

"enough information available to effectively and efficiently make use of all

of the available contextual data, i.e., available data patterns can be

overlooked." *Id.* Appellant's Specification purports to address these

problems by providing "systems and methods for automatically displaying

patterns in glucose data." *Id.* ¶ 5.

Claims 1–23 are on appeal, and can be found in the Claims Appendix

of the Appeal Brief. Claims 1 and 21 are independent. Claim 1 reads as

follows:

> 1. A collection system for automatically displaying patterns in
> glucose data of one or more patients, the collection system
> comprising:
>> one or more processors;
>> an electronic display communicatively coupled to the one
> or more processors; and
>> machine readable instructions that are executed by the

one or more processors, wherein the machine readable
instructions cause the one or more processors to:

receive a glucose data signal indicative of ambulatory
glucose levels sampled over multiple days and determined from
a body fluid of the one or more patients via a glucose meter
communicatively coupled to the one or more processors;

divide the glucose data signal into segments of interest;

transform automatically, each of the segments of interest
into a set of features according to a mathematical algorithm;

cluster, automatically, the segments of interest into
groups of clustered segments according to a clustering
algorithm, wherein the segments of interest are grouped in the
groups of clustered segments based at least in part upon the set
of features and a cluster center is associated with one of the
groups of clustered segments; and

present, automatically, the cluster center of each one of
the groups of clustered segments on the electronic display,
wherein displayed cluster centers identify information regarding
patterns, sub-patterns or behaviors in the glucose data of the
one or more patients that otherwise is averaged out or obscured
when the ambulatory glucose levels sampled over multiple days
are combined into an ambulatory glucose profile or a modal day
plot.

Appeal Br. 31. Claim 21 is similar to claim 1, but is directed to a method

rather than a system. Claim 21 reads as follows:

21. A method for automatically displaying patterns in
biological monitoring data of one or more subjects, the method
comprising:

having, via machine readable instructions being executed
by one or more processors, the one or more processors
performing the processes of:

receiving biological data indicative of ambulatory
biological information sampled over multiple days and
determined from a body fluid of the one or more subjects via
glucose meter communicatively coupled to the one or more
processors, wherein the biological data comprises a time index;

dividing the biological data into segments of interest

according to the time index;

transforming, automatically, each of the segments of interest into a set of features according to a mathematical algorithm; and

clustering, automatically, the segments of interest into groups of clustered segments according to a clustering algorithm, wherein the clustering algorithm calculates a distance metric based at least in part upon the set of features on each of the segments of interest such that similar segments of interest are grouped in one of the groups of clustered segments and calculates a cluster center that is associated with one of the groups of clustered segments; and

presenting, automatically on an electronic display communicatively coupled to the one or more processors, the cluster center of each one of the groups of clustered segments, wherein displayed cluster centers identify information regarding patterns, sub-patterns or behaviors in the glucose data of the one or more subjects that otherwise is averaged out or obscured when the ambulatory glucose levels sampled over multiple days are combined into an ambulatory glucose profile or a modal day plot.

Id. at 35–36.

Appellant seeks review of Examiner's rejection of claims 1–23 under 35 U.S.C. § 101 as directed to patent-ineligible subject matter.

ANALYSIS

An invention is patent-eligible if it claims a "new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit judicial exceptions: "[l]aws of nature, natural phenomena, and abstract ideas" are not patentable. *E.g.*, *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court's two-step framework, described in *Alice*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In *Alice* step one, we ask whether the claims are directed to an exception to patent eligibility, such as an abstract idea or law of nature. *Alice*, 573 U.S. at 218. In *Alice* step two, we examine the elements of the claims to determine whether they contain an inventive concept sufficient to transform the claimed judicial exception into a patent-eligible application. *Mayo*, 566 U.S. at 71–72 (quoting *Alice*, 134 S. Ct. at 2355).

The Office published revised guidance on the application of the Supreme Court's *Alice* analysis in January 2019. USPTO's January 7, 2019 Memorandum, *2019 Revised Patent Subject Matter Eligibility Guidance,* 84 Fed. Reg. 50–57 ("Guidance"). According to the Guidance, we look to whether the claim recites: (1) a judicial exception, including certain groupings of abstract ideas such as mathematical concepts (Guidance Step 2A, prong 1); and (2) additional elements that integrate the judicial exception into a practical application (Guidance Step 2A, prong 2). Only if the claim recites a judicial exemption and does not integrate that exception into a practical application, do we then examine whether the claim adds a specific limitation beyond the judicial exception that is not "well-understood, routine, conventional" in the field (Guidance Step 2B). *See* Guidance at 54–56. An update to the Guidance was recently published, further elaborating on this analysis. USPTO's October 17, 2019 Memorandum, *October 2019 Update: Subject Matter Eligibility*, available at

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https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.
pdf ("Guidance Update").

Examiner's Findings and Conclusions

Regarding *Alice* step one (Guidance Step 2A), Examiner determines
that the "steps of dividing the data into segments of interest, transforming
each segment into a set of features according to an algorithm and clustering
the segments of interest into groups according to a clustering algorithm,
result in the instant claims being drawn to an abstract process of
mathematical relationships." Final 4. Examiner further determines that
"'analyzing information,'" to identify patterns in that information, "'by steps
people go through in their minds, or by mathematical algorithms, without
more [is] essentially [a] mental process[] within the abstract-idea category.'"
Id. at 4–5 (quoting *Electric Power Group, LLC v. Alstom S.A.,* 830 F.3d
1350, 1353 (Fed. Cir. 2016)). For *Alice* step two (Guidance Step 2B),
Examiner finds "[i]nputting data from a glucose meter" is "well-known,
routine and conventional in diabetes management technology" and that "the
inputting and outputting of data/information (display of information)" as
recited in claims 1 and 21 "are insignificant, extra-solution activities." *Id.* at
5. In the Answer, Examiner additionally finds that having processors
"communicatively coupled to a medication delivery device" or "to a mobile
phone, mobile computing device, portable digital assistant, desktop
computer, server or combinations thereof" as recited in claims 2 and 3
respectively is also "well-known, routine and conventional in diabetes

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management technology." Ans. 5–6 (citing US 2013/0041342 A1;

published Feb. 14, 2013 ("'342 Publication")).[2]

Appellant's Contentions

Appellant disputes Examiner's rejection at both *Alice* steps. *See*

Appeal Br. 9–27; Reply Br. 2–7. At step one, Appellant contends claims 1–

23 are not directed to an abstract idea, but rather "are directed to specific

applications of computer-implemented analysis systems and associated

methods" for identifying patterns in glucose data that may otherwise be

overlooked. Appeal Br. 10. Appellant urges that Examiner's comparison of

the present claims to those held ineligible in *Electric Power* is inapt because

claims 1 and 21 are directed to specific "measurement devices and

techniques, which generate new data" not the abstract idea itself. *Id.* at 13–

18 (emphasis removed); Reply Br. 4. Appellant likens the present claims to

those held patent-eligible in *Finjin* and other precedent because, in

Appellant's view, claims 1 and 21 "'recite more than a mere result. Instead

they recite specific steps . . . that accomplish the desired result. Moreover,

there is no contention that the only thing disclosed is the result and not an

inventive arrangement for accomplishing the result." *Id.* at 11 (quoting

Finjan, Inc. v. Blue Coat Sys., Inc., 879 F.3d 1299, 1305–06 (Fed. Cir.

2018)). Appellant also contends its claims are patent-eligible because their

"essence" is treating disease through the identification of patterns that are

"useful for altering patient behavior or patient therapy." *See* Reply Br. 3–4

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[2] Although similar to the rejection articulated in the Final, Examiner
designates the rejection set forth in the Answer to be a new ground of
rejection. Ans. 4. Appellant has elected to maintain the appeal by filing a
Reply Brief addressing that rejection. 37 C.F.R. § 41.39(b)(2).

(citing *Vanda Phamaceutical Inc. v. West-Ward Pharmaceuticals,* 887 F.3d 1117 (Fed. Cir. 2018); USPTO Memorandum, "Recent Subject Matter Eligibility Decision: *Vanda Pharmaceuticals Inc. v. West-Ward Pharmaceuticals*," June 7, 2018 ("Vanda Memo")). Appellant also contends Examiner erred by "utiliz[ing] an impermissibly high level of abstraction that is untethered from the actual claim language." *Id.* at 19–20.

At step two, Appellant contends Examiner failed to consider whether the claimed features "taken as a whole, amount to significantly more than an abstract idea," particularly where the recited claim features "are not well-understood, routine, and conventional in the industry, and are not characterized in the Appellant's specification as such." *Id.* at 23–24 (emphasis removed). As for the '342 Publication, Appellant asserts that it "fails to satisfy the evidentiary requirements required to substantiate a rejection under Step 2B" because "merely finding the additional element in a single patent or published application" is not sufficient according to the Office's Berkheimer Memo.[3] Reply Br. 5–6.

Claims 1 and 21

We begin our review with independent claims 1 and 21. Appellant does not argue claim 21 separately from claim 1 so the two independent claims stand or fall together. 37 C.F.R. § 41.37 (c)(1)(iv).

Applying the Supreme Court's *Alice* framework as explained in the Office's Guidance, we agree with Examiner that claims 1 and 21 are directed to patent-ineligible subject matter. The Guidance instructs us first to

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[3] USPTO Memorandum, "Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (*Berkheimer v. HP, Inc.*)," April 19, 2018 ("Berkheimer Memo").

determine whether any judicial exception to patent eligibility is recited in the claim.[4] The Guidance identifies three groupings of judicially-excepted abstract ideas: (1) mathematical concepts, including mathematical relationships, formulas and calculations, (2) certain methods of organizing human behavior, and (3) mental processes. In addition, the Guidance Update notes that claims may sometimes "recite multiple abstract ideas, which fall in the same or different groupings" and that, if possible, those limitations should be considered together for purposes of Step 2A, Prong 2 and Step 2B. Guidance Update 2. As explained below, we determine that guidance to be applicable here.

Guidance Step 2A, Prong 1

Claim 1 recites a system comprising general computer components (i.e., a processor and electronic display) with machine readable instructions that cause the processor to perform a series of processes. The first of these processes is the receipt of a glucose data signal indicative of ambulatory glucose levels determined by a glucose meter. After that data is received, claim 1 recites that the instructions cause the processor to perform the following operations: (1) "divide the glucose data signal into segments of interest;" (2) "transform, automatically, each of the segments of interest into a set of features according to a mathematical algorithm;" and (3) "cluster, automatically, the segments of interest into groups of clustered segments according to a clustering algorithm, wherein the segments of interest are

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[4] It is undisputed that Appellants' claims are directed to one of the statutory classes of patentable subject matter, *i.e.*, a method or "process," recited in 35 U.S.C. § 101. Thus, we begin our analysis at Step 2A, prong one of the Guidance.

grouped in the groups of clustered segments based at least in part upon the set of features and a cluster center is associated with one of the groups of clustered segments."

Under their broadest reasonable interpretation, these limitations (as well as the corresponding "dividing," "transforming," and "clustering" steps in claim 21) recite a mathematical concept of dividing data into pieces and grouping those pieces into different clusters based on a common feature or features. Specifically, glucose data taken over a series of days is first divided into segments, e.g., blood glucose data for a "twenty-four hour day" or an "eight hour" or "ten hour time period" (*see* Spec. ¶ 39), and mathematically transformed into a set of features. Claims 1 and 21 do not specify a particular set of features that must be obtained. According to the Specification, the set of features is "a reduced representation of the segments of interest" that may be calculated by "Principal Component Analysis (PCA), a Kernel PCA, a wavelet analysis, a frequency analysis, or any other algorithm suitable to extract meaningful features." Spec. ¶ 41. The extracted set of features is then used to group the segments into clusters of "similar segments" by means of a "clustering algorithm." Spec. 44. Again, the Specification states that "any clustering algorithm" may be used and recites a number of general mathematical functions (e.g., "Schwarz Criterion, a Bayesian Information Criterion . . . K-means, Hierarchical clustering . . . Gaussian mixture modeling") that may be employed to group the segments. *Id.* Spec. ¶ 44. Thus, under their broadest reasonable interpretation, the claimed operations parse glucose data into segments, apply a mathematical calculation (i.e., a "mathematical algorithm") to yield additional data (i.e., a "set of features"), and apply another mathematical

calculation (i.e., a "clustering algorithm") to group the segments into

"clusters" to yield additional data (i.e., "cluster centers"[5]). Accordingly, we

agree with Examiner that the "divide," "transform," and "cluster" operations

in claim 1, and the corresponding steps of the method in claim 21, recite a

mathematical concept. Final 4; Ans. 5.[6]

In addition, Appellant's Specification evidences that the process of

grouping segments of interest according to their common features can be

performed manually. The Specification describes the display of multiple

glucose data curves for different days. *See* Spec. ¶ 35; Fig. 3. According to

the Specification, "[e]ach day that exhibits similar patterns can be linked"

and that "[l]inking the data curves . . . is generally a *manual process* that can

be relatively inefficient and can add difficulty for the user." *Id.* ¶ 35

(emphasis added). Thus, in addition to reciting a mathematical concept,

claims 1 and 21 also recite an abstract mental process, i.e., grouping

segments of glucose data into clusters to more easily identify patterns in that

data. *See* Guidance Update (stating that "a claim to 'collecting information,

analyzing it, and displaying certain results of the collection and analysis,'

where the data analysis steps are recited at a high level of generality such

that they could be practically performed in the human mind" recites a mental

process) (quoting *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350,

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[5] The Specification explains that a "cluster center" is "the mean" of the
segments in a group of clustered segments. *See* Spec. ¶¶ 6, 7, and 48.
[6] We are not persuaded by Appellant's argument that Examiner erred by
applying "an impermissibly high level of abstraction" to identify the judicial
exception. *See* Appeal Br. 19. Examiner correctly identified that the
"dividing," "transforming," and "clustering" steps in the independent claims
are drawn judicial exception, that is, "an abstract process of mathematical
relationships." Final 4; Ans. 5.

1356 (Fed. Cir. 2016)). As the mathematical concept and mental process in claims 1 and 21 are closely related and recited in the same set of limitations we treat them together for the remaining steps of our analysis. *See* Guidance Update 2.

Guidance Step 2A, Prong 2

Having determined that the claims recite judicial exceptions, our analysis now turns to determining whether there are additional elements that integrate these judicial exceptions into a practical application (Guidance Step 2A, prong 2). "Integration into a practical application" requires that the claim recite an additional element or a combination of elements, that when considered individually or in combination, "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." Guidance at 54.

We begin by identifying the additional elements recited in claims 1 and 21 beyond the judicial exceptions themselves. The additional elements in claims 1 and 21 include general computer components (e.g., a "processor" coupled to an "electronic display" executing "machine readable instructions"). These elements are recited so generically that they amount to no more than an instruction to apply the judicial exceptions on a computer and thus do not integrate the exceptions into a patent-eligible, practical application. *See Alice*, 573 U.S. at 225. In addition, and beyond the judicial exceptions themselves, each claim recites an operation or step in which: (1) "a glucose data signal" or "biological data" is received (the "data receipt element"); and (2) cluster centers are presented on an electronic display (the

"presentation element"). We address these elements both individually and in combination.

Turning first to the data receipt element, we agree with Examiner that this element does not integrate the recited judicial exceptions into a practical application. According to the Specification, glucose meters, i.e., the source that data, are well-known in the art. Spec. ¶¶ 3, 24. And the "signal" received by the system in claim 1 is broadly defined in the Specification as "any waveform (e.g., electrical, optical, magnetic, mechanical or electromagnetic) . . . capable of traveling through a medium." *Id.* ¶ 20. Thus, claims 1 and 21 merely recite the ordinary receipt of data from an existing source. In this regard, the data receipt elements in claims 1 and 21 are not materially different than other insignificant extra-solution data-gathering steps that have been held insufficient to confer patent eligibility. *See Mayo*, 566 U.S. at 79 (holding that additional element of measuring metabolites of a drug administered to a patient was insignificant extra-solution activity, which was insufficient to confer patent eligibility); *In re Grams*, 888 F.2d 835, 840 (Fed. Cir. 1989) (explain that step requiring "performing clinical tests on individuals to obtain data" to be used in claimed mathematical algorithm does "not render the claim statutory"); *see also* Guidance, 55, n.31.

We also agree that the presentation element does not integrate the judicial exceptions in claims 1 and 21 into a practical application. This element requires that information calculated by application of the recited judicial exceptions, i.e., "cluster centers," be displayed to a user. Our reviewing court has repeatedly held that limitations requiring the display of data on a computer do not confer patent eligibility to an otherwise abstract

idea. *See Electric Power*, 830 F.3d at 1354 ("[M]erely presenting the results
of abstract processes of collecting and analyzing information, without more
(such as identifying a particular tool for presentation), is abstract as an
ancillary part of such collection and analysis.") (citing *Content Extraction &
Transmission LLC v. Wells Fargo Bank*, *Nat'l Ass'n*, 776 F.3d 1343, 1347
(Fed. Cir. 2014); *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed.
Cir. 2014)).

Claims 1 and 21 specify that the display presents information
concerning "patterns, sub-patterns or behaviors in the glucose data" that is
"otherwise is averaged out or obscure," but those claims do not require the
use of that information to affect any sort of therapy. Thus, claims 1 and 21
are not directed to a method of treatment and are therefore distinguishable
from the claims held patent-eligible in *Vanda*. *See Vanda Pharm. Inc. v.
West-Ward Pharm. Int'l Ltd.*, 887 F.3d 1117, 1133–36 (Fed. Cir. 2018);
Guidance Update (explaining that "method of treatment claims that
practically apply natural relationships should be considered **patent eligible**
under Step 2A") (internal quotations omitted).

The mere fact that the claims may be related to, or might be further
adapted to, the treatment of disease does not confer patent eligibility. And,
without claim limitations requiring that something be done beyond merely
presenting the gathered and mathematically processed glucose data, we do
not agree with Appellant that the "essence" of these claims is the treatment
of disease. Reply Br. 3. On these points, the claims in *Mayo* were also
related to the treatment of disease and the Supreme Court's holding
instructive. *See Mayo Collaborative Services v. Prometheus Labs., Inc.*, 566
U.S. 66, 74 (2012) ("[a] method of optimizing therapeutic efficacy for

treatment of immune-mediated gastrointestinal disorder"). But those claims, like claims 1 and 21 here, did not require anything specific to be done with the information obtained by application of the judicial exception and therefore were not sufficient "to transform unpatentable [judicial exceptions] into patentable applications" of those exceptions. *Id.* at 79 (explaining that the steps of the claimed method are not a patent-eligible application of the recited judicial exception because they "simply tell doctors to gather data from which they may draw an inference in light of the correlations").

Likewise here, the data receipt and presentation elements, considered in combination, do not integrate the recited judicial exceptions into a patent-eligible application. Claim 1 broadly recites general computer components that receive data, perform various mathematical calculations (i.e., a mathematical concept) to group data segments into clusters based on similar features (i.e., a mental process) and then present the results of that analysis to a user. Claim 21 is similar, reciting a method of receiving data, analyzing it according to these judicial exceptions, and presenting the results to a user. As such, we agree with Examiner that claims 1 and 21 are akin to the claims in *Electric Power*. *See* Final 4–5; Ans. 6–7.

Claims 1 and 21 are also similar to first claim of the data processing example (Example 46) in Appendix 1 to the Guidance Update.[7] Like claim 1 here, claim 1 of Example 46 is directed to a system comprising general computer components with executable instructions that obtain a specific type

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[7] Appendix 1 to the October 2019 Update: Subject Matter Eligibility *Life Sciences & Data Processing Examples*, available at https://www.uspto.gov/ sites/default/files/documents/peg oct_2019_app1.pdf ("Guidance Update App.").

of data, analyze it to identify certain patterns, and then present the results of that analysis on a display. Guidance Update App. 31. The Office's Guidance instructs that such as a claim does not integrate the judicial exception into a practical application. *Id.* at 30. The claims here differ from claim 1 in Example 46 in that they limit the analysis to one where data segments are grouped into clusters based on their features. But, as explained above, those processes and steps are so broadly recited in claims 1 and 21 that they encompass essentially any mathematical analysis for doing so. The fact that claims 1 and 21 do not preempt other types of analysis does not demonstrate patent eligibility. *See Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) ("[T]he absence of complete preemption does not demonstrate patent eligibility."). As our reviewing court has observed, eligibility does not turn on whether the judicial exception embodied in the claim is "sufficiently narrow." *Id*. (citing *Parker v. Flook*, 437 U.S. 584 (1978)). The pertinent inquiry is the extent to which the claim preempts the judicial exception itself. *See id*. Here, the steps of claim 1, considered as an ordered combination, broadly preempt the recited judicial exceptions.

Appellant argues that claims 1 and 21 are distinguishable from those in *Electric Power* because they "are specifically directed towards components and methods, such as measurement devices and techniques, which generate new data." Appeal Br. 13; Reply Br. 4 (emphasis removed). We disagree. Like the claims in *Electric Power*, claims 1 and 21 do not generate new data, but instead merely analyze data received from an existing source, e.g., glucose data from CGM, to present the same data in a different form (i.e., grouped into clusters). 830 F.3d at 1355. That the data presented

by application of the judicial exceptions may make it easier for a doctor or patient to identify patterns in their glucose data is insufficient to make the claims patent-eligible. *See id.* ("Merely requiring the selection and manipulation of information—to provide a 'humanly comprehensible' amount of information useful for users . . . by itself does not transform the otherwise-abstract processes of information collection and analysis").

Finjan and the similar cases cited in Appellant's briefing are distinguishable from Appellant's claims here. *See* Appeal Br. 11–12 (citing cases). The claim in *Finjan* "employ[ed] a new kind of file that enables a computer security system to do things it could not do before." *Finjan*, 879 F.3d at 1305. In contrast, the claims 1 and 21 utilize an existing data source and existing mathematical algorithms to automate a manual process. Thus, unlike the claims in *Finjan* and similar precedent, Appellant's claims are not directed to a "non-abstract improvement in computer functionality." *Id.*; *see also Enfish, LLC v. Microsoft Corp*, 822 F.3d 1327, 1338 (Fed. Cir. 2016) (distinguishing claims "directed to a specific improvement to computer functionality" from those that recite "use of an abstract mathematical formula on any general purpose computer"); *McRO Inc. v. Bandai Namco Games Am. Inc.*, 837 F.2d 1299 (Fed. Cir. 2016) (claims were directed to a patent eligible application because they went "beyond merely organizing existing information into a new form") (internal quotations omitted)). For these reasons, we determine that the judicial exceptions in claims 1 and 21 have not been integrated into a practical application.

Guidance Step 2B

Proceeding to *Alice* step 2 (*i.e.*, Step 2B as provided in the Guidance), we determine that the elements of Appellant's claims, considered both

individually and in combination, do not provide an inventive concept beyond the judicial exception itself.

Appellant argues the individual "recited claim features . . . *are* not well-understood, routine, and conventional in the industry, and are not characterized in Appellant's specification as such." Appeal Br. 24. We disagree. The Specification states that glucose meters are "well known for a person having ordinary skills in the art." Spec. ¶ 24. The background section of the Specification also indicates that "index[ing]" glucose data provided by CGM "to time and/or any other method suitable to correlate the glucose data to contextual data" was known and routine in the art. *Id.* ¶ 3. The background section of the '342 Publication cited in Examiner's Answer is consistent with the Specification in that it evidences that "self-monitoring bG meters, continuous glucose monitors, ambulatory insulin infusion pumps" were well-understood, routine, and conventional to those of skill in the art. *See* '342 Publication ¶¶ 7–8 (referring to a need for a handheld device to aggregate, manipulate and diagnostic and prescriptive data from these sources).[8] Thus, the background section of '342 Publication, like Appellant's own Specification, evidences that such medical devices "are widely prevalent or in common use in the relevant field." Berkheimer Memo. 4.

The Specification further indicates that the computer components and algorithms recited in claims 1 and 21 were well-understood, routine and

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[8] The '342 Publication does not, however, evidence that the handheld device described in the figures, summary of the invention, and detailed description was well-understood, routine, or conventional as of the filing date of Appellant's application. Accordingly, we do not rely on those aspects of the '342 Publication for our decision here.

conventional. According to the Specification, the processor and display

elements are those found in any of a number of well-understood and

conventional devices such as "a glucose meter, a medication delivery device,

a mobile phone, a portable digital assistant (PDA), a mobile computing

device such as a laptop, a tablet, or a smart phone, a desktop computer, or a

server." *Id.* ¶¶ 28–29. Likewise, the Specification states that the "machine

readable instructions" executed by those elements "may be implemented in

any conventional computer programming language." *Id.* ¶ 30. In addition,

rather than recite new techniques for transforming and grouping glucose

data, the Specification refers to known mathematical functions and

principles for use as the claimed algorithms. *See Id.* ¶¶ 41, 44.

We are also unpersuaded by Appellant's argument that these features

"taken as a whole, amount to significantly more than an abstract idea." *See*

Appeal Br. 23. As explained above, the combination of elements in claims 1

and 21 broadly recite the use of conventional computer components and

mathematical concepts to group data obtained from an existing source into

clusters with similar characteristics. In this regard, claims 1 and 21 are

similar to those held patent ineligible in *Electric Power*, because they "do

not . . . require a new source or type of information, or new techniques for

analyzing it." *Electric Power*, 830 F.3d at 1355. It may also be that the

claimed automation of the otherwise "manual process" of "linking" aspects

of daily glucose data curves is more efficient than grouping data segments

manually. *See* Spec. ¶ 8. Even so, "'claiming the improved speed or

efficiency inherent with applying the abstract idea on a computer' does not

'provide a sufficient inventive concept'" to render a claim patent-eligible.

Intellectual Ventures I LLC v. Symantec Corp., 838 F.3d 1307, 1315 (Fed.

Cir. 2016) (quoting *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1367 (Fed. Cir. 2015)). Thus, considered both individually and in combination, the elements of claims 1 and 21 represent mere instructions to apply the judicial exceptions and insignificant extra-solution activity, which do not provide an inventive concept. Accordingly, we affirm the rejection of claims 1 and 21.

Claims 2 and 3

Claims 2 and 3 depend from claim 1 and additionally recite that the claimed "one or more processors are communicatively coupled" either to a "medication delivery device" (claim 2) or to "a mobile phone, mobile computing device, a portable digital assistant, a desktop computer, a server, or combinations thereof." Examiner finds these elements are "well-known, routine and conventional in diabetes management technology," citing the '342 Publication as support for that finding. Ans. 5–6.

In addition to the arguments presented for claim 1, which we find unpersuasive as explained above, Appellant urges that the '342 Publication is insufficient "to substantiate a rejection under Step 2B of the *Alice* Framework" and "does not satisfy the evidentiary requirements set for by the USPTO in view of *Berkheimer v. HP Inc.*, 881 F.3d 1360 (Fed. Cir. 2018)." Reply Br. 7.

This argument is unpersuasive. The portion of the Berkheimer Memo Appellant relies on explains that "merely finding the additional element in a *single* patent or published application would not be sufficient to demonstrate that the additional element is well-understood, routine, conventional, unless the patent or published application demonstrates that the additional element are [sic] widely prevalent or in common use in the relevant field."

Berkheimer Memo. 4 (emphasis added). But the '342 Publication is not the only evidence of record that indicates that the additional elements of claims 2 and 3 were well-understood, routine, and conventional in the art. The Specification also evidences that both medication delivery devices such as "insulin pumps" (*see* Spec. ¶ 25) and the recited computing devices (*see id.* ¶ 28) were well-understood in the art. Indeed, Appellant's Specification merely gives the names of these devices indicating both elements "are sufficiently well-known that the specification does not need to describe the particulars of such additional elements to satisfy 35 U.S.C. § 112(a)." Berkheimer Memo. 3. In this regard, the '342 Publication is consistent with the Specification because it refers to "insulin infusion pumps" and "diabetes analysis software" in the background section, thereby evidencing that such devices were well-understood, routine, and conventional in the art. Accordingly, Examiner's reliance on the '342 Publication to support the rejection of claims 2 and 3 is consistent with the guidance provided in the Berkheimer Memo.

Claims 4–20, 22, and 23

Finally, Appellant separately argues that the rejection of dependent claims 4–20, 22, and 23 should be reversed because Examiner's Answer provides "no analysis to substantiate the rejection" of those claims. Reply Br. 7 (emphasis removed). On this point, we agree with Appellant.

The only reference to these claims in Examiner's rejection, as articulated in both the Answer and prior actions, is the following sentence:

> The dependent claims add elements in addition to the judicial exception(s) that fail to rise to the level of significantly more than the judicial exception(s) as they are either routine, well-understood and conventional in diabetes management

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technology, or are a further abstract limitation comprising mathematical/algorithmic steps or information, therefore these elements are a part of the judicial exception.

Ans. 5; Final 4. Examiner does not identify which of these two findings, i.e., that the additional elements are 1) well-understood, routine, and conventional or 2) judicial exceptions themselves, apply to each claim. Moreover, to the extent the rejection relies on a finding that the additional elements are well-understood, routine, and conventional, Examiner has not explained where that finding is supported in the record. For these reasons, we agree that Examiner has not sufficiently articulated the basis for rejecting claims 4–20, 22, and 23. *See* Guidance Update 16 (explaining that such a patent eligibility rejection should "identify the judicial exception . . . by referring to *what is recited* (i.e., set forth or described) in the claim," "*identify* any additional elements recited in the claim beyond the judicial exception," and "when the examiner has concluded that certain claim elements recite well-understood, routine, conventional activity . . . expressly support such a rejection in writing with one of the four options specified in Section III.A. of the *Berkheimer* Memorandum"). Accordingly, we reverse the rejection of claims 4–20, 22, and 23.

SUMMARY

We affirm the rejection of claims 1–3 and 21 under 35 U.S.C. § 101 as being directed to patent ineligible subject matter. We reverse the rejection of claims 4–20, 22, and 23.

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–23	101	Eligibility	1–3, 21	4–20, 22, 23

TIME PERIOD FOR RESPONSE

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

AFFIRMED-IN-PART