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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ALEXANDER ADRIANUS MARTINUS VERBEEK
and ROEL TRUYEN

Appeal 2018-000286
Application 13/818,992
Technology Center 3600

Before MURRIEL E CRAWFORD, PHILIP J. HOFFMANN, and CYNTHIA L. MURPHY, *Administrative Patent Judges*.

MURPHY, *Administrative Patent Judge*.

DECISION ON APPEAL

The Appellants[1] appeals from the Examiner's rejections of claims 1–20 under 35 U.S.C. §§ 101, 103, and 112. We sustain the Examiner's rejection under 35 U.S.C. § 101 (Rejection I); we sustain the Examiner's rejection under 35 U.S.C. § 103 (Rejection II); and we do not sustain the Examiner's rejection under 35 U.S.C. § 112 (Rejection III).[2]

Thus, we AFFIRM.

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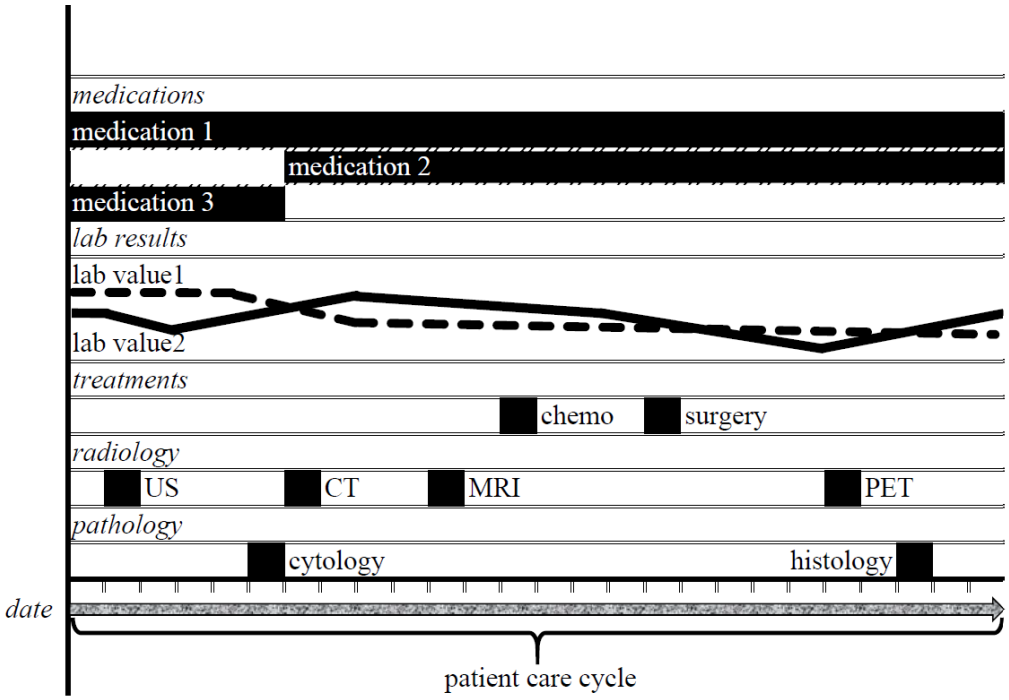
[1] "The real party in interest in the above-entitled application is Koninklijke Philips N.V., Eindhoven, NL." (Appeal Br. 2.)

[2] The Appellants appeal under 35 U.S.C. § 134; we have jurisdiction over this appeal under 35 U.S.C. § 6(b).

BACKGROUND

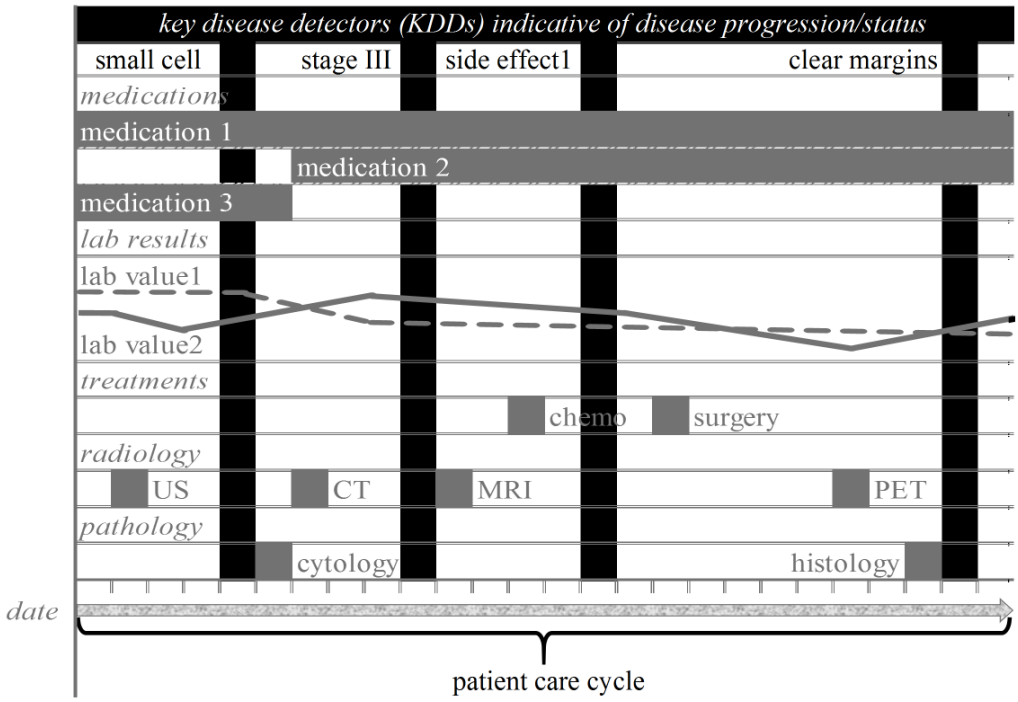
The Appellants provide a computer-implemented method for constructing and displaying a "timeline" on which patient-specific information is plotted "as a function of" the phases of the patient's care cycle for a particular disease. (Spec. 1, ll. 10–14, Fig. 4.)

A patient's medical record (e.g., a paper medical record) will contain information about the actual care received by this patient during his/her care cycle for a particular disease, such as lung cancer. (*See* Spec. 1, ll. 16–18.) Presuming that the patient's actual-care information is dated, the patient's doctor can construct a timeline (via pen and paper) plotting the patient's actual-care information. (*See id.*, Fig. 4.)



The above timeline shows the doctor when the patient's actual-care events occurred during the patient's entire care cycle, but it does not show the phases of the patient's care cycle.

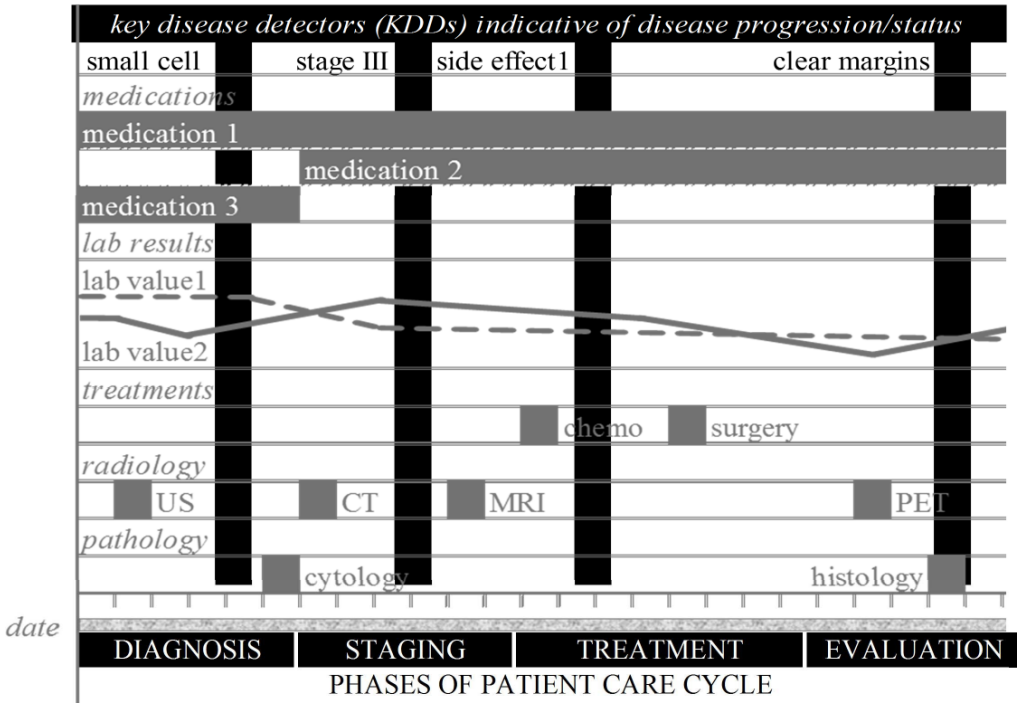
The patient's "disease progression and current state" is "typically characterized by key disease descriptors (KDDs)." (Spec. 1, ll. 23–24.) The KDDs collected for the patient can be "stored" in the patient's "medical record" so as to provide the doctor with quick "access" to this information. (*Id.* at 1, ll. 27–29.) The doctor can identify a patient's KDDs when he/she is reading the patient's medical record (e.g., the patient's paper medical record) by looking for words (e.g., cell, stage, side, margins) contained in known KDD phrases (small cell, stage III, side effect1, clear margins). (*See id,* Fig 4.) And the doctor can add (via pen) the so-identified KDDs to the patient's timeline.



The above timeline shows the doctor when each of the patient's KDDs was collected during the patient's entire care cycle, but it does not show the phase in which each KDD was collected.

The problem addressed by the Appellants is that "the clinical meaning of a KDD depends on the phase of the care cycle during which the KDD was collected," and, "in routine clinical practice this care cycle phase context has not been documented in patient care records." (Appeal Br. 5–6.) Thus, although it would be clinically valuable for the patient's timeline to show the stages of the patient's care cycle in conjunction with the patient's KDDs, the doctor might not be able to easily decipher these phases simply by reading through the patient's medical record.

The Appellants solve this problem by using clinical practice guidelines (e.g., for lung cancer) to correlate the patient's actual-care information with phases of the patient's entire care cycle. (*See* Spec. 6, ll. 21–35.) Once this correlation is made, the doctor can update the patient's timeline (e.g., with pen) to show the correlated phases (e.g. diagnosis, staging, treatment, evaluation) of the patient's care cycle. (*See id.*, Fig. 4.)



The above timeline shows the doctor that the patient's KDDs (small cell, stage III, side effect1, clear margins) correspond, respectively, to certain phases (diagnosis, staging, treatment, and evaluation) of the patient's care cycle. In other words, the above timeline shows the patient's key disease detectors as "a function of [the] patient care cycle for the patient." (Spec. 2, ll. 26–27.)

According to the Appellants, without their computer-implemented method, a doctor would have "to sift through a large collection of electronic documents to get an impression of a patient's disease and past care," and "this can be a time consuming and elaborate task." (Appeal Br. 6.)

ILLUSTRATIVE CLAIM

1. A method, comprising:

[(a)] retrieving, with a computer processor and from a first memory device, information indicative of patient care received by a patient during a plurality of phases of a single patient care cycle for the patient for a particular disease, wherein the information is in computer readable electronic format;

[(b)] retrieving, with the computer processor and from a second memory device, patterns of suggested care for the different phases of the single patient care cycle for the particular disease, wherein the patterns are in computer readable electronic format, patterns for the particular disease in different disease stages are different and patterns for the particular disease in a same phase are different;

[(c)] correlating, with the computer processor and based on the patterns, the information indicative of the patient care with the plurality of phases by comparing the patterns for a particular phase with actual care provided to the patient as determined from the retrieved information and creating a correlation mapping between the actual care and the phases based on statistics which maps the actual care and the phases;

> [(d)] identifying, with the computer processor and based on the correlation mapping, key disease descriptors from the information by using natural language processing to identify a key disease descriptor term of interest in the information, wherein a key disease descriptor indicates at least one of a status or a progression of the disease;
>
> [(e)] constructing, with the computer processor, a graphical timeline by plotting graphical indicia representing at least one of the retrieved information or the key disease descriptors as a function of the plurality of phases of the single patient care cycle; and
>
> [(f)] in response to constructing the graphical timeline, transmitting, with the computer processor, a signal that includes the graphical timeline to a display monitor which causes the display monitor to visua1ly display the constructed timeline, wherein the signal is transmitted over a communication path between the computer processor and the display monitor.

REJECTIONS

I. The Examiner rejects claims 1–20 under 35 U.S.C. § 101 as being directed to a judicial exception without significantly more. (Final Action 2–6.)

II. The Examiner rejects claims 1–20 under 35 U.S.C. § 103 as being unpatentable over Morita,[3] Rao,[4] Mok,[5] and Shogan.[6] (Final Action 10.)

III. The Examiner rejects claims 1–20 under 35 U.S.C. § 112 as failing to comply with the written description requirement. (Final Action 6.)

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[3] Morita et al., US 2008/0208631 A1, published August 28, 2008.

[4] Rao et al., US 2003/0120458 A1, published June 23, 2003.

[5] Mok et al., US 2009/0271218 A1, published October 29, 2009.

[6] Shogan, US 2008/0221923 A1, published September 11, 2008.

ANALYSIS

Independent claim 1 sets forth a computer-implemented method in which "a graphic timeline" is constructed "by plotting graphical indicia" representing a patient's actual-care information or key disease descriptors "as a function of a plurality of phases of [a] single patient care cycle." (Appeal Br., Claims App.) The method comprises: information "retrieving" steps (a) and (b), an information "correlating" step (c), an information "identifying" step (d); an information "constructing" step (e); and an information "transmitting" step (f). (*Id.*)

Rejection I – 35 U.S.C. § 101

The Examiner determines that independent claim 1 is "directed to" an abstract idea related to its information-handling operations, and the Examiner determines that independent claim 1 does not contain "additional elements that are sufficient to amount to "significantly more" than this abstract idea. (Final Action 2, 4.) More succinctly, the Examiner concludes that independent claim 1 fails the *Alice* test for patent eligibility.[7]

The 2019 Revised Patent Subject Matter Eligibility Guidance ("2019 Guidance") provides us with specific steps for discerning whether a claim passes the *Alice* test for patent eligibility. (*See* Federal Register Vol. 84,

[7] In *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208 (2014), the Supreme Court provided a two-step test to guard against an attempt to patent purely an abstract idea. (*Alice*, 573 U.S. at 217–18.) In the first step of the *Alice* Test for patent eligibility, a determination is made as to whether the claim at issue is "directed to" an abstract idea. (*Id.* at 218.) In the second step of the *Alice* test, a determination is made as to whether additional elements transform the claim into something "significantly more" than the abstract idea. (*Id.* at 215.)

No. 4, 50–57.) These steps are "[i]n accordance with judicial precedent" and consist of a two-pronged Step 2A and a Step 2B. (*Id.* at 52.)

In the first prong of Step 2A (Prong One), we evaluate whether the claim recites a judicial exception, such as an abstract idea. (Federal Register Vol. 84, No. 4 at 54.) The 2019 Guidance "extracts and synthesizes key concepts identified by the courts as abstract ideas," and these concepts include "[m]ental processes." (*Id.* at 52.) A mental process is a concept that can be "performed in the human mind," such as "observation, evaluation, judgment, opinion." (*Id.* at 52.) For example, when steps can be practically performed by a person mentally, or via pen and paper, these steps recite a "mental process." (*See id.*)[8]

Step (a) recites retrieving "information indicative of patient care received by a patient during a plurality of phases of a single patient care cycle for the patient for a particular disease." (Appeal Br., Claims App.) This information-retrieving step could be performed by a doctor, in his/her mind, by reading through a patient's medical record (e.g., the patient's paper medical record).

Step (b) recites retrieving "patterns of suggested care for the different phases of the single patient care cycle for the particular disease." (Appeal Br., Claims App.) This information-retrieving step could be performed by a doctor, with his/her mind, reading clinical standard guidelines which "recommend tests and treatment[s]" (i.e., suggested patterns of care) for

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[8] *See Versata Dev. Grp.* v. *SAP Am., Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015) ("Courts have examined claims that required the use of a computer and still found that the underlying, patent-ineligible invention could be performed via pen and paper or in a person's mind.").

each "phase of the patient's care cycle." (Spec. 1, ll. 34–35.) And "[c]linical practice guidelines typically are organized" so that "the pattern of care recommended for a phase in the care cycle depends on prior established disease characteristics." (Spec. 6, ll. 24–26.)[9]

Step (c) recites correlating, "based on the patterns, the information indicative of the patient care with the plurality of phases." (Appeal Br., Claims App.) A doctor could correlate, in his/her mind, the patient's actual-care information (retrieved from the patient's medical record) with respective phases of the patient care cycle for the particular disease. The doctor could do this correlation by comparing the suggested-care-patterns information in the clinical practice guidelines with the patient's actual-care information to find the "best possible fit." (Spec. 5, l. 16.) As the clinical practice guidelines provide "standards of care for each of the subsequent phases of a care cycle of a patient" (*id.* at 1, ll. 32–33), the doctor's "best possible fit" (*id.* at 5, l. 16) is mapped to the corresponding specific phase listed in the guidelines.[10]

Step (d) recites identifying "key disease descriptors from the information" to identify "a key disease descriptor term of interest in the [patient's actual-care] information." (Appeal Br., Claims App.) A doctor

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[9] Thus, when the doctor reads clinical standard guidelines, "patterns for the particular disease in different disease stages are different and patterns for the particular disease in a same phase are different." (Appeal Br., Claims App.)

[10] Thus, the doctor could do this correlation, in his/her mind, "by comparing the patterns for a particular phase with actual care provided to the patient as determined from the retrieved information and creating a correlation mapping between the actual care and the phases based on statistics which maps the actual care and the phases." (Appeal Br., Claims App.)

could identify, in his/her mind, a patient's KDDs by reading through the patient's medical record and looking for words associated with known KDDs (e.g., cell, status, margin).[11] In clinical practice guidelines, "the pattern of care recommended for a phase in the care cycle depends on prior established disease characteristics" (Spec. 1, ll. 23–24, 6, ll. 24–26), and the doctor would be especially interested in the KDDs listed by the clinical practice guidelines for the mapped-to phase of the patient's care cycle.[12]

Step (e) recites constructing "a graphical timeline by plotting graphical indicia representing at least one of the retrieved information or the key disease descriptors as a function of the plurality of phases of the single patient care cycle." (Appeal Br., Claims App.) The doctor could, via pen and paper, construct a graphical timeline by plotting the patient's actual-care information, and/or the patient's identified KDDs, for the patient's entire care cycle. As the doctor has already mapped, in step (c), time periods in the patient's entire care cycle with phases of this care cycle, the doctor could add (via pen) these mapped-to phases to the timeline.

Step (f) recites transmitting information "that includes the graphical timeline" to "visua1ly display the constructed timeline." (Appeal Br., Claims App.) The constructed timeline can "provide a physician not yet

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[11] Thus, the doctor would be using "language" to "identify a key disease descriptor term of interest in the information." (Appeal Br., Claims App.) Also, the patient's "disease progression and current state" would be "characterized by key disease descriptors" (Spec. 1, ll. 23–24), and, thus, a KDD identified by the doctor would indicate "at least one of a status or progression of the disease." (Appeal Br., Claims App.).

[12] Thus, the doctor's identification of a KDD would be "based on the correlation mapping." (Appeal Br., Claims App.)

familiar with a patient" with "a relatively quick understanding of the condition of the patient." (Spec. 7, ll. 20–21.) As such, the doctor would show (i.e., visually display) the constructed timeline to this not-yet-familiar physician to get him/her up to speed on the patient's condition.[13]

Consequently, under Prong One of Step 2A, independent claim 1 recites a mental process, which is an abstract idea; and we proceed to the second prong of Step 2A (Prong Two).

In Prong Two, we evaluate whether the claim contains additional elements that "integrate" the abstract idea "into a practical application." (Federal Register, Vol. 84, No. 4 at 54.) "Additional elements" are "claim features, limitations, and/or steps that are recited in the claim beyond the identified judicial exception." (*Id.* at 55, n. 24.) As such, the "additional elements" in independent claim 1 can only be limitations that are beyond the above-discussed information-handling limitations.

Here, independent claim 1 does recite limitations beyond the abstract idea. Specifically, independent claim 1 recites that the information-handling operations in steps (a)–(f) are done by the same "computer processor." (Appeal Br., Claims App.) Independent claim 1 recites that the information retrieved in steps (a) and (b) is in "computer readable format" and is from "a first memory device" and "a second memory device," respectively. (*Id.*) Independent claim 1 recites that the information transmitted in step (f) is a "signal" that is transmitted to a "display monitor" and "over a communication path between the computer processor and the display

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[13] As the doctor would only do this once the timeline is constructed, this transmission would be "in response to constructing the graphical timeline." (Appeal Br., Claims App.)

monitor." (*Id.*) However, these computer-centric limitations do not create additional elements that integrate the recited mental process into a practical application. Rather, these computer-related limitations do nothing more than "use[] a computer as a tool to perform [this] abstract idea." (Federal Register, Vol. 84, No. 4 at 55.)

Consequently, under Prong Two of Step 2A, independent claim 1's additional elements do not integrate the recited mental process into a practical application, and we proceed to Step 2B.[14]

In Step 2B, we evaluate whether "additional elements recited in the claim[] provide 'significantly more' than the recited judicial exception." (Federal Register, Vol. 84, No. 4 at 56.) More particularly, we evaluate whether these additional elements "add[] a specific limitation or combination of limitations that are not well-understood, routine, conventional activity," or whether they instead "simply append[] well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception." (*Id.*) Here, the Specification describes (at a high level of generality), the Appellants' computer components, the functions preformed thereby, and their arrangement as well-understood, routine, and/or conventional. (*See e.g.*, Spec. 3, ll. 16–17, 4, ll. 14–15, 9, ll. 15–17, 5, l. 26, Figs. 1–4.)

Consequently, under Step 2B, independent claim 1's additional elements do not "amount to significantly more than the [judicial] exception itself, and the claim is ineligible." (Federal Register Vol. 84, No. 4 at 56.)

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[14] In other words, we agree with the Examiner that independent claim 1 "is directed" to an abstract. (Final Action 2.)

Put another way, we agree with the Examiner's determination that claim 1 "is directed" to an abstract idea; and we agree with the Examiner that additional elements in claim 1 do not transform it into something "significantly more" than an abstract idea. (Final Action 2, 4.) We therefore agree with the Examiner's conclusion that independent claim 1 fails the *Alice* test for patent eligibility.

The Appellants argue that independent claim 1 "is directed to a set of 'rules' that improve computer-related technology," and, therefore, comparable to the claims reviewed by the Federal Circuit in *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016). (Appeal Br. 6.)

We are not persuaded by this argument because it overlooks the Federal Circuit's scrutiny of the sophistication of the rules in the *McRO* claims. (*See McRO,* 837 F. 3d at 1311.) For example, the Federal Circuit specifically distinguished "rules that only evaluate individual phonemes" from the claimed rules that required the evaluation of "sub-sequences," the generation of "transition parameters," and the application of "transition parameters to create a final morph weight set." (*Id.* at 1311, 1314.)

Insofar as the Specification discloses a set of rules for constructing the timeline (*see e.g.*, Spec. 6, ll. 29–34, 7, ll. 6–12; *see also* Appeal Br. 7–8 Reply Br. 5), these so-called rules do not rise to the same level of sophistication as the *McRO* morph-weight rules. And, as acknowledged by the Appellants, despite the perfunctory description of these rules in the Specification, a person of ordinary skill would "know how to program the disclosed computer to create the claimed time line." (Reply Br. 4–5.)

The Appellants argue that the method of independent claim 1 "solves the problem of providing a comprehensive integrated view of the patient disease progression together with the past care the patient received," and thus is "not directed to an abstract idea." (Appeal Br. 6.) However, this problem resides in the way information is presented to a doctor, and, as demonstrated above, the doctor can solve this information-presentation problem with a timeline constructed via pen and paper.

We do not necessarily disagree that the construction of the patient's timeline could be done faster by a general-purpose computer than by a doctor via pen and paper. Indeed, the claimed method may save the doctor from the "time consuming and elaborate task" of "sift[ing] through a large collection of electronic documents to get an impression of a patient's disease and past care." (Spec. 2, ll. 12–14.) However, a general-purpose computer, simply by virtue of it being computer, has the capability to perform pen-and-paper tasks faster than human beings. Here, any increase in the speed of the timeline's construction comes from this innate capability of the disclosed (general-purpose) computer.[15]

Thus, we sustain the Examiner's rejection of independent claim 1 under 35 U.S.C. § 101. Claims 1–20 are argued as a group for this rejection, and so claims 2–20 fall with independent claim 1.[16]

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[15] *See Fairwarning IP, LLC v. Iatric Systems, Inc.*, 839 F.3d. 1089, 1095 (Fed. Cir. 2016) ("While the claimed system and method certainly purport to accelerate the process of analyzing audit log data, the speed increase comes from the capabilities of a general-purpose computer, rather than the patented method itself.").

[16] "When multiple claims subject to the same ground of rejection are argued as a group or subgroup," we may "select a single claim from the group" and

Rejection II – 35 U.S.C. § 103

The Examiner concludes that the method set forth in independent claim 1 would have been obvious over the combined teachings of Morita, Rao, Mok, and Shogan. (*See* Final Action 10.) The Examiner explains that it would have been obvious to combine the teachings of these prior references in order to "produce a coherent and concise picture of the progression of the patient's state over time," "understand and maintain a certain level of quality care," and "align" items of clinical relevance with "the healthcare workflow." (*Id.* at 14–16; *see also* Rao ¶ 36; Mok ¶ 23; Shogan ¶ 51.)

The Appellants argue that the prior art does not disclose the correlation required by independent claim 1 because the prior art "aggregates data without correlating actual care and patterns of care." (Appeal Br. 10.) According to the Appellants, "Morita disclose aggregating a patient's medical data/events and displaying the aggregated medical data/events as a function of the date/time on which medical data was obtained and the medical events occurred, and filtering to reduce the amount of information displayed on the timeline," and "Rao extracts clinical information from a computerized patient record combines this information, draws inferences therefrom, and stores the mined data." (*Id.* at 11.)

We are not persuaded by the Appellants' arguments because they do not accurately portray the knowledge one of ordinary skill in the art would glean from the teachings of the prior art references and the combinations one

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decide the appeal on "the basis of the selected claim alone." (37 CFR § 41.37(c)(1)(iv).)

of ordinary skill would make once armed with these teachings. For example, although Morita discloses that a timeline (containing the patient's actual-care information) can be filtered to reduce clutter in the displayed information, this filtering can be done so that only the patient's actual-care information associated with a "selected medical problem" is shown on the timeline. (Morita ¶ 109.) Thus, one of ordinary skill in the art would know that Morita's timeline would contain a patient's actual-care information during the patient's multi-phase care cycle for a particular disease.

Also, although Rao teaches storing extracted data from a patient's actual care record, Rao also teaches the importance of using the extracted data "to produce a coherent and concise picture of the progression of the patient's state over time," via the patient's "state sequence." (Rao ¶ 36.) As the purpose of Morita's timeline is to provide "a single view" of a patient's relevant actual-care information (Morita ¶ 11), one of ordinary skill in the art would know that adding extracted data to Morita's timeline would produce a more coherent and concise picture of the patient's progression of the disease.

Insofar one of ordinary skill in the art would not glean form Morita and Rao that a patient's actual-care information could be correlated with patterns of suggested care and/or that the patient's timeline could show different phases of the patient care cycle, this knowledge could be gleaned from Mok and Shogan. Mok teaches that a patient's actual-care information can be correlated with suggested-care guidelines (*see* Mok ¶ 23); and Shogan teaches that, in a timeline containing a patient's actual-care information, the patient's "disease stage" should be "in alignment with" the healthcare workflow. (Shogan ¶ 51.).

Thus, we sustain the Examiner's rejection of independent claim 1 under 35 U.S.C. § 103. Claims 1–20 are argued as a group for this rejection, and so claims 2–20 fall with independent claim 1.[17]

Rejection III – 35 U.S.C. § 112

The Examiner determines that the Specification does not describe independent claim 1's information-handling steps "in such a way as to reasonably convey" that, at the time of the application was filed, the Appellants "had possession of the claimed invention." (Final Action 6.) The Examiner's primary concern appears to be that the Specification "provides no guidance how to program a computer" to perform the information-correlating and information-identifying steps required by independent claim 1. (*Id.* at 7.)

We agree with the Appellants that the Specification sufficiently shows that they had possession of the claimed invention at the time the application was filed. (*See* Appeal Br. 7–8.)

The Specification conveys that word-to-word correspondence in respective information documents can be achieved via "free text, natural language processing." (Spec. 5, ll. 8–9.) The correlation required by step (c) is merely a correspondence of words contained in the patient's actual-care information with words contained in clinical standard guidelines. (*See* id. at 5, ll. 12–17.) Likewise, the identification required by step (d) is merely a correspondence of words contained in the patient's actual-care

[17] "When multiple claims subject to the same ground of rejection are argued as a group or subgroup," we may "select a single claim from the group" and decide the appeal on "the basis of the selected claim alone." (37 CFR § 41.37(c)(1)(iv).)

information with words known to be contained in key disease descriptors. (*See* id. at 5, ll. 18–25.) The Specification does, therefore, provide enough guidance for one of ordinary skill in the art to program a general-purpose computer to perform the information-correlating and information-identifying steps required by independent claim 1.

Thus, we do not sustain the Examiner's rejection of claims 1–20 under 35 U.S.C. § 112.

DECISION

We AFFIRM the Examiner's rejection of claims 1–20 under 35 U.S.C. § 101.

We AFFIRM the Examiner's rejection of claims 1–20 under 35 U.S.C. § 103.

We REVERSE the Examiner's rejection of claims 1–20 under 35 U.S.C. § 112.

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