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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SHAH NIGAM,
LEPENDU PAEA,
BAUER-MEHREN ANNA,
and IYER SRINIVASAN

Appeal 2017-008102
Application 13/831,934¹
Technology Center 3600

Before ANTON W. FETTING, BRUCE T. WIEDER, and
MATTHEW S. MEYERS, *Administrative Patent Judges*.

FETTING, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ According to Appellants, the real party in interest is The Board of Trustees of the Leland Stanford Junior University (Appeal Br. 3).

STATEMENT OF THE CASE²

Shah Nigam, LePendu Paea, Bauer-Mehren Anna, and Iyer Srinivasan (Appellants) seek review under 35 U.S.C. § 134 of a final rejection of claims 1 and 22–41³, the only claims pending in the application on appeal. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

The Appellants invented a way of analyzing the contents of digital medical records. Specification para. 2.

An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below (bracketed matter and some paragraphing added).

1. A computer-implemented method for analyzing digital medical records, comprising:

[1] receiving a set of clinical notes data

describing patient encounters for a plurality of patients using a computer system;

[2] annotating the set clinical notes data

using the computer system according to at least one ontology of biomedical concepts,

wherein annotating the set of clinical notes data comprises:

² Our decision will make reference to the Appellants’ Appeal Brief (“App. Br.,” filed November 11, 2016) and Reply Brief (“Reply Br.,” filed May 8, 2017), and the Examiner’s Answer (“Ans.,” mailed March 7, 2017), and Final Action (“Final Act.,” mailed February 10, 2016).

³ Claims 1 and 22–41 are pending. Final Act. 1. The Examiner states that “[c]laims 1 and 22–41 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 101 set forth in this Office Action.” *Id.* at 10. Therefore, we treat the statement that “[c]laims 1 and 22–40 are rejected under 35 U.S.C. 101” (*id.* at 3) as a typographical error.

[2.1] chronologically scanning the annotated set of clinical notes data using the computer system;

[2.2] recording timestamps for mentions of biomedical concepts in each of the annotated timelines using the computer system;

and

[2.3] defining index timepoints for a particular treatment for patients using the recorded timestamps and the computer system;

[3] grouping the annotated clinical notes data for the plurality of patients using the computer system into two groups:

[[3.]1) a pre-timepoint set of annotated clinical notes data with biomedical concepts that have recorded timestamps prior to the index timepoint for each of the plurality of patients

and

[[3.]2) a post-timepoint set of annotated clinical notes data with biomedical concepts that have recorded timestamps prior the [sic] index timepoint for each of the plurality of patients;

[4] identifying a case group of patients

based upon the pre-timepoint set of annotated clinical notes data that indicate receipt of a particular treatment using the computer system:

[5] constructing a patient-feature matrix

from the pre-timepoint set of annotated clinical notes data

indicating patients and the presences of biomedical concepts in the annotated clinical notes data for the patients using the computer system;

[6] identifying a control group of patients

based on a computation of pairwise patient similarity scores computed utilizing features within the annotated clinical notes data of the case group of patients and each

other patient utilizing the patient-feature matrix and the computer system;

[7] separately computing co-occurrence statistics

for the biomedical concepts in

the annotated clinical notes data of the case group of patients

and

the control group of patients

using the computer system;

[8] constructing a case concept-concept association network

based on the computed co-occurrence statistics for the case group of patients using the computer system;

[9] constructing a control concept-concept association network

based on the computed co-occurrence statistics for the control group of patients using the computer system;

and

[10] comparing the case concept-concept association network and the control concept-concept association network

in order to quantify risks of a chosen outcome related to the particular treatment using the computer system.

Claims 1 and 22–41 stand rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

The rejection of claims 1 and 22–41 is affirmed.

ISSUES

The issues of eligible subject matter turn primarily on whether the claims recite more than abstract conceptual advice of results desired.

ANALYSIS

CLAIM CONSTRUCTION

We initially construe the undefined term “timepoint” recited in the claims. The word itself is a combination of the words “time” and “point” and so appear to be equivalent to a time point, which is a point in time. All recitations of “timepoint” in the claims either use the word as a noun with the word “index” preceding it, as in “index timepoint,” or as an adjective modifying the word “set” as in “pre-timepoint set” and “post-timepoint set.” The usage therefore suggests that a timepoint is a point in time used as some index to separate sets of data into sets prior to the point in time and sets after the point in time. Specification paragraph 213 describes the one example of a timepoint in the drawings as reference 1402 in Figure 14, which is a point along a time line that separates the ranges of time before and after that point. Accordingly we construe a timepoint as a point in time to separate sets of data into sets prior to the point in time and sets after the point in time.

A concept-concept association network is lexicographically defined as nodes in the network that represent the clinical concepts (drugs, diseases, devices, and procedures) and the edges that represent their associations. Spec. para. 220. Thus a concept-concept association network is a data collection metaphorically representing a graph or mesh of nodes and edges and is not a network of computers.

Claim 1 recites “recording timestamps for mentions of biomedical concepts in each of the annotated timelines.” Claim 1 does not recite such annotated timelines, so this is an ambiguous reference. We take this to refer to data resulting from the preceding step of “chronologically scanning the annotated set of clinical notes data.”

Claims 1 and 22–41 rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

STEP 1⁴

Claim 1, as a method claim, nominally recites one of the enumerated categories of eligible subject matter in 35 U.S.C. § 101. The issue before us is whether it is directed to a judicial exception without significantly more.

STEP 2

The Supreme Court

set forth a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts. First, . . . determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, “[w]hat else is there in the claims before us? To answer that question, . . . consider the elements of each claim both individually and “as an ordered combination” to determine whether the additional elements “transform the nature of the claim” into a patent-eligible application. [The Court] described step two of this analysis as 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.”

Alice Corp., Pty. Ltd. v. CLS Bank Intl, 573 U.S. 208, 217–18 (2014) (citations omitted) (citing *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012)). To perform this test, we must first determine what the claims are directed to. This begins by determining

⁴ For continuity of analysis, we adopt the steps nomenclature from 2019 Revised Patent Subject Matter Eligibility Guidance, 84 FR 50 (Jan. 7, 2019) (“Revised Guidance”).

whether the claims recite one of the judicial exceptions (a law of nature, a natural phenomenon, or an abstract idea). Then, if claims recite a judicial exception, determining whether the claims at issue are directed to the recited judicial exception, or whether the recited judicial exception is integrated into a practical application of that exception, i.e., that the claims “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.” Revised Guidance at 54. If the claims are directed to a judicial exception, then finally determining whether the claims provide an inventive concept because the additional elements recited in the claims provide significantly more than the recited judicial exception.

STEP 2A Prong 1

At a high level, and for our preliminary analysis, we note that method claim 1 recites receiving and annotating notes data, grouping the data into two groups, identifying a case group of patients, constructing a data matrix, identifying a control group, computing co-occurrence statistics, constructing a case and a control case-concept association network, and comparing the networks. Annotating data is updating data. Grouping, identifying and constructing a matrix of data are rudimentary forms of generic analysis. Computing statistics is a form of mathematical algorithmic analysis. Constructing and comparing metaphoric network graphs are similarly generic analysis. Thus, claim 1 recites receiving, updating, and analyzing data. None of the limitations recite technological implementation details for any of these steps, but instead recite only results desired by any and all possible means.

From this we see that claim 1 does not recite the judicial exceptions of either natural phenomena or laws of nature.

Under Supreme Court precedent, claims directed purely to an abstract idea are patent in-eligible. As set forth in the Revised Guidance, which extracts and synthesizes key concepts identified by the courts, abstract ideas include (1) mathematical concepts⁵, (2) certain methods of organizing human activity⁶, and (3) mental processes⁷. Among those certain methods of mathematical concepts listed in the Revised Guidance are mathematical algorithms. Like those concepts, claim 1 recites the concept of calculating mathematical risk estimates. Specifically, claim 1 recites operations that would ordinarily take place in advising one to compute risk statistics by comparing data in case and control groups in turn computed from co-occurrence statistics from clinical notes data that are separated by a point in time from case and control sets of patients. The advice to compute risk statistics by comparing data in case and control groups in turn computed from co-occurrence statistics from clinical notes data that are separated by a point in time from case and control sets of patients involves computing risk

⁵ See, e.g., *Gottschalk v. Benson*, 409 U.S. 63, 71–72 (1972); *Bilski v. Kappos*, 561 U.S. 593, 611 (2010); *Mackay Radio & Telegraph Co. v. Radio Corp. of Am.*, 306 U.S. 86, 94 (1939); *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1163 (Fed. Cir. 2018).

⁶ See, e.g., *Bilski*, 561 U.S. at 628; *Alice*, 573 U.S. at 219-20; *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014); *Smart Sys. Innovations, LLC v. Chicago Transit Auth.*, 873 F.3d 1364, 1383 (Fed. Cir. 2017); *In re Marco Guldenaar Holding B.V.*, 911 F.3d 1157, 1160–61 (Fed. Cir. 2018).

⁷ See, e.g., *Benson*, 409 U.S. at 67; *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371–72 (Fed. Cir. 2011); *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1318 (Fed. Cir. 2016).

statistics, which is a mathematical calculation of risk, and computing co-occurrence statistics, which is an act ordinarily performed in the stream of statistical analysis. For example, claim 1 recites “quantify risks of a chosen outcome,” which is an activity that would take place whenever one is computing risk statistics. Similarly, claim 1 recites “computing “co-occurrence statistics,” which are also characteristics of mathematical statistics computations.

The Examiner determines the claims to be directed to comparing patient groups to quantify the risk of outcomes related to adverse multi-drug and/or treatment interaction using data from annotated patient medical records to determine the patient groups. Ans. 4.

The preamble to claim 1 recites that it is a method for analyzing digital medical records. The steps in claim 1 result in quantifying risks of a chosen outcome related to the particular treatment absent any technological mechanism other than a conventional computer for doing so.

As to the specific limitations, limitation 1 recites generic data gathering and limitation 2 recites generic annotations and analysis to update the gathered data. Limitations 3–6 recite generic analyzing of patient data co-occurrence statistics from clinical notes data that are separated by a point in time from case and control sets of patients, which advise one to apply generic functions to get to these results. Limitations 7–10 recite a series of mathematical algorithms to compute quantitative (i.e., numeric) risk estimates by comparing data in case and control groups in turn computed from co-occurrence statistics. The limitations thus recite advice for computing risk statistics by comparing data in case and control groups in turn computed from co-occurrence statistics from clinical notes data that are

separated by a point in time from case and control sets of patients. To advocate computing risk statistics by comparing data in case and control groups in turn computed from co-occurrence statistics from clinical notes data that are separated by a point in time from case and control sets of patients is conceptual advice for results desired and not technological operations.

The Specification at paragraph 2 describes the invention as relating to analyzing the contents of digital medical records. Thus, all this intrinsic evidence shows that claim 1 is directed to calculating mathematical risk estimates. This is consistent with the Examiner's determination.

This in turn is an example of a mathematical concept because the steps of computing co-occurrence statistics, placing them in a metaphoric network, and computing risk estimates by comparing the statistics perform a mathematical algorithm. The remaining steps are mere data gathering and incidental post processing steps. The steps recited in claim 1 are part of how this might conceptually be premised.

Our reviewing court has found claims to be directed to abstract ideas when they recited similar subject matter. *Cleveland Clinic Foundation v. True Health Diagnostics LLC*, 859 F.3d 1352, 1363 (Fed. Cir. 2017) (computing statistical correlations); *OIP Technologies, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362 (Fed. Cir. 2015) (gathering statistics).

Alternately, this is an example of concepts performed in the human mind as mental processes because the steps of receiving, updating, and analyzing data mimic human thought processes of observation, evaluation, judgment, and opinion, perhaps with paper and pencil, where the data interpretation is perceptible only in the human mind. *See In re TLI*

Commc'ns LLC Patent Litig., 823 F.3d 607, 611 (Fed. Cir. 2016); *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1093–94 (Fed. Cir. 2016). Claim 1, unlike the claims found non-abstract in prior cases, uses generic computer technology to perform data reception, update, and analysis and does not recite an improvement to a particular computer technology. *See, e.g., McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314–15 (Fed. Cir. 2016) (finding claims not abstract because they “focused on a specific asserted improvement in computer animation”). As such, claim 1 is directed to receiving, updating, and analyzing data, and not a technological implementation or application of that idea.

From this we conclude that at least to this degree, claim 1 is directed to calculating mathematical risk estimates by computing risk statistics by comparing data in case and control groups in turn computed from co-occurrence statistics from clinical notes data that are separated by a point in time from case and control sets of patients, which is a mathematical algorithm, one of mathematical concepts identified in the Revised Guidance, and, thus, an abstract idea.

STEP 2A Prong 2

The next issue is whether claim 1 not only recites, but is more precisely directed to this concept itself or whether it is instead directed to some technological implementation or application of, or improvement to, this concept i.e., integrated into a practical application.⁸

At the same time, we tread carefully in construing this exclusionary principle lest it swallow all of patent law. At some level, “all inventions ... embody, use, reflect, rest upon, or

⁸ *See, e.g., Alice*, 573 U.S. at 223, discussing *Diamond v. Diehr*, 450 U.S. 175 (1981).

apply laws of nature, natural phenomena, or abstract ideas.” Thus, an invention is not rendered ineligible for patent simply because it involves an abstract concept. “[A]pplication[s]” of such concepts “to a new and useful end,” we have said, remain eligible for patent protection. Accordingly, in applying the § 101 exception, we must distinguish between patents that claim the “buildin[g] block[s]” of human ingenuity and those that integrate the building blocks into something more.

Alice, 573 U.S. at 217 (citations omitted).

Taking the claim elements separately, the operation performed by the computer at each step of the process is expressed purely in terms of results, devoid of implementation details. Step 1 is a pure data gathering step. Limitations describing the nature of the data do not alter this. Steps 2–6 just categorize the data in preparation for mathematical computations. Steps 7–10 recite generic computer processing for a mathematical algorithm expressed in terms of results desired by any and all possible means and so present no more than conceptual advice. All purported inventive aspects reside in how the data is interpreted and the results desired, and not in how the process physically enforces such a data interpretation or in how the processing technologically achieves those results.

Viewed as a whole, Appellants’ claim 1 simply recites the concept of calculating mathematical risk estimates by computing risk statistics by comparing data in case and control groups in turn computed from co-occurrence statistics from clinical notes data that are separated by a point in time from case and control sets of patients as performed by a generic computer. This is no more than conceptual advice on the parameters for this concept and the generic computer processes necessary to process those parameters, and do not recite any particular implementation.

Claim 1 does not, for example, purport to improve the functioning of the computer itself. Nor does it effect an improvement in any other technology or technical field. The Specification spell out different generic equipment⁹ and parameters that might be applied using this concept and the particular steps such conventional processing would entail based on the concept of calculating mathematical risk estimates by computing risk statistics by comparing data in case and control groups in turn computed from co-occurrence statistics from clinical notes data that are separated by a point in time from case and control sets of patients under different scenarios. It does not describe any particular improvement in the manner a computer functions. Instead, claim 1 at issue amounts to nothing significantly more than an instruction to apply calculating mathematical risk estimates by computing risk statistics by comparing data in case and control groups in turn computed from co-occurrence statistics from clinical notes data that are separated by a point in time from case and control sets of patients using some unspecified, generic computer. Under our precedents, that is not enough to transform an abstract idea into a patent-eligible invention. *See Alice*, 573 U.S. at 225–26.

None of the limitations reflect an improvement in the functioning of a computer, or an improvement to other technology or technical field, applies or uses a judicial exception to effect a particular treatment or prophylaxis for a disease or medical condition, implements a judicial exception with, or uses a judicial exception in conjunction with, a particular machine or manufacture

⁹ The Specification describes any type of conventional processor, microprocessor, or processing logic that interprets and executes instructions. Spec. para. 50.

that is integral to the claim, effects a transformation or reduction of a particular article to a different state or thing, or applies or uses the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception.

We conclude that claim 1 is directed to achieving the result of calculating mathematical risk estimates by advising one to computing risk statistics by comparing data in case and control groups in turn computed from co-occurrence statistics from clinical notes data that are separated by a point in time from case and control sets of patients, as distinguished from a technological improvement for achieving or applying that result. This amounts to mathematical algorithms, which fall within mathematical concepts that constitute abstract ideas. The claim does not integrate the judicial exception into a practical application.

STEP 2B

The next issue is whether claim 1 provides an inventive concept because the additional elements recited in the claim provide significantly more than the recited judicial exception.

The introduction of a computer into the claims does not generally alter the analysis at *Mayo* step two.

the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. Stating an abstract idea “while adding the words ‘apply it’” is not enough for patent eligibility. Nor is limiting the use of an abstract idea “to a particular technological environment.” Stating an abstract idea while adding the words “apply it with a computer” simply combines those two steps, with the same

deficient result. Thus, if a patent’s recitation of a computer amounts to a mere instruction to “implement[t]” an abstract idea “on . . . a computer,” that addition cannot impart patent eligibility. This conclusion accords with the preemption concern that undergirds our § 101 jurisprudence. Given the ubiquity of computers, wholly generic computer implementation is not generally the sort of “additional featur[e]” that provides any “practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself.”

Alice, 573 U.S. at 223–24 (citations omitted).

“[T]he relevant question is whether the claims here do more than simply instruct the practitioner to implement the abstract idea [] on a generic computer.” *Alice*, 573 U.S. at 225. They do not.

Taking the claim elements separately, the function performed by the computer at each step of the process is purely conventional. Using a computer for receiving, updating, and analyzing data amounts to electronic data query and retrieval—one of the most basic functions of a computer. All of these computer functions are generic, routine, conventional computer activities that are performed only for their conventional uses. *See Elec. Power Grp. v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016). Also see *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) (“Absent a possible narrower construction of the terms ‘processing,’ ‘receiving,’ and ‘storing,’ . . . those functions can be achieved by any general purpose computer without special programming”). None of these activities are used in some unconventional manner nor do any produce some unexpected result. Appellants do not contend they invented any of these activities. In short, each step does no more than require a generic computer to perform generic computer functions. As to the data operated

upon, “even if a process of collecting and analyzing information is ‘limited to particular content’ or a particular ‘source,’ that limitation does not make the collection and analysis other than abstract.” *SAP America, Inc. v. InvestPic LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018).

Considered as an ordered combination, the computer components of Appellants’ claim 1 add nothing that is not already present when the steps are considered separately. The sequence of data reception-update-analysis is equally generic and conventional. See *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014) (sequence of receiving, selecting, offering for exchange, display, allowing access, and receiving payment recited an abstraction), *Inventor Holdings, LLC v. Bed Bath & Beyond, Inc.*, 876 F.3d 1372, 1378 (Fed. Cir. 2017) (sequence of data retrieval, analysis, modification, generation, display, and transmission), *Two-Way Media Ltd. v. Comcast Cable Communications, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017) (sequence of processing, routing, controlling, and monitoring). The ordering of the steps is therefore ordinary and conventional.

We conclude that claim 1 does not provide an inventive concept because the additional elements recited in the claim do not provide significantly more than the recited judicial exception.

REMAINING CLAIMS

Claim 1 is representative. The remaining method claims merely describe process parameters. We conclude that the method claims at issue are directed to a patent-ineligible concept itself, and not to the practical application of that concept.

As to the structural claims, they are no different from the method claims in substance. The method claims recite the abstract idea implemented on a generic

computer; the system claims recite a handful of generic computer components configured to implement the same idea. This Court has long “warn[ed] ... against” interpreting § 101 “in ways that make patent eligibility ‘depend simply on the draftsman’s art.’”

Alice, 573 U.S. at 226. As a corollary, the claims are not directed to any particular machine.

LEGAL CONCLUSION

From these determinations we further determine that the claims do not recite an improvement to the functioning of the computer itself or to any other technology or technical field, a particular machine, a particular transformation, or other meaningful limitations. From this we conclude the claims are directed to the judicial exception of the abstract idea of mathematical concepts as exemplified by the mathematical algorithm of calculating mathematical risk estimates by computing risk statistics by comparing data in case and control groups in turn computed from co-occurrence statistics from clinical notes data that are separated by a point in time from case and control sets of patients, without significantly more.

APPELLANTS’ ARGUMENTS

Although Appellants’ Appeal Brief arguments nominally begin at page 8, pages 8–23 are prefatory only. Substantive arguments being at Appeal Brief 24.

We are not persuaded by Appellants’ argument that the recited steps are not shown to be well understood, routine, and conventional activities previously known to the industry. App. Br. 24–29. We cite evidentiary case law *supra* to support this determination.

Appellants further argue that the asserted claims are akin to the claims found patent-eligible in *DDR Holdings, LLC v. Hotels.com, L.P.*

773 F.3d 1245 (Fed. Cir. 2014). App. Br. 31–32. In *DDR Holdings*, the Court evaluated the eligibility of claims “address[ing] the problem of retaining website visitors that, if adhering to the routine, conventional functioning of Internet hyperlink protocol, would be instantly transported away from a host’s website after ‘clicking’ on an advertisement and activating a hyperlink.” *Id.* at 1257. There, the Court found that the claims were patent eligible because they transformed the manner in which a hyperlink typically functions to resolve a problem that had no “pre-Internet analog.” *Id.* at 1258. The Court cautioned, however, “that not all claims purporting to address Internet-centric challenges are eligible for patent.” *Id.* For example, in *DDR Holdings* the Court distinguished the patent-eligible claims at issue from claims found patent-ineligible in *Ultramercial*. *See id.* at 1258–59 (citing *Ultramercial, Inc.*, 772 F.3d at 715–16). As noted there, the *Ultramercial* claims were “directed to a specific method of advertising and content distribution that was previously unknown and never employed on the Internet before.” *Id.* at 1258 (quoting *Ultramercial*, 772 F.3d at 715–16). Nevertheless, those claims were patent ineligible because they “merely recite[d] the abstract idea of ‘offering media content in exchange for viewing an advertisement,’ along with ‘routine additional steps such as updating an activity log, requiring a request from the consumer to view the ad, restrictions on public access, and use of the Internet.’” *Id.*

Appellants’ asserted claims are analogous to claims found ineligible in *Ultramercial* and distinct from claims found eligible in *DDR Holdings*. The ineligible claims in *Ultramercial* recited “providing [a] media product for sale at an Internet website;” “restricting general public access to said

media product;” “receiving from the consumer a request to view [a] sponsor message;” and “if the sponsor message is an interactive message, presenting at least one query to the consumer and allowing said consumer access to said media product after receiving a response to said at least one query.” 772 F.3d at 712. Similarly, Appellants’ asserted claims recite receiving, updating, and analyzing data. This is precisely the type of Internet activity found ineligible in *Ultramercial*.

We are not persuaded by Appellants’ argument that the claims are analogous to those in *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016). App. Br. 32–34. The claims differ from those found patent eligible in *Enfish*, where the claims were “specifically directed to a *self-referential* table for a computer database.” *Enfish, LLC*, 822 F.3d at 1337. The claims thus were “directed to a specific improvement to the way computers operate” rather than an abstract idea implemented on a computer. *Id.* at 1336. Here, by contrast, the claims are not directed to an improvement in the way computers operate. Though the claims purport to accelerate and make more accurate the process of computing risk estimates, our reviewing court has held that speed and accuracy increases stemming from the ordinary capabilities of a general purpose computer “do[] not materially alter the patent eligibility of the claimed subject matter.” *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can. (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012). Instead, the claims are more analogous to those in *FairWarning*, 839 F.3d 1089 (Fed. Cir. 2016), wherein claims reciting “a few possible rules to analyze audit log data” were found directed an abstract idea because they asked “the same questions (though perhaps phrased with different words) that humans in

analogous situations detecting fraud have asked for decades.” 839 F.3d at 1094, 1095.

We are not persuaded by Appellants' argument that *Cal. Inst of Tech. v Hughes Communs. Inc.*, 2014 U.S. Dist. LEXIS 156763 (C.D. Cal., Nov. 3, 2014) shows the claims to be non-abstract. This is a District Court case with different facts and its holdings are not controlling in this instance.

Appellants also attempt to analogize the claims to those involved in *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016). Reply Br. 37–40. In *McRO*, the court held that, although the processes were previously performed by humans, “the traditional process and newly claimed method . . . produced . . . results in fundamentally different ways.” *FairWarning v. Iatric Systems*, 839 F.3d 1089, 1094 (Fed. Cir. 2016) (differentiating the claims at issue from those in *McRO*). In *McRO*, “it was the incorporation of the claimed rules not the use of the computer, that improved the existing technology process,” because the prior process performed by humans “was driven by subjective determinations rather than specific, limited mathematical rules.” 837 F.3d at 1314 (internal quotation marks, citation, and alterations omitted). In contrast, the claims of the instant application merely implement an old practice of using decision criteria in making statistical analysis in a new environment. Appellants have not argued that the claimed processes of selecting notes apply rules of selection in a manner technologically different from those which humans used, albeit with less efficiency, before the invention was claimed. Merely pigeon holing the objects of decision making in tiers to aid decision making is both old and itself abstract.

The claims in *McRO* were not directed to “a specific asserted improvement in computer animation, i.e., the automatic use of

rules of a particular type.” We explained that “the claimed improvement [was] allowing computers to produce ‘accurate and realistic lip synchronization and facial expressions in animated characters’ that previously could only be produced by human animators.” The claimed rules in *McRO* transformed a traditionally subjective process performed by human artists into a mathematically automated process executed on computers.

FairWarning, 839 F.3d at 1094 (differentiating the claims at issue from those in *McRO*).

We are not persuaded by Appellants' argument that the claims provide improved information results. App. Br. 40–48. Abstract ideas in the form of advice are often useful. The aphorism “a stitch in time saves nine” is the basis of a multi-billion dollar preventative maintenance industry. This does not make the advice any less abstract. The issue is whether the claims recite technological use of the advice beyond simply providing the useful information.

We are not persuaded by Appellants’ argument that the claims contain an inventive concept that is also found in the specific ordered combination of the limitations, similar to the Federal Circuit's findings in *BASCOM* (*Bascom Global Internet v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016)). Reply Br. 48–50. Initially, we remind Appellants that *Bascom* did not find claims eligible on the substance, but rather that the Appellees did not provide sufficient evidence to support a 12(b)(6) motion to dismiss in which facts are presumed in the non-movant’s favor.

The key fact in *Bascom* was the presence of a structural change in “installation of a filtering tool at a specific location, remote from the end-users, with customizable filtering features specific to each end user. This design gives the filtering tool both the benefits of a filter on a local computer

and the benefits of a filter on the ISP server.” *Bascom*, 827 F.3d at 1350.
The instant claims have no analogous structural benefit.

As to *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859 (Fed. Cir. 2010), argued by Appellants, App. Br. 50–51,

The principal precedent relied on by Bancorp in arguing for patent eligibility is *Research Corp.* In that case, the asserted patents claimed processes for enabling a computer to render a halftone image of a digital image by comparing, pixel by pixel, the digital image against a two-dimensional array called a “mask.” 627 F.3d at 863. We reversed the district court’s grant of summary judgment that the asserted claims were invalid under § 101, concluding that the processes were not “so manifestly” abstract as to override the statutory language of § 101. *Id.* at 868. In so holding, we observed that the claimed “invention presents functional and palpable applications in the field of computer technology.” *Id.* We also noted that “inventions with specific applications or improvements to technologies in the marketplace are not likely to be so abstract” as to be ineligible for patent protection. *Id.* at 869.

Research Corp. is different from the present case in two critical respects. First, the claimed processes in *Research Corp.* plainly represented improvements to computer technologies in the marketplace. For example, as compared to the prior art, the “inventive mask produce[d] higher quality halftone images while using less processor power and memory space.” *Id.* at 865. No such technological advance is evident in the present invention. Rather, the claims merely employ computers to track, reconcile, and administer a life insurance policy with a stable value component—*i.e.*, the computer simply performs more efficiently what could otherwise be accomplished manually. *Bancorp*, 771 F.Supp.2d at 1065.

Second, the method in *Research Corp.*, which required the manipulation of computer data structures (the pixels of a digital image and the mask) and the output of a modified computer data structure (the halftoned image), was dependent upon the computer components required to perform it. *See CyberSource*,

654 F.3d at 1376 (“[T]he method [in *Research Corp.*] could not, as a practical matter, be performed entirely in a human’s mind.”). Here, in contrast, the computer merely permits one to manage a stable value protected life insurance policy more efficiently than one could mentally. Using a computer to accelerate an ineligible mental process does not make that process patent-eligible.

Bancorp Services, L.L.C. v. Sun Life Assur. Co. of Canada, 687 F.3d 1266, 1278–10279 (Fed. Cir. 2012). Analogous to the claims in *Bancorp*, the instant claims merely employ computers to track, reconcile, and administer clinical note entries—*i.e.*, the computer simply performs more efficiently what could otherwise be accomplished manually, and the computer merely permits one to manage a computation of statistics more efficiently than one could mentally.

We are not persuaded by Appellants' argument that claims that describe the creation of new data in defined data structures, which is more than the mere collection, comparison, and organization of data since the new data are not found in the original input data set. Appellant respectfully submits that this creation of new data with defined data structures in accordance with specific rules is neither an abstract idea nor a "mentally abstract process" and is therefore patent eligible subject matter under § 101.

Reply Br. 3. The claims do not define any data structure. At best, the claims recite “recording timestamps for mentions of biomedical concepts in each of the annotated timelines,” defining index timepoints, “grouping the annotated clinical notes data . . . into two groups,” “constructing a patient-feature matrix” and “constructing a control concept-concept association network.” None of these define how the data is structured or otherwise structurally related to one another. These recitations are no more

than advice to record times, record certain timepoints, group data, and construct a matrix and a network, both of which are exemplars of graphs as an abstract data type, devoid of implementation details in themselves. The first of these recitations recites “annotated timelines” which themselves are unsupported and cannot connote structure at least for that reason.

We are not persuaded by Appellants' argument that the creation of data should be considered the least mentally abstract since the creation of data requires inputs of rules and sometimes data to determine the form and content of the new data and can produce different data depending on the circumstances. Thus, the creation of new data is not a purely mental activity or mentally abstract process that can be performed in the human mind.

Reply Br. 3. Appellants conflate two issues – the patentable weight of creating data per se and the technological implementation for doing so. We agree with Appellants that a recitation of how data is created could be non-abstract were the technological implementation details recited. Such details are missing in the claims. We do not agree that the creation of new data per se is non-abstract. “[T]he meaning of the data is perceptible only to the human mind and afforded no patentable weight. *See In re Bernhart*, 417 F.2d 1395, 1399 (CCPA 1969). “Information, whether displayed in the form of price values or P&L values, is abstract.” *Trading Technologies International, Inc. v. IBG LLC*, 2019 WL 1907236 (Fed Cir April 30, 2019). Even if the data is new, this is insufficient. “Even if no trading screen had previously displayed P&L values, ‘a claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention “significantly more” than that ineligible concept.’” *Id.* (citations omitted).

We are not persuaded by Appellants' argument that

Comparing the currently pending claims to those at issue in *Myriad CAFC*, the currently pending claims recite much more than the abstract idea of "comparing information regarding a sample or test subject to a control or target data" "abstract mental process" steps of "analyzing" or "comparing." For example, independent claim 1 recites steps of "constructing a case concept-concept association network" and "constructing a control concept-concept association network." The construction of data structures containing new data that is different from the input data are more than mere "abstract mental processes." The data creation requires specific rules and steps to form an appropriate data structure in accordance with the claim. Therefore, independent claim 1 can be characterized as using steps of comparing and analyzing data in a process that also creates new data to form a non-abstract application.

Reply Br. 6. The rules and steps are specific only in the sense they are specified using words. The recited steps are broad, generic, and omit technological implementation details. The remainder of the argument is a repletion of the above arguments and are equally unpersuasive here.

The remainder of the Reply Brief either repeats arguments from the Appeal Brief or argues pertinence of case law Examiner cites that is not brought up in the above analysis.

CONCLUSIONS OF LAW

The rejection of claims 1 and 22–41 under 35 U.S.C. § 101 as directed to a judicial exception without significantly more is proper.

DECISION

The rejection of claims 1 and 22–41 is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2011).

AFFIRMED