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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JARED M.D. SMYTHE and ERIC WOODS

Appeal 2019-001815
Application 14/836,067[1]
Technology Center 2600

Before JOSEPH L. DIXON, DAVID M. KOHUT, and
JON M. JURGOVAN, *Administrative Patent Judges*.

JURGOVAN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant seeks review under 35 U.S.C. § 134(a) from a Final Rejection of claims 1, 3–6, 8–11, 13–15, and 17–20. Claims 2, 7, 12, and 16 have been cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.[2]

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[1] We use the word "Appellant" to refer to "applicant(s)" as defined in 37 C.F.R. § 1.42. The real party in interest is International Business Machines Corporation. (Appeal Br. 2.)

[2] Our Decision refers to the Specification ("Spec.") filed August 26, 2015, the Final Office Action ("Final Act.") mailed January 4, 2018, the Appeal Brief ("Appeal Br.") filed June 27, 2018, the Examiner's Answer ("Ans.") mailed October 31, 2018, and the Reply Brief ("Reply Br.") filed December 28, 2018.

CLAIMED INVENTION

The claims are directed to a method and apparatus for "deriving logical justification information in an extensible logical reasoning system." (Spec. ¶ 1; Abstract.) In particular, Appellant's invention "implement[s] a logical reasoning and justification engine that operates to receive a logical parse data structure of natural language content," "operates to receive a selection of a node in the logical parse data structure to thereby form a selected node," executes a logical justification module on the selected node to identify "justifying nodes that provide a contribution to a knowledge state of the selected node," generates a logical justification output based on the identified justifying nodes, and outputs the logical justification output. (Abstract.)

Claims 1, 11, and 20 are independent claims. Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A method, in a data processing system comprising a processor and a memory comprising:
>
> executing, by the processor, first instructions that configure the processor to execute a logical reasoning and justification engine;
>
> executing, by the processor, second instructions that configure the processor to execute at least one logical justification module, wherein each justification module in the at least one justification module is specifically configured to comprise logic to reverse engineer a corresponding knowledge reasoner used to propagate knowledge when generating the logical parse data structure;
>
> receiving, by the logical reasoning and justification engine executing on the processor, the logical parse data structure of natural language content, wherein the logical parse data structure comprises nodes and edges linking nodes and identifies latent logical terms within the natural language content indicative of

logical relationships between elements of the natural language content;

receiving, by the logical reasoning and justification engine executing on the processor, a selection of a node in the logical parse data structure to thereby form a selected node;

execute the logic of the at least one logical justification module on the selected node to perform reverse engineering on the selected node and identify one or more justifying nodes that provide a contribution to a knowledge state of the selected node during generation of the logical parse data structure of the natural language content;

generate, by the logical reasoning and justification engine executing on the processor, a logical justification output based on the identified one or more justifying nodes, wherein generating the logical justification output comprises extracting factual basis information for the knowledge state of the selected node; and

output, by the logical reasoning and justification engine executing on the processor, the logical justification output, wherein the at least one logical justification module comprises an evidential support logical justification module, and wherein executing at least one logical justification module on the selected node to identify one or more justifying nodes that provide a contribution to a knowledge state of the selected node comprises:

collecting first knowledge contributions from one or more child nodes of the selected node in accordance with an evidential support reasoner propagation rules;

collecting second knowledge contributions from a parent node of the selected node in accordance with the evidential support reasoner propagation rules;

collecting sideways propagation knowledge contributions from the parent node and one or more sibling nodes of the selected node; and

combining the first, second, and sideways propagation knowledge contributions to generate a set of justification facts for justifying the knowledge state of the selected node.

(Appeal Br. 47–56 (Claims App.).)

REJECTION

Claims 1, 3–6, 8–11, 13–15, and 17–20 stand rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter. (Final Act. 3–5.)

ANALYSIS

Patent eligibility is a question of law that is reviewable *de novo*. *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012). Accordingly, we review the Examiner's § 101 determinations concerning patent eligibility under this standard.

Patentable subject matter is defined by 35 U.S.C. § 101, as follows:

> [w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

In interpreting this statute, the Supreme Court emphasizes that patent protection should not preempt "the basic tools of scientific and technological work." *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) ("*Benson*"); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012) ("*Mayo*"); *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 217–18 (2014) ("*Alice*"). The rationale is that patents directed to basic building blocks of technology would not "promote the progress of science" under the U.S. Constitution, Article I, Section 8, Clause 8, but instead would impede it. Accordingly, laws of nature, natural phenomena, and abstract ideas, are not patent-eligible subject matter. *Thales Visionix Inc. v. United States*, 850 F.3d 1343, 1346 (Fed. Cir. 2017) (citing *Alice*, 573 U.S. at 216–17).

The Supreme Court set forth a two-part test for subject matter eligibility in *Alice* (573 U.S. at 217–19). The first step is to determine whether the claim is directed to a patent-ineligible concept. *Id.* (citing *Mayo*, 566 U.S. at 76–77). If so, then the eligibility analysis proceeds to the second step of the *Alice*/*Mayo* test in which we "examine the elements of the claim to determine whether it contains an 'inventive concept' sufficient to 'transform' the claimed abstract idea into a patent-eligible application." *Alice*, 573 U.S. at 221 (quoting *Mayo*, 566 U.S. at 72, 79). There is no need to proceed to the second step, however, if the first step of the *Alice/Mayo* test yields a determination that the claim is directed to patent-eligible subject matter.

The Patent Office has recently revised its guidance for how to apply the *Alice/Mayo* test in the 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50–57 (January 7, 2019) ("the Revised Guidance"). Under the Revised Guidance, we first look to whether the claim recites:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, mental processes, or certain methods of organizing human activity such as a fundamental economic practice or managing personal behavior or relationships or interactions between people); and
>
> (2) additional elements that integrate the judicial exception into a practical application (*see* Manual of Patent Examining Procedure ("MPEP") § 2106.05(a)–(c), (e)–(h)).

Revised Guidance, 84 Fed. Reg. at 51–52, 55.

A claim that integrates a judicial exception into a practical application applies, relies on, or uses 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, 84 Fed. Reg. at 54. When the judicial exception is so integrated, then the claim is not directed to a judicial exception and is patent-eligible under § 101. Revised Guidance, 84 Fed. Reg. at 54. Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then evaluate whether the claim provides an inventive concept. Revised Guidance, 84 Fed. Reg. at 56; *Alice*, 573 U.S. at 217–19, 221. Evaluation of the inventive concept involves consideration of whether an additional element or combination of elements (1) adds a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field, which is indicative that an inventive concept may be present; or (2) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception, which is indicative that an inventive concept may not be present.

Alice/Mayo—Step 1 (Abstract Idea)
Step 2A–Prongs 1 and 2 identified in the Revised Guidance

Step 2A—Prong 1 (Does the Claim Recite a Judicial Exception?)

Turning to the first step of the *Alice* inquiry (*Step 2A, Prong 1 of the Revised Guidance*), the Examiner finds independent claim 1 (and similarly, independent claims 11 and 20) is directed to an abstract idea because the claim

> is directed to a method for receiving a [(logical parse)] data structure, receiving a selection of a node in the data structure, identifying zero or more additional nodes that provide a contribution to the state of the node, generation [sic] a

> justification output based on the additional nodes, then outputting the justification output.

(Final Act. 3; Ans. 6–7.) Particularly, the Examiner determines claim 1 "perform[s] data analysis in and of itself," and "a human with pencil and paper and a hard copy of the logical parse data structure could perform this analysis" in, e.g., a logic class. (Final Act. 3; Ans. 6–7.) The Examiner also determines the abstract idea recited in claim 1 is "similar to 'communicating targeted information' . . . 'Data recognition and storage' . . . and 'Collecting information, analyzing it, and displaying certain results of the collection and analysis.'" (Final Act. 4 (citing *Affinity Labs of Tex., LLC v. Amazon.com Inc.*, 838 F.3d 1266 (Fed. Cir. 2016); *Elec. Power Grp.*, *LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016); *Content Extraction & Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343 (Fed. Cir. 2014)).)

The Examiner also finds claims 1, 11, and 20 do not include additional elements that are sufficient to amount to "significantly more" than the judicial exception because "[t]he data analysis in the claims is not an improvement to another technology or technical field" and "[t]he claims . . . fail to provide meaningful limitations beyond generally linking the use of an abstract idea to a particular technological environment, as this is simply data analysis on an NLP [(natural language processing)] based tree structure." (Final Act. 4; Ans. 9–10.)

Appellant argues independent claims 1, 11, and 20 together, presenting arguments directed to independent claim 1. (*See* Appeal Br. 11–12, 14, 16, 18, 22, 34–36.) As a result, we select independent claim 1 as the representative claim for the group and address Appellant's arguments thereto. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2017).

Appellant contends the Examiner erred in rejecting the claims under 35 U.S.C. § 101 as directed to non-statutory subject matter because the claims are not directed to an abstract idea. (Appeal Br. 7–34; Reply Br. 4–6, 9.) Particularly, Appellant contends

> The human mind does not perform this specific ordered combination of operations to determine a logical justification for a knowledge state of a selected node of a logical parse tree data structure corresponding to a portion of natural language content.
>
> . . . .
>
> . . . [N]o human being attempts to determine the reason for a knowledge state by specifically following the particular ordered combination of operations set forth in the present claims. These are specific to a computer tool and computer environment, and more importantly to the specific computer tool invented by Appellants.

(Appeal Br. 11, 17; *see also* Reply Br. 6–7.) Appellant also argues "the Examiner's allegation of the abstract idea is a generalization and oversimplification of what is actually claimed," and "*Affinity Labs*, *Content Extraction*, and *Electric Power Group*, do not in fact support the Final Office Action's position [that the claims are directed to an abstract idea] but instead are either not applicable to the present claims or if applicable, support Appellants' position that the present claims are statutory." (Appeal Br. 14, 26–27.)

Appellant's arguments do not persuade us that claim 1 does not recite an abstract idea, and we concur with the Examiner's conclusion that the claim recites an abstract idea. (Final Act. 3–4; Ans. 5–10.)

Under its broadest reasonable interpretation, claim 1 recites an abstract mental process of providing reasons for making a decision by: *collecting/gathering information* ("receiving . . . the [generated] logical

parse data structure of natural language content" having "nodes and edges linking nodes" and "identif[ying] latent logical terms within the natural language content indicative of logical relationships between elements of the natural language content," and "receiving . . . a selection of a node in the logical parse data structure to thereby form a selected node" as recited in claim 1); *analyzing it* ("identify one or more justifying nodes that provide a contribution to a knowledge state of the selected node during generation of the logical parse data structure of the natural language content" by collecting "first knowledge contributions from one or more child nodes of the selected node," "second knowledge contributions from a parent node of the selected node," and "sideways propagation knowledge contributions from the parent node and one or more sibling nodes of the selected node" and "combining the first, second, and sideways propagation knowledge contributions to generate a set of justification facts for justifying the knowledge state of the selected node," and "generate . . . a logical justification output based on the identified one or more justifying nodes, wherein generating the logical justification output comprises extracting factual basis information for the knowledge state of the selected node," as claimed); *and providing results of the collection and analysis* ("output . . . the logical justification output" as claimed). (*See* Ans. 6–7, 9; Final Act. 4–5.)

That is, although claim 1 recites that the steps are performed by a "processor," the underlying steps recited in the claim are all acts that, as the Examiner observes (*see* Ans. 6–7, 9), could be performed mentally or manually, using pen and paper, without the use of a computer or any other machine. For example, generation of a claimed "logical parse data structure of natural language content" is performable in the human mind or with pen

and paper when analyzing logical connections (claimed edges) between constituent parts/words/phrases (claimed nodes) of a sentence, and the claimed "selection of a node" is performable in the human mind by focusing one's attention on particular word(s)/phrase(s) in the sentence. (*See* Ans. 6–7.) Identifying justifying node(s) that provide a contribution to a knowledge state of a selected node by collecting and combining knowledge contributions from surrounding nodes is performable in the human mind or with pen and paper *when a person evaluates knowledge* (claimed knowledge contributions) *regarding concepts/words/phrases* (child, parent, and sibling nodes) mentioned in a sentence, *and identifies a context of the sentence or a conclusion or answer responsive to the sentence* (thereby providing the claimed contribution to a knowledge state of a selected node/word in the sentence). (*See* Ans. 6–7, 9.) For example, medical professionals routinely analyze, in their minds, patients' diagnoses and illnesses (claimed "nodes" and "justifying nodes") to determine best treatments for their patients. (*See* Spec. ¶¶ 89–91, 98, 199, 209 (explaining that "an external source of information, such as a medical record database," and a patient's medical record, may be used to determine knowledge content for medical concepts and terms).) A clinician for example, in considering medical treatments, reviews medical documents in natural language form for medical concepts (such as a patient's symptoms and test results, and a list of known treatments), and determines which treatments are most suitable for the patient based on the medical concepts. Such reasoned treatment decision by a clinician comprises a *logical justification* for a treatment (claimed "logical justification output")—*such as a clinician's answer (to a patient question) explaining which treatment(s) is/are most suitable for the patient's illness*.

The broad limitations in claim 1 recite steps of a computer program for implementing on a machine the types of mental analyses people (such as, e.g., medical professionals) perform when making reasoned decisions.

Our reviewing court has concluded that mental processes include similar concepts of collecting, manipulating, and providing, data. (*See Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017) (the Federal Circuit held "the concept of . . . collecting data, . . . recognizing certain data within the collected data set, and . . . storing that recognized data in a memory" ineligible); *see also Content Extraction*, 776 F.3d at 1347 (claims are drawn to the basic concept of data recognition and storage); *Elec. Power Grp.*, 830 F.3d at 1353 (merely selecting information, by content or source, for collection, analysis, and display does nothing significant to differentiate a process from ordinary mental processes); *SmartGene, Inc. v. Advanced Biological Labs., SA*, 555 F. App'x 950, 951–52, 955–56 (Fed. Cir. 2014) (nonprecedential) ("[C]omparing new and stored information and using rules to identify medical options" did not satisfy *Alice* step one); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375 (Fed. Cir. 2011) (purely mental processes can be unpatentable, even when performed by a computer); *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146–47 (Fed. Cir. 2016) ("[W]e continue to 'treat[] analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category'") (citing *Elec. Power Grp.*, 830 F.3d at 1354); Ans. 6–8; Final Act. 4.) Claim 1's "processor" and "engine" automate such actions manually performable with pen and paper, however, mental processes remain unpatentable even when

automated to reduce the burden on the user of what once could have been done with pen and paper. *See CyberSource*, 654 F.3d at 1375 ("That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*."). "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." *Versata Dev. Grp. v. SAP Am., Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015).

We are not persuaded by Appellant's additional arguments that "[t]he Examiner repeatedly alleges that the operations recited in the claims are somehow able to be performed manually or have been performed manually" *but* "*not once does the Examiner provide any evidence to support such allegations. To the contrary, the Examiner merely makes conclusions without any factual basis whatsoever*." (Reply Br. 9 (emphasis added); *see also* Reply Br. 7 ("the Examiner has presented no evidence that the actually recited operations can be done with pencil and paper," moreover, "there is no prior art that would represent evidence that the recited operations are operations previously performed manually or even that could have been performed manually").) Appellant's arguments are not persuasive because they improperly conflate the test for § 101 with the separate tests for §§ 102 and 103. *See, e.g.*, *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1376 (Fed. Cir. 2016) ("[U]nder the *Mayo*/*Alice* framework, a claim directed to a newly discovered law of nature (or natural phenomenon or abstract idea) cannot rely on the novelty of that discovery for the inventive concept necessary for patent eligibility"). Additionally, we are aware of no controlling authority that requires the Office to provide factual evidence

under step one of the *Alice* framework to support a determination that a claim is directed to an abstract idea. Instead, the Federal Circuit has repeatedly noted that "the prima facie case is merely a procedural device that enables an appropriate shift of the burden of production." *Hyatt v. Dudas*, 492 F.3d 1365, 1369 (Fed. Cir. 2007) (citing *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992)). The court has held that the USPTO carries its procedural burden of establishing a prima facie case when its rejection satisfies the requirements of 35 U.S.C. § 132 by notifying the applicant of the reasons for rejection, "together with such information and references as may be useful in judging of the propriety of continuing the prosecution of [the] application." *In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011). Thus, all that is required of the Office is that it set forth the statutory basis of the rejection in a sufficiently articulate and informative manner as to meet the notice requirement of 35 U.S.C. § 132. *Id.* at 1363; *see also Chester v. Miller*, 906 F.2d 1574, 1578 (Fed. Cir. 1990) (Section 132 "is violated when [the] rejection is so uninformative that it prevents the applicant from recognizing and seeking to counter the grounds for rejection."). Here, the Examiner has articulated explanations as to why claim 1's steps are performable mentally, or manually using pen and paper (e.g., during a logic class). (*See* Ans. 6–7, 9.)

Thus, we are not persuaded by Appellant's arguments that the Examiner oversimplified and generalized the claimed invention, improperly expanded the scope of claim 1 to include an abstract idea, or otherwise erred in determining that claim 1 recites an abstract idea. (Appeal Br. 13–14, 16, 26–27; Reply Br. 5–7.)

Having determined that representative claim 1 recites an abstract idea (a mental process of providing reasons for making a decision) identified in the Revised Guidance, we turn to Step 2A, Prong 2, of the Revised Guidance to determine whether the abstract idea is integrated into a practical application. *See* Revised Guidance, 84 Fed. Reg. at 54–55.

Step 2A—Prong 2 (Integration into Practical Application)

Under *Step 2A, Prong 2 of the Revised Guidance*, we discern no additional element (or combination of elements) recited in Appellant's representative claim 1 that integrates the judicial exception into a practical application. *See* Revised Guidance, 84 Fed. Reg. at 54–55 ("Prong Two"). For example, Appellant's claimed additional elements (beyond the abstract idea) include a "data processing system," "a processor" executing "first instructions that configure the processor to execute a logical reasoning and justification engine" and "second instructions that configure the processor to execute at least one logical justification module," "a memory," "a logical reasoning and justification engine," "at least one justification module . . . specifically configured to comprise logic to reverse engineer a corresponding knowledge reasoner used to propagate knowledge when generating the logical parse data structure," and "an evidential support logical justification module" in the "logical justification module" recited in claim 1. (*See* Appeal Br. 47–48 (claim 1).) These additional elements do not: (1) improve the functioning of a computer or other technology; (2) are not applied with any particular machine (except for generic computing components); (3) do not effect a transformation of a particular article to a different state; and (4) are not applied in any 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. *See* MPEP §§ 2106.05(a)–(c), (e)–(h).

In particular, Appellant's representative claim 1 merely links the use of a judicial exception to a particular technological environment. The additional elements in claim 1 ("data processing system," "processor," "memory," "logical reasoning and justification engine," "logical justification module," and "evidential support logical justification module") are broadly claimed to cover a computing device executing instructions. Claim 1's processor, memory, engine, modules, and their operations and interactions are recited in such a general, generic, and functional manner that the claim fails to capture how the claim would be "improving the manner by which natural language processing is performed" or "improving the ability of a logical reasoning system to justify the underlying reasoning as to why a particular result was generated by the logical reasoning system" as Appellant argues. (*See* Appeal Br. 13.) The results-based-functional language in claim 1's steps and the generically claimed processor, memory, engine, and modules also fail to capture how the method of claim 1 would be different from operations of known Question and Answer (QA) systems. (*See* Spec. ¶ 41 (describing existing QA systems).) Appellant argues "known natural language processing mechanisms and logic systems employing such natural language processing mechanisms do not provide any indication as to the reasoning for the conclusions reached." (Appeal Br. 25.) However, *the broad language of claim 1 does not exclude* (from the claimed "logical justification output" and "set of justification facts for justifying the

knowledge state of the selected node") *a simple answer* (e.g., an answer indicating best treatments) *being provided by a QA system or by an Internet search engine, in response to an input question* (e.g., a question asking for treatments for a specific disease). Thus, claim 1's computerized implementation does not evidence an "improved computing mechanism," a "non-abstract improvement in computer functionality," or an "improvement in computer-related technology of cognitive treatment recommendation implemented in a specifically configured cognitive computing system" as Appellant argues. (*See* Appeal Br. 17, 29, 33; Reply Br. 2–5.)

In addition, it is clear from the claim language and the Specification (describing "general purpose hardware, software instructions stored on a medium such that the instructions are readily executable by specialized or general purpose hardware, a procedure or method for executing the functions, or a combination of any of the above," "a processor of a general purpose computer," a "data processing system . . . [that] may be, for example, an IBM® eServer™ System p® computer system . . . a symmetric multiprocessor (SMP) system including a plurality of processors in processing unit 1506. Alternatively, a single processor system may be employed," and a "computer readable storage medium [that] includes the following: a portable computer diskette, a hard disk, a random access memory (RAM), a read-only memory (ROM), an erasable programmable read-only memory (EPROM or Flash memory), a static random access memory (SRAM), a portable compact disc read-only memory (CDROM)"), claim 1's computing elements require no improved processor, computer system, or memory. (*See* Spec. ¶¶ 45, 49, 53, 178; *see also* Ans. 6, 8–9.) Claim 1's computing elements are described in the Specification at a high

level of generality, i.e., as generic computer components. (*Id.*) Thus, claim 1's limitations are **not** indicative of "integration into a practical application." Rather, the processor and memory are readily available computing elements using their already available basic functions as tools in executing the claimed manually performable process of providing reasons for making a decision. *See SAP Am., Inc. v. InvestPic LLC*, 898 F.3d 1161, 1169–70 (Fed. Cir. 2018).

Appellant argues that generic computers cannot perform the steps recited in claim 1. (*See* Appeal Br. 11–12 (the independent claims "recite[] a transformation of the processor or computing device by specifically configuring the processor or computing device to implement logic that it previously did not, logic that performs the specifically recited ordered combination of operations which are not generic computing operations" and are "specific operations requiring specific configuration of the processor/computing device for such operations to be realized.").) More particularly, Appellant argues

> the independent claims specifically recite operations involving the actual execution of instructions by the processor to specifically configure the processor to execute both ***a logical reasoning and justification engine*** and ***at least one logical justification module***. Moreover, the claims recite that each justification module in the at least one justification module ***is specifically configured to comprise logic*** to reverse engineer ***a corresponding knowledge reasoner*** used to propagate knowledge when generating the logical parse ***data structure***. . . .
>
> . . . Moreover, the claims recite that logic of the at least one logical justification module is executed on the selected node to perform reverse engineering on the selected node and identify one or more justifying nodes that provide a contribution to a knowledge state of the selected node during generation of the

> logical parse data structure of the natural language content. This again is a clear recitation of an operation that is only performed by and within a specifically configured technological environment and is not recited as being performed somehow in the abstract.
>
> . . . .
>
> . . . [T]he claimed invention requires a specific configuration of the data processing system, as well as the processor, which involves the specific execution of instructions by the processor to configure the processor to implement both a logical reasoning and justification engine, and at least one logical justification module. Furthermore, these elements implemented by the processor through the execution of these specific instructions, are specifically configured to perform the ordered combination of operations set forth in the claim and attributed to these elements. This cannot be performed in the abstract and must be performed in a specifically configured data processing system.

(Appeal Br. 11–12, 15; *see also* Reply Br. 5–6, 13.) Appellant's arguments are not persuasive. The Federal Circuit has explained that the relevant question is "whether the focus of the claim[] is on the specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016) (quoting *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015)). Appellant does not direct us to any indication that the operations claimed in claim 1 invoke any assertedly inventive programming, require any specialized computer hardware or other inventive computer components, i.e., a particular machine, or that the claimed invention is implemented using other than generic computer components to perform generic computer functions of data input, processing, and output.

And "after *Alice*, there can remain no doubt: recitation of generic computer limitations does not make an otherwise ineligible claim patent-eligible." *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1256 (Fed. Cir. 2014).

Appellant argues "the presently claimed invention sets forth a specific manner for reverse engineering the knowledge state of a node so as to provide a logical justification for that nodes'[sic] state," and provides an "improvement to computer functionality" that is "the improvement in generating a logical justification for the state of nodes in the logical parse tree data structure." (Reply Br. 2–4, 10 (citing Spec. ¶¶ 38–42, 227–234, Fig. 24).) More particularly, Appellant explains that

> as outlined, for example, in paragraphs [0038]–[0042] and paragraphs [0227]–[0234] . . . which set forth the technological problem solved by the presently claimed invention and the technological solution provided by the present invention, which is reflected in the features specifically recited in the present independent claims (see also paragraphs [0077] and [0084], for example), the present claims are directed to a technological computer based invention that is specifically directed to improving the manner by which natural language processing is performed and for improving the ability of a logical reasoning system to justify the underlying reasoning as to why a particular result was generated by the logical reasoning system. . . .
>
> . . . .
>
> . . . [T]he claimed invention is specifically directed to improvements rooted in computer technology and directed to solving a problem in the software arts. . . . . [The claims] are directed to an improvement in computer-related technology of cognitive treatment recommendation implemented in a specifically configured cognitive computing system.

(Appeal Br. 12–13, 29.)

Yet, no "improvements rooted in computer technology" or "improvement to computer functionality" are apparent in claim 1. Although claim 1 recites "identify one or more justifying nodes that provide a contribution to a knowledge state of the selected node," "generating the logical justification output comprises extracting factual basis information for the knowledge state of the selected node," and "generate a set of justification facts for justifying the knowledge state of the selected node," the claim provides no technical details for achieving those results. For example, claim 1 does not specify what are the "knowledge state of the selected node," the "factual basis information," or the "knowledge contributions [e.g., from child nodes]," and does not specify *how to* "identify one or more justifying nodes that provide a contribution to a knowledge state of the selected node" or *how to* "generate a set of justification facts for justifying the knowledge state of the selected node." Instead, "the claim language here provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it. Our law demands more." *Intellectual Ventures I LLC*, 850 F.3d at 1342.

We are also not persuaded by Appellant's arguments (reproduced *supra*) about the Specification evidencing that *claim 1 is* "directed to a technological computer based invention that is specifically directed to improving the manner by which natural language processing is performed" and "improving the ability of a logical reasoning system to justify the underlying reasoning as to why a particular result was generated by the logical reasoning system." (*See* Appeal Br. 12–13, 29; Reply Br. 2–4, 10.) Appellant's Specification may well identify purported benefits of and/or problems purportedly overcome by Appellant's invention. However, as

indicated above, *the steps in claim 1* each recites results-based-functional language *without providing sufficient technological detail for how to achieve the desired result*.[3] For example, claim 1 recites "generating the logical justification output comprises extracting factual basis information for the knowledge state of the selected node" and "combining the first, second, and sideways propagation knowledge contributions to generate a set of justification facts for justifying the knowledge state of the selected node," but no particular manner of "generating" (a "logical justification output" or a "set of justification facts") is recited that would indicate an improvement to technology. The same holds true for the other recited limitations in claim 1. As a further example, the claimed "reverse engineering" (of a "knowledge reasoner used to propagate knowledge when generating the logical parse data structure" and applied on "the selected node and identify one or more justifying nodes that provide a contribution to a knowledge state of the selected node") does not evidence any technical effect beyond merely reading data (e.g., reading a logical parse data structure, such as reading elements of a sentence) and identifying nodes (e.g., words) connected to, or adjacent to, other words in the sentence. As the Examiner explains, "[s]imply labeling something a logical reasoning and justification engine does not render it more than a general purpose computer executing software." (Ans. 6.) *See also Intellectual Ventures I LLC*, 850 F.3d at 1342

[3] For example, claim 1 does not specify any details of "logical parse tree data structure mechanisms [that] utilize fuzzy logic values and various methodologies to disseminate knowledge through the logical parse tree data structure" (as described in Specification portions discussed by Appellant, *see* Reply Br. 2–3 (citing Spec. ¶¶ 38–41)). Although claims are interpreted in light of the Specification, limitations from the Specification are not read into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

(explaining that "[o]ur law demands more" than claim language that "provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it"); *SiRF Tech., Inc. v. Int'l Trade Comm'n*, 601 F.3d 1319, 1333 (Fed. Cir. 2010) ("In order for the addition of a machine to impose a meaningful limit on the scope of a claim, it must play a significant part in permitting the claimed method to be performed, rather than function solely as an obvious mechanism for permitting a solution to be achieved more quickly, i.e., through the utilization of a computer for performing calculations.")

Appellant also analogizes claim 1 to claims of *Enfish*, *McRO*, and *Finjan*, asserting that (i) "similar to the decision in *McRO*, the claimed invention performs operations that previously were not performed manually and are specifically directed to an improved computer functionality that automates a process of reverse engineering in a manner that previously was not done manually," and the claim "recite[s] specific features that reflect a specific implementation not demonstrated in existing techniques, whether manual or automated," (ii) similar to *Enfish*, "the claimed invention is specifically directed to improvements rooted in computer technology," "an improvement in computer-related technology of cognitive treatment recommendation implemented in a specifically configured cognitive computing system," and improvement to "the functionality of computer-related technology with regard to reverse engineering the logical reasoning underlying the knowledge state of a selected node of a logical parse data structure corresponding to a portion of natural language content," and (iii) "similar to the way in which the Downloadable security profile in *Finjan* was a new data structure that facilitated new functionality in the computing

device," the claimed invention provides a "non-abstract improvement to computer technology by providing a specifically configured data processing system . . . specifically configured to perform a specific set of operations to reverse engineer the propagation of knowledge by knowledge reasoners when generating a logical parse data structure of natural language content." (Appeal Br. 28–34 (citing *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299 (Fed. Cir. 2016); *Enfish*, 822 F.3d at 1327; *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299 (Fed. Cir. 2018)); Reply Br. 7, 9–13.)

Appellant's reliance on *McRO*, *Enfish*, and *Finjan* is misplaced. (*See* Appeal Br. 28–34; Reply Br. 7, 9–13.) *McRO's* '576 patent (U.S. Patent No. 6,307,576) describes computer software for matching audio to a 3D animated mouth movement to provide lip-synched animation. *McRO's* claims contain (i) specific limitations regarding a set of rules that "define[] a morph weight set stream as a function of phoneme sequence and times associated with said phoneme sequence" to enable computers to produce "accurate and realistic lip synchronization and facial expressions in animated characters" (*McRO*, 837 F.3d at 1313) and, when viewed as a whole, are directed to (ii) a "technological improvement over the existing, manual 3–D animation techniques" that uses "limited rules in a process specifically designed to achieve an improved technological result in conventional industry practice." *Id.* at 1316. *Enfish*'s data storage and retrieval method and system recites a "self-referential table [for a computer database] [which] is a specific type of data structure designed to improve the way a computer stores and retrieves data in memory." *Enfish*, 822 F.3d at 1336, 1339. In *Finjan*, the claims were directed to identifying and protecting a computer against malware, which the court found to constitute sufficient non-abstract

improvement in computer functionality to render the claims patent eligible. *Finjan*, 879 F.3d at 1304–05.

In contrast to *Enfish*, *McRO*, and *Finjan*, Appellant's Specification and claims do not describe *technological improvements* similar to *McRO*, *improvements in computer functionality* similar to *Finjan*, or a specific improvement to the way computers store and retrieve data in memory similar to *Enfish*. *See McRO*, 837 F.3d at 1313, 1316; *Enfish*, 822 F.3d at 1336, 1339; *Finjan*, 879 F.3d at 1304–05. Particularly, claim 1 does not focus on an improvement to technology in performing "reverse engineering on the selected node" or generating a "logical justification output"—at least because claim 1 covers any manner of performing reverse engineering and generating logical justification outputs that achieves the result-based functional limitations. Additionally, claim 1 does not recite or require technology for "*cognitive treatment recommendation*" and does not recite "reverse engineering of the state of the node to determine the logical justification *for the state that the patient needs treatment*," as Appellant argues. (*See* Appeal Br. 29 (emphasis added); Reply Br. 4 (emphasis added).) The "logical justification output" in claim 1 is generically claimed and does not evidence a particular improvement or technological effect produced by collecting the claimed "knowledge contributions" to "a knowledge state" of the selected node. Although Appellant argues technical improvements—e.g., "an improvement in computer-related technology of cognitive treatment recommendation," "an improved computer functionality that automates a process of reverse engineering in a manner that previously was not done manually," and an improvement to "the functionality of computer-related technology with regard to reverse engineering the logical

reasoning underlying the knowledge state of a selected node" (*see* Appeal Br. 28–31 and Reply Br. 11)—Appellant's broad recitations of a "logical reasoning and justification engine," "justification module," "reverse engineer a corresponding knowledge reasoner," "reverse engineering on the selected node," "knowledge reasoner used to propagate knowledge," and "evidential support logical justification module" (in claim 1) do not specify or evidence a technological improvement. Appellant's claim 1 includes "modules" and an "engine" and the broad claim language recites generic operations of these modules and engine, i.e., operations that are not distinguishable from generic automation of manually (e.g., pen and paper) performable steps. (Ans. 6–7, 9.)

Appellant also argues the Examiner's rejection "does not appreciate the complexity of the problem addressed" by the invention, and "it should be appreciated that the examples provided [(e.g., in paragraph 229 of the Specification)] are kept simple for the reader's understanding and in reality there may be very complex rules and conditions that may be utilized which may not be easily parsed or evaluated." (Reply Br. 3–4.) However, as discussed *supra*, the broad language in claim 1 recites generic operations of "modules" and "engine" not distinguishable from generic automation of operations performable in the human mind or with pen and paper. Claim 1 does not recite or require the use or analysis of "very complex rules and conditions . . . which may not be easily parsed or evaluated" as Appellant argues. (*See* Reply Br. 4.) Claim 1 broadly recites "evidential support reasoner propagation rules" and a "logical parse data structure," without specifying details regarding the "propagation rules" or the complexity of the "parse data structure." As such, claim 1 includes analyses of sentence

structure (such as syntactic tree diagrams) that "a human with pencil and paper" could perform in, e.g., a logic class. (Ans. 6–7.)

Appellant also argues "the present claims recite a specific solution and are not attempting to preempt or monopolize every possible way of determining the reason for a state of a node," which "supports a finding that the present claims are directed to statutory subject matter." (Appeal Br. 12, 16, 26 (citing *Elec. Power Grp.*, 830 F.3d at 1350); *see also* Reply Br. 13.) As noted by the Examiner, however, "a lack of pre-emption in a set [of] claims is a necessary but not sufficient condition for eligibility," and therefore "insufficient to establish eligibility." (Ans. 8.) We agree with the Examiner. As the *McRO* court explicitly recognized, "the absence of complete preemption does not demonstrate patent eligibility." *See McRO*, 837 F.3d at 1315 (quoting *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015)). Furthermore, "[w]here a patent's claims are deemed only to disclose patent ineligible subject matter" under the *Alice*/*Mayo* framework, "preemption concerns are fully addressed and made moot." *Ariosa*, 788 F.3d at 1379.

Accordingly, under Step 2A, Prong 2, we conclude claim 1 does not recite "additional elements that integrate the judicial exception into a practical application," and is directed to an abstract idea in the form of a mental process of providing reasons for making a decision using thought processes of observation, evaluation, and judgment. Revised Guidance, 84 Fed. Reg. at 52, 54; *see also* MPEP § 2106.05(a)–(c), (e)–(h). Therefore, we proceed to *Step 2B*, *The Inventive Concept*.

Alice/Mayo—Step 2 (Inventive Concept)
Step 2B identified in the Revised Guidance

As recognized by the Revised Guidance, an "inventive concept" under *Alice* step 2 can be evaluated based on whether an additional element or combination of elements:

> (1) "[a]dds a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field, which is indicative that an inventive concept may be present;" or
>
> (2) "simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception, which is indicative that an inventive concept may not be present."

See Revised Guidance, 84 Fed. Reg. at 56.

We now determine whether representative independent claim 1 recites any elements additional to the abstract idea that are *not* well-understood, routine, or conventional. *See* MPEP § 2106.05(d). We are unable to identify any.

The Examiner asserts,

> the additional elements in the independent claims are a processor, a memory and a computer program product, which appear to be "adding the words 'apply it' (or an equivalent) with the judicial exception, or mere instructions to implement an abstract idea on a computer;" and "simply appending well-understood, routine and conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception."

(Final Act. 4 (citing 79 Fed. Reg. 74624 (December 16, 2014)).)

Appellant argues claim 1 recites "significantly more" because: (i) the "claimed invention provides an improvement to another technological field or technical field in that the claimed invention provides an improvement to natural language processing and logic or cognitive computing systems that

operate using such natural language processing, as detailed in the present specification" (Appeal Br. 35–37); (ii) claim 1 recites computer operations that "are not conventional, well-understood, or routine operations" and "the Examiner has provided no art, no Official Notice, and no evidence of any kind that the operations recited in the present claims are merely conventional activities previously known to the industry" (Appeal Br. 7, 39–40 (citing *Berkheimer v. HP Inc.*, 881 F.3d 1360 (Fed. Cir. 2018)); Reply Br. 13–15); and (iii) for reasons similar to those discussed in *BASCOM*, "the claims are directed to an ordered combination of elements that sets forth a technology-based solution [that performs a reverse engineering of knowledge reasoner(s)] to a computer-based problem," to thereby determine "a logical reason or justification for the knowledge state of a node in a logical parse data structure of natural language content based on knowledge propagation" (Appeal Br. 38 (citing *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016)); *see also* Reply Br. 14).

Appellant's arguments are not persuasive. Particularly, we are not persuaded by Appellant's arguments that claim 1 provides "an improvement to another technological field or technical field in that the claimed invention provides an improvement to natural language processing and logic or cognitive computing systems that operate using such natural language processing, as detailed in the present specification." (*See* Appeal Br. 35–37). As discussed *supra*, the steps in claim 1 recite results-based-functional language without providing sufficient technological detail for how to achieve the desired results. We remain unpersuaded by Appellant's arguments (*see* Appeal Br. 35–37) that claim 1 invokes any assertedly inventive programming, requires any specialized computer hardware, i.e., a

particular machine, or that the claimed invention is implemented using other than generic computer components to perform generic computer functions of data input, processing, and output.

Appellant's arguments that the Examiner has failed to produce factual support or evidence that claim 1 is routine and conventional are also unpersuasive. (*See* Appeal Br. 7, 39–40; Reply Br. 13–15.) The Examiner has noted that Appellant's claim 1 requires generic computer elements performing generic computer functions. (*See* Final Act. 4; Ans. 10; *see also* Spec. ¶¶ 45, 49, 53, 178; *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1321 (Fed. Cir. 2016) (receiving, screening, and distributing email is well known); *Versata Dev. Group, Inc.*, 793 F.3d at 1334 (receiving, storing, retrieving, sorting, and eliminating information is well known); *Elec. Power Grp.*, 830 F.3d at 1355 (finding that use of "conventional computer, network, and display technology for gathering, sending, and presenting the desired information" does not add significantly more to the claimed abstract idea); *In re Katz Interactive Call Processing Patent Litig.*, 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.").) "[T]he use of generic computer elements like a microprocessor or user interface" to perform conventional computer functions "do not alone transform an otherwise abstract idea into patent-eligible subject matter." *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1096 (Fed. Cir. 2016) (citing *DDR Holdings*, 773 F.3d at 1256); *see also BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1286–87 (Fed. Cir. 2018) ("[C]laims are not saved from abstraction merely because they recite

components more specific than a generic computer"). Additionally, as discussed *supra*, the results-based-functional language in claim 1's steps and the generically claimed processor, memory, engine, and modules fail to capture how the method of claim 1 would be different from the operation of conventional QA systems that automate the search for an answer to an input question. (*See* Spec. ¶ 41 (describing existing QA systems).)

Additionally, Appellant's abstract idea (of a mental process of providing reasons for making a decision)—applied to generic computing infrastructure—does not provide any particular practical application as required by *BASCOM*. (Ans. 10; *see BASCOM*, 827 F.3d at 1352, 1350.) For example, *BASCOM*'s patent-eligible ordered combination of claim limitations contains an "inventive concept [that] harnesses [a] . . . technical feature of network technology in a filtering system by associating individual accounts with their own filtering scheme and elements while locating the filtering system on an ISP [(Internet Service Provider)] server." *See BASCOM*, 827 F.3d at 1350. *BASCOM*'s claimed ordered combination "improve[s] the performance of the computer system itself" with a "technology-based solution . . . to filter content on the Internet that overcomes existing problems with other Internet filtering systems." *See BASCOM*, 827 F.3d at 1351–52 (internal citation omitted). Appellant's abstract idea of providing reasons for a decision using generically-claimed computing elements does not provide any particular practical application as required by *BASCOM*, or entail an unconventional technological solution to a technological problem as required by *Amdocs*. *See Amdocs Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1300, 1302 (Fed. Cir. 2016). As explained *supra*, the results-based-functional language in claim 1's steps and the

generically claimed processor, memory, engine, and modules fail to capture how the claimed method would be different from the operation of known QA systems or Internet search engines.

Appellant also argues "the lack of any prior art to teach or render the[claimed] operations obvious is further evidence that what is recited in the claims are operations that are not conventional, routine, or well-understood," indicating the claims recite "significantly more." (Appeal Br. 37.) As the Supreme Court emphasizes, however, "[t]he 'novelty' of any element or steps in a process, or even of the process itself, is of **no relevance** in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter." *Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981) (emphasis added). Thus, a novel and nonobvious claim directed to a purely-abstract idea is, nonetheless, patent-ineligible. *See Mayo*, 566 U.S. at 89–91.

Because Appellant's representative claim 1, and grouped claims 11 and 20 are directed to a patent-ineligible abstract concept and do not recite an "inventive concept" under the second step of the *Alice* analysis, we sustain the Examiner's § 101 rejection of independent claims 1, 11, and 20.

Appellant also contends the § 101 rejection of dependent claims 3, 4, 5, 6, 8, 9, 10, 13, 14, 15, 17, 18, and 19, arguing the claims "recite significantly more than any alleged abstract idea" and "define an improvement to another technology or technical field" or "an improvement of the functioning of the computer itself," because the dependent claims: (i) "define[] a specific configuration of the data processing system, computing device, or apparatus as implementing different justification modules based on different unique sets of reasoning and propagation rules that are

implemented by their corresponding knowledge reasoners" (discussing claim 3); (ii) "defin[e] the specific configuration of the at least one logical justification module . . . [and] further define the way that the logical parse data structure is generated" (discussing claims 4 and 13); (iii) "set forth a specific way in which these non-generic, non-routine, nonconvention[sic], and non-well understood operations set forth in the independent claims are actually performed by the specific elements of the data processing system or computing device" (discussing claims 5 and 14); (iv) provide "a new, non-generic, non-routine, nonconventional, and non-well-known functionality of a data processing system or computing device" by "actually composing a factual statement from the facts extracted from justifying nodes" (discussing claims 6 and 15); (v) "defin[e] the specific way in which the at least one logical justification module identifies one or more justifying nodes that provide a contribution to a knowledge state of selected node" by "5 specific operations. . . . [that] are not generic computer operations, are not routine, are not conventional, and are not well-understood" (discussing claims 8 and 17); (vi) "defin[e] the specific manner by which the operation recited in the claims from which claims 9 and 18 depend are performed and thus, is again defining a specific application of any alleged abstract idea" (discussing claims 9 and 18); and (vii) "defin[e] the specific configuration of the at least one logical justification module, i.e. as comprising a relevance reasoner logical justification module" and "defin[e] the specific way in which the at least one logical justification module identifies one or more justifying nodes" by "operations [that] are not generic computer operations, are not routine, are not conventional, and are not well-understood" (discussing claims 10 and 19). (Appeal Br. 42–45 (citing *Berkheimer*.)

We are not persuaded and agree with the Examiner that dependent claims 3–6, 8–10, 13–15, and 17–19 merely recite "additional data analysis steps that do not change the underlying abstract nature of the claims." (Ans. 10.) The broad language in dependent claims 3–6, 8–10, 13–15, and 17–19 recites generic functionality and generic modules (e.g., "different set of logical justification operations," "unique set of reasoning and propagation rules," "relevance reasoner," "co-reference reasoner," "relevance logical justification module," "co-reference logical justification module," extracted "facts," node having "a logical or semantic match" to another node, "quantifying" a "strength of a match" between nodes, "set of unique matching nodes," "determining a transfer of a maximum truth or falsity value" between nodes, "relevance reasoner logical justification module," "relevance knowledge contributions," and "relevance metrics" of nodes) without reciting specific characteristics of these operations and modules. For example, the dependent claims do not specify how the claimed "logical or semantic match," "strength of a match," "relevance metrics," and "transfer of a maximum truth or falsity value" are determined. The dependent claims also do not specify how the "set of unique matching nodes" or "relevance knowledge contributions" are determined, or what is included in the claimed "set of logical justification operations" and "unique set of reasoning and propagation rules." Regarding the labeling of various modules and software recited in the dependent claims (e.g., "relevance reasoner," "co-reference reasoner," "relevance logical justification module," "co-reference logical justification module," "relevance reasoner logical justification module"), we agree with the Examiner that simply labeling something a logical reasoning and justification engine (or other results-

based-functional names) "does not render it more than a general purpose computer executing software." (Ans. 6.)

Appellant also does not explain why the generic, results-based-functional language in the dependent claims "define[s] an improvement to another technology or technical field" or "an improvement of the functioning of the computer." (*See* Appeal Br. 25.) For example, the "extracting [of] facts from the one or more justifying nodes and utilizing the facts to compose a factual statement as to a justification for the knowledge state of the selected node" recited in claim 6 fails to capture how the claimed composition (of a factual statement) would be different from composition of an answer by a conventional QA system or by an Internet search system providing search results. Appellant's arguments also have not persuaded us that claims 5, 6, 8, 10, 14, 15, 17, and 19 recite "non-generic, non-routine, non-conventional, and non-well-known functionality." (*See* Appeal Br. 43–45.) Like claim 1, Appellant's claims 5, 6, 8, 10, 14, 15, 17, and 19 require generic computer elements performing generic computer functions, and the results-based-functional language in these claims fails to provide sufficient technological detail to demonstrate Appellant's argued "non-generic, non-routine, non-conventional, and non-well-known functionality." (*See* Appeal Br. 43–45.)

Thus, we agree with the Examiner the "abstract data analysis steps [in Appellant's dependent claims] do not change the underlying abstract idea the claims are directed to" and do not change "the lack of further purpose the results of the analysis are utilized for." (Ans. 10–11.)

Thus, we sustain the Examiner's 35 U.S.C. § 101 rejection of dependent claims 3–6, 8–10, 13–15, and 17–19.

CONCLUSION

The Examiner's rejection of claims 1, 3–6, 8–11, 13–15, and 17–20 under 35 U.S.C. § 101 is AFFIRMED.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/ Basis	Affirmed	Reversed
1, 3–6, 8–11, 13–15, 17–20	101	Eligibility	1, 3–6, 8–11, 13–15, 17–20	

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