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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DONNA KAREN BYRON, SANJAY FRANCIS KOTTARAM,
LAKSHMINARAYANAN KRISHNAMURTHY,
and ALEXANDER PIKOVSKY

Appeal 2018-000546
Application 14/332,464
Technology Center 3600

Before DENISE M. POTHIER, LARRY J. HUME, and
STEVEN M. AMUNDSON, *Administrative Patent Judges*.

POTHIER, *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

Appellants^{1,2} appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1–12. Appeal Br. 4. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ Throughout this opinion, we refer to the Final Action (“Final Act.”) mailed March 3, 2017, the Appeal Brief (“Appeal Br.”) filed July 18, 2017, the Examiner’s Answer (“Ans.”) mailed August 31, 2017, and the Reply Brief (“Reply Br.”) filed October 18, 2017.

² Appellants identify the real party in interest as International Business Machines Corp. Appeal Br. 2.

Invention

Appellants' invention "relates to a method for augmenting business process execution using natural language processing." Spec. ¶ 1. The Specification describes modeling a business process and states the process often leads to steps involving human intervention, such as a person must perform a task (e.g., enter information in an interface or decide on something) before the process can continue. *Id.* ¶¶ 17–19. According to the disclosure, human intervention can be time consuming and imprecise. *Id.* ¶ 20. The invention aims to solve these problems by determining the information needed to complete a human task and performing the process task without human intervention if a confidence level is met. *Id.* ¶¶ 21–23.

This application is a continuation of U.S. Application No. 14/104,493, which has also been appealed and has been assigned Appeal No. 2018-000529. *See* Appeal Br. 3.

Independent claim 1 exemplifies the claims at issue and reads as follows:

1. A method comprising:
 - executing a process in a data processing system to reach a state in the process;
 - computing, using a processor and a memory, a transition that has to be performed at the state to leave the state, the transition advancing the executing of the process and reaching another state in the process;
 - extracting, from a process executing in a data processing system, information related to the state in the process, the information comprising an execution history of the process up to the state;
 - transforming the information into a set of natural language (NL) questions;
 - parsing an NL question from the set of NL questions into a set of major features;

constructing a query from the set of major features;
executing the query on a knowledgebase corresponding
to the process;
generating a set of hypotheses corresponding to a set of
NL answers;
performing a deep analysis and statistical modeling on an
NL answer in the set of NL answers to produce a confidence
rating; and
auto-executing, responsive to the confidence rating
exceeding a threshold level of confidence, the transition in the
process.

Appeal Br. 17 (Claims App'x).

The Examiner relies on the following as evidence of unpatentability
under 35 U.S.C. § 103:

Balko	US 2009/0164985 A1	June 25, 2009
Woods	US 9,369,488 B2	June 14, 2016

David Ferrucci et al., *Building Watson: An Overview of the DeepQA Project*,
31 AI MAGAZINE 59–79 (Fall 2010) (“Ferrucci”).

Michael Yuan, *Watson and healthcare* 1–13³ (April 12, 2011),
<https://www.ibm.com/developerworks/library/os-ind-watson/> (“Yuan”) (last
visited May 18, 2017).

The Rejections

Claims 1–5 are provisionally rejected on the ground of nonstatutory
double patenting as being unpatentable over claims 13–17 and 20 of U.S.
Application No. 14/104,493. Final Act. 5–6.

Claims 1–12 are rejected under 35 U.S.C. § 112(a) as failing to
comply with the written-description requirement. Final Act. 6–8.

³ We will refer to the pages (1–13) provided for this reference consecutively.

Claims 1–12 are rejected under 35 U.S.C. § 101 as being directed to a judicial exception without significantly more. Final Act. 8–11.

Claims 1–8 are rejected under 35 U.S.C. § 103 as unpatentable over Yuan, Ferrucci, and Woods. Final Act. 12–19.

Claims 9–12 are rejected under 35 U.S.C. § 103 as unpatentable over Yuan, Ferrucci, Woods, and Balko. Final Act. 19–21.

THE DOUBLE-PATENTING REJECTION

Appellants request this “rejection be held in abeyance” (Appeal Br. 8), presenting no argument. We summarily sustain the rejection. *See Hyatt v. Dudas*, 551 F.3d 1307, 1314 (Fed. Cir. 2008) (explaining that when appellant fails to contest a ground of rejection, the Board may affirm the rejection without considering its substantive merits); *see also* 37 C.F.R. § 41.37(c)(1)(iv); MANUAL OF PATENT EXAMINING PROCEDURE (MPEP) § 1205.02 (9th ed., Rev.08.2017 (Jan. 2018)) (“If a ground of rejection stated by the examiner is not addressed in the appellant’s brief, appellant has waived any challenge to that ground of rejection and the Board may summarily sustain it.”).

THE WRITTEN-DESCRIPTION REJECTION

Among other limitations, claim 1 recites “performing a deep analysis and statistical modeling on an NL answer in the set of NL answers to produce a confidence rating” and “auto-executing, responsive to the confidence rating exceeding a threshold level of confidence, the transition in the process.” Appeal Br. 17 (Claims App’x). The Examiner asserts these

limitations are not supported by the Specification because the disclosure does not describe “how the deep analysis and statistical modeling is used to produce a confidence rating.” Final Act. 7⁴ (citing Spec. ¶¶ 37–38); Ans. 5–7. Appellants disagree. Appeal Br. 11–13 (citing Spec. ¶¶ 37–38).

ISSUE

Has the Examiner erred in determining that claim 1’s “performing a deep analysis and statistical modeling on an NL answer in the set of NL answers to produce a confidence rating” and “auto-executing, responsive to the confidence rating exceeding a threshold level of confidence, the transition in the process” limitations do not satisfy the written-description requirement under 35 U.S.C. § 112(a)?

ANALYSIS

Based on the record, we find error. To satisfy the written-description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. *See Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). As explained below, the Specification describes the disputed limitations in sufficient detail.

⁴ The Examiner discusses a limitation “a task to perform the transition” in claim 1. Final Act. 7. Based on the reference to claim 1 and rest of the quoted language, we presume the Examiner is referring to “the transition” in claim 1.

The Specification describes the IBM Watson™ Q and A system as performing “deep analysis on the language of the input questions . . . using a variety of reasoning algorithms.” Spec. ¶ 37, *cited in both* Final Act. 7 and Appeal Br. 12. The Specification further discusses performing deep analysis of the process in other embodiments. Spec. ¶¶ 98–99. Thus, the Specification describes the claimed “performing a deep analysis” in sufficient detail that one skilled in the art would have reasonably concluded the inventors had possession of the claimed invention in claim 1.

The Specification further discusses the deep analysis generating a score (Spec. ¶ 37) that is “weighted against a statistical model” (Spec. ¶ 38). The Specification states the statistical model is “used to summarize a level of confidence that the IBM Watson™ Q and A system has regarding the evidence that the potential response, i.e., candidate answer, is inferred by the question” and “identifies candidate answers that surface as being significantly stronger than others.” Spec. ¶ 38, *cited in both* Final Act. 7 and Appeal Br. 12. The Specification also discusses determining “a confidence level of an NL answer generated in block 514.” Spec. ¶ 90, Fig. 5. These collective discussions describe claim 1’s “performing . . . statistical modeling on an NL answer in the set of NL answers to produce a confidence rating” in sufficient detail that one skilled in the art would have reasonably concluded the inventors had possession of the claimed invention in claim 1.

As for “auto-executing, responsive to the confidence rating exceeding a threshold level of confidence, the transition in the process” in claim 1, the Specification states an “application determines whether the confidence level exceeds a threshold level of confidence” and when the “Yes” path is followed, “the application auto-executes a node of the business process

using the one or more NL answers” at steps 516 and 518 respectively. Spec. ¶ 91, Fig. 5. As such, the Specification describes claim 1’s “auto-executing, responsive to the confidence rating exceeding a threshold level of confidence, the transition in the process” recitation in sufficient detail that an ordinary skilled artisan would have reasonably concluded the inventors had possession of the above recited limitation.

For the foregoing reasons, Appellants have persuaded us of error in the rejection of independent claim 1 and dependent claims 2–12 for similar reasons.⁵

THE PATENT-ELIGIBILITY REJECTION

PRINCIPLES OF LAW

An invention is patent eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: “[L]aws of nature, natural phenomena, and abstract

⁵ The Examiner’s concerns over “*how* the deep analysis and statistical modeling is used to produce a confidence rating” (Final Act. 7 (emphasis added)) relate more to the enablement requirement under 35 U.S.C. § 112(a), which requires that the Specification teach those in the art to make and use the invention without undue experimentation. *See* MPEP § 2164. Also, we leave to the Examiner to decide whether the recited “deep analysis” is definite under 35 U.S.C. § 112(b). *See, e.g.*, MPEP § 2173.02–04 (discussing when the boundaries of the protected subject matter are not clearly delineated and the scope is unclear). Notably, the Specification states deep analysis uses “a variety of reasoning algorithms. There may be *hundreds or even thousands of reasoning algorithms applied*, each of which performs different analysis” Spec. ¶ 37 (emphasis added).

ideas” are not patentable. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012) (brackets in original) (citing *Diamond v. Diehr*, 450 U.S. 175, 185 (1981)).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 217–18 (2014) (citing *Mayo*, 566 U.S. at 75–77). In accordance with that framework, we first determine what concept the claim is “directed to.” See *Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk.”); see also *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4 in petitioners’ application explain the basic concept of hedging, or protecting against risk.”).

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 69 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding of rubber products” (*Diamond v. Diehr*, 450 U.S. 175, 193 (1981)); “tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. (15 How.) 252, 267–68 (1854))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that “[a] claim drawn to subject matter otherwise

statutory does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 187; *see also id.* at 191 (“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula.”). That said, the Supreme Court also indicated that a claim “seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, . . . and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Id.* (citing *Benson* and *Flook*); *see, e.g., id.* at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”).

If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where “we must 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 (quotation marks omitted). “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Id.* (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

In January 2019, the USPTO published revised guidance on the application of § 101. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Guidance”). Under that guidance, we first look to whether the claim recites:

(1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activities such as a fundamental economic practice, or mental processes) (Guidance, 84 Fed. Reg. at 52–54) (“Revised Step 2A - Prong 1”); and

(2) additional elements that integrate the judicial exception into a practical application (*see* MPEP §§ 2106.05(a)–(c), (e)–(h)) (Guidance, 84 Fed. Reg. at 53–55) (“Revised Step 2A - Prong 2”).

Only if a claim (1) recites a judicial exception, and (2) does not integrate that exception into a practical application, do we then look to whether the claim:

(3) adds a specific limitation beyond the judicial exception that is not well-understood, routine, and conventional in the field (*see* MPEP § 2106.05(d)); or

(4) simply appends well-understood, routine, and conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

See Guidance, 84 Fed. Reg. at 56 (“Step 2B”).

ANALYSIS

Claims 1–12 are argued as group. Appeal Br. 8–11. We select claim 1 as representative. *See* 37 C.F.R. § 41.37(c)(1)(iv).

At the outset, we note that claim 1 recites a series of steps (Appeal Br. 17 (Claims App’x)) and, therefore, falls within the process category of § 101. Even so, we must still determine whether claim 1 is directed to a judicial exception, namely an abstract idea. *See Alice*, 573 U.S. at 217. To this end, we must determine whether (1) claim 1 recites a judicial exception

and (2) fails to integrate the exception into a practical application. *See* Guidance, 84 Fed. Reg. at 52–55. If both elements are satisfied, the claims are directed to a judicial exception under the first step of the *Alice/Mayo* test. *See id.*

Alice Step One, Revised Step 2A - Prong 1

Appellants argue claim 1 is not abstract. Appeal Br. 8–10. We are not persuaded.

To determine whether a claim recites a judicial exception, we (1) identify the claim’s specific limitations that recite an abstract idea, and (2) determine whether the identified limitations fall within certain subject-matter groupings, namely (a) mathematical concepts⁶; (b) certain methods of organizing human activity⁷; or (c) mental processes.⁸ In the rejection, the Examiner determines that claim 1 is directed to “an abstract idea,” which includes executing a process, computing a transition, extracting information, parsing information, constructing and executing a query, generating a hypothesis, performing deep analysis and statistical modeling to determine a confidence rating, determining whether a confidence rating exceeds a

⁶ Mathematical concepts include mathematical relationships, mathematical formulas or equations, and mathematical calculations. *See* Guidance, 84 Fed. Reg. at 52.

⁷ Certain methods of organizing human activity include fundamental economic principles or practices (including hedging, insurance, mitigating risk); commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations); managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions). *See id.*

⁸ Mental processes are concepts performed in the human mind including an observation, evaluation, judgment, or opinion. *See id.*

threshold, and auto-executing a process transition responsive to the rating. Final Act. 8–9; Ans. 4. Upon reviewing the record, we agree with the Examiner that claim 1 recites at least one judicial exception. As explained below, the recited judicial exception can be categorized as mental processes. Appeal Br. 17 (Claims App’x).

Claim 1 recites the following steps: (1) “computing . . . a transition that has to be performed at a state to leave the state, the transition advancing the executing of the process and reaching another state in the process,” (2) “extracting . . . information related to the process state, the information comprising an execution history of the process up to the state,” (3) “transforming the information into a set of natural language (NL) questions,” (4) “parsing an NL question from the set of NL questions into a set of major features,” (5) “constructing a query from the set of major features,” (6) “executing the query . . . corresponding to the process,” (7) “generating a set of hypotheses corresponding to a set of NL answers,” and (8) “performing a deep analysis and statistical modeling on an NL answer in the set of NL answers to produce a confidence rating.” *Id.*

The above steps as a whole and under the broadest reasonable construction recite modeling a process to transition from one state to another state using a confidence rating because all the above limitations recite features that would ordinarily take place when modeling a transition in a process. *See id.* In the context of the Specification, such a process involves modeling a business process (e.g., processing purchase orders) that transitions from one state (e.g., beginning the “credit approval” step) to another state in the business process (e.g., sending credit application to the appropriate third-party for approval) based on a confidence rating (e.g., set

at 0.8). *See* Spec. ¶¶ 21–22, 70–79, Fig. 3. As an example, determining or “computing . . . a transition that has to be performed at the state to leave the state” as recited in limitation (1) is an activity that would take whenever one models a process transitioning from one state to another state (e.g., from the beginning of a “credit approval” step to sending a credit application for approval). Similarly, “extracting . . . information related to the process state” (e.g., buyer’s account number and purchase transaction amount), “transforming the information into” an NL question set (e.g., what to do with a buyer’s requested purchase amount and who to send the request to), “parsing an NL question from the” NL question set into major features (e.g., “purchase amount” and “approval person”), “constructing a query from the” major features (e.g., how to obtain approval for requested purchase amount from certified approvers), “executing the query . . . corresponding to the process” (e.g., research possible ways to get credit approval), “generating a set of hypotheses corresponding to” an NL answer set (e.g., generating a list of possible credit approvers to send the credit request), “performing a deep analysis and statistical modeling on an NL answer in the” NL answer set “to produce a confidence rating” (e.g., compare each approver on generated list to various sources, such as a certification list, a company list, and an association list, to determine matches and assign each match a rating depending on the approver’s certification) as recited in limitations (2)–(8) are characteristics of modeling a process transition from one state to another. Modeling a process transitioning from one state to another state as recited in limitations (1)–(8) involves evaluation, conceptualization, and judgment, which are mental processes.

Thus, with the exception of generic computer-implemented steps, there is nothing in claim 1 that forecloses it from being performed by a human either mentally or with pen and paper. *See Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1318 (Fed. Cir. 2016) (citing *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1373 (Fed. Cir. 2011)); *see also Benson*, 409 U.S. at 67 (indicating “mental processes . . . are not patentable, as they are the basics tools of scientific and technological work”); *see also U. of Fla. Res. Found., Inc. v. Gen. Elec. Co.*, 2019 WL 921859, at *4 (Fed. Cir. Feb. 26, 2019) (indicating claims directed to automating a methodology that was previously done manually are directed to abstract ideas). These findings are further supported by the Specification, which seeks to automate human tasks that are time-consuming and imprecise. *See Spec.* ¶¶ 18–23. Moreover, limitations (3), (4), (6), and (7) do not involve any machine.

Although some of claim 1’s limitations may be based on mathematical concepts (e.g., “statistical modeling”), mathematical formulas or calculations are not explicitly recited in the claim. Moreover, the Specification states “deep analysis” is performed “using a variety of reasoning algorithms.” *Spec.* ¶ 37. The Specification further states “[t]here may be hundreds or even thousands of reasoning algorithms applied, each of which performs different analysis, e.g., comparisons” and include “matching of terms and synonyms within the language of the input question and found portions of the corpus of data” or “evaluat[ing] the source of the portion of the corpus of data and . . . its veracity.” *Id.* Construing the phrase “deep analysis” in light of the Specification, we determine the phrase covers many algorithms, including some that are sufficiently simple such that they can be practically

performed in the human mind or with pen and paper (e.g., matching terms and synonyms with a data corpus or evaluating part of a source and its veracity). *See id.* Thus, although some “deep analysis” may not practically be performed in the human mind, other embodiments covered by claim 1’s scope can.

Appellants also contend claim 1 is directed to “NLP and Q and A technologies, which satisfy an ‘article of manufacture’ or ‘machine’ requirement for patentability.” Appeal Br. 10. We disagree. First, although reciting NL features, claim 1 does not recite a “NLP” or “Q and A” machine. Appeal Br. 17 (Claims App’x). Second, as discussed above, claim 1 is directed to a process. Third, as discussed in more detail below under Revised Step 2A - Prong 2, the limitations to machines are additional elements separate from the identified judicial exception.

Accordingly, we determine claim 1 as a whole recites evaluating, conceptualizing, and judging that can be performed in the human mind or with pen and paper, which are mental processes identified in the Guidance, and thus an abstract idea.

Alice Step One, Revised Step 2A - Prong 2

Although claim 1 recites an abstract idea, we must still determine whether the abstract idea is integrated into a practical application, namely whether the claim applies, relies on, or uses the abstract idea in a manner that imposes a meaningful limit on the abstract idea, such that the claim is more than a drafting effort designed to monopolize the abstract idea. *See* Guidance, 84 Fed. Reg. at 53. To this end, we (1) identify whether there are any additional, recited elements beyond the judicial exception, and (2) evaluate those elements individually and collectively to determine

whether they integrate the exception into a practical application. *See id.* at 54–55.

Appellants contend the claimed invention “improve[s] the efficacy of the computer and implement[s] the claimed functions that perform a specific method to solve a problem using said NLP and Q and A technologies.”

Appeal Br. 10. We are not persuaded.

The additionally recited elements beyond the above-identified judicial exception in claim 1 are “a data processing system,” “a processor,” “a memory,” and “a knowledgebase [sic].” Appeal Br. 17 (Claims App’x); *see also* Final Act. 10. Claim 1 also recites “executing a process in a data processing system to reach a state in the process,” “executing the query on a knowledgebase [sic],” and “auto-executing, responsive to the confidence rating exceeding a threshold level of confidence, the transition in the process.” *Id.* When considering these elements individually or in combination, we determine they do not integrate a judicial exception into a practical application for the below-stated reasons.

First, the additional elements do not reflect an improvement in a computer’s functioning or an improvement to other technology or technical field as set forth in MPEP § 2106.05(a) and Guidance, 84 Fed. Reg. at 55. *See* Final Act. 10–11 (citing Spec. ¶¶ 31–33). Instead, the claimed data processing system, processor, memory, and knowledge base merely automate a manual process using generic computer elements as tools to perform the judicial exception. These elements do not constitute a patentable improvement in computer technology. *See Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1055 (Fed. Cir. 2017); *see also Alice*, 573 U.S. at 221, 223. For example, the claimed data processing

system is a tool to execute part of the recited method (e.g., “executing a process . . . to reach a state in the process,” and possibly “auto-executing . . . the transition in the process”⁹). Appeal Br. 17 (Claims App’x). Similarly, the processor and memory are tools used to “comput[e] . . . a transition that has to be performed at the state to leave the state, the transition advancing the executing of the process and reaching another state in the process.” *Id.* Further, the “knowledge” base may include a computer tool that a query uses to generate potential answers. *Id.*; *see also* Spec. ¶¶ 39, 60–62. Thus, the above-recited steps are being applied using general computer elements and do not improve a computer’s function. *See Alice*, 573 U.S. at 221; *see also* MPEP § 2106.05(f).

Second, Appellants argue that the claimed invention implements its functions that perform a specific method to solve a problem using NLP and Q and A technologies. Appeal Br. 10; Reply Br. 3. Claim 1 recites steps involving natural language, such as transforming information into NL questions, parsing the NL questions into major features, generating hypotheses corresponding to NL answers, and performing statistical modeling on the NL answers, which *may* involve “NLP technologies,” and (2) performing “deep analysis” on an NL answer, which *may* include Q&A technologies as discussed previously when discussing the written description rejection. Appeal Br. 17 (Claims App’x). However, such steps do not necessarily use the data processing system, the processor, and the memory to perform the steps and, as broadly as recited, can be performed by a human. Claim 1 therefore is not limited to NLP and Q and A technologies. But even

⁹ Although claim 1 does not recite what element performs this “auto-executing” step, the data processing system is one possible element.

assuming claim 1 implements such technologies, simply applying a judicial exception to a particular field (e.g., NLP and/or Q&A technologies) is not sufficient to integrate the exception into a practical application. *See Bilski*, 561 U.S. at 612; *see also* MPEP § 2106.05(h).

Appellants also attempt to draw an analogy between claim 1 and *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014). Appeal Br. 10–11. Appellants contend certain machine interactions with humans “were not unavailable prior to the advent of NL-enabled systems” (Appeal Br. 10) and thus “*DDR* applies” (*id.* at 10–11). We are not persuaded. In *DDR*, the claimed invention was necessarily rooted in computer technology to overcome a problem specifically arising in the realm of computer networks, namely retaining website visitors by sending a hybrid web page that presents product information from a third-party and the visual “look and feel” elements from the host website. *See DDR*, 773 F.3d at 1257–59. In contrast and as previously noted, Appellants have not demonstrated sufficiently that claim 1 is necessarily rooted in computer technology to overcome a problem specifically arising in computer technologies. *See also* Ans. 5.

Third, as for Appellants’ assertions that the claimed method improves on the computer’s efficacy (Appeal Br. 10), several court decisions indicate “merely adding computer functionality to increase the speed or efficiency of the process does not confer patent eligibility on an otherwise abstract idea.” *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015); *see also Credit Acceptance*, 859 F.3d at 1057 (quoting *Capital One Bank*, 792 F.3d at 1370).

Claim 1 also recites the additional steps of “executing a process in a data processing system to reach a state in the process,” “executing the query on a knowledgebase [sic],” and “auto-executing, responsive to the confidence rating exceeding a threshold level of confidence, the transition in the process.” Appeal Br. 17 (Claims App’x). Similar to the Examiner (*see* Ans. 5), we determine these additional executing steps do not apply the judicial exception in a meaningful way, such that claim 1 is more than drafting effort designed to monopolize a judicial exception. *See* MPEP §§ 2106.05(e). These limitations also are no more than insignificant extra-solution activities as set forth in MPEP § 2106.05(g). For example, the “executing a process” step is merely a nominal extra-solution step for use in computing a transition in the process and extracting information as recited in claim 1. The “executing the query on a knowledgebase [sic]” is a tangential extra-solution step because, as recited, this step is not used by the latter “generating,” “performing,” and “auto-executing” steps in claim 1. Appeal Br. 17 (Claims App’x). Furthermore, the “auto-executing” step is merely an insignificant extra-solution step that uses the confidence rating to determine whether to execute the process transition as claim 1 recites. All these steps are not enough to transform the judicial exception into a patentable process (*see Parker*, 427 U.S. at 590) and do not impose meaningful limits on claim 1 (*see* Final Act. 10; *see also* Ans. 5).

Finally, claim 1’s additional elements do not implement the identified judicial exception with or use the judicial exception in conjunction with a particular machine as set forth in MPEP § 2106.05(b) or recite a particular transformation as set forth in MPEP § 2106.05(c). For example, the claimed data processing system, processor, and memory are not recited as a

particular type of data processing system, processor, or memory. Appeal Br. 17 (Claims App'x). Merely manipulating or reorganizing data, like some of claim 1's steps, is also not enough to satisfy the transformation test. *See CyberSource*, 654 F.3d at 1375. No new or different function has been created using the additional elements in claim 1, such that an article has been transformed physically into a different state or thing.

For the above-stated reasons, we determine the additional elements beyond the judicial exception in claim 1, whether considered alone or in combination, are not integrated into a practical application.

Alice/Mayo Step Two, Step 2B

Because we determine claim 1 does not integrate the recited judicial exception into a practical application, we consider whether the additional elements add a specific limitation or combination of limitations that are not well-understood, routine, or conventional activity in the field. *Guidance*, 84 Fed. Reg. at 56. If so, this indicates that an inventive concept may be present. If, instead, the additional elements simply append well-understood, routine, and conventional activities previously known to the industry, specified at a high level of generality, to the judicial exceptions, this indicates that an inventive concept may not be present.

The Examiner found that the additional elements (e.g., the data processing system, the processor, and the memory) in claim 1 perform generic computer functions that are well-understood, routine, and conventional activities. Final Act. 10–11 (citing Spec. ¶¶ 31–33); Ans. 5. We agree with the Examiner's finding in this regard and further note these elements are recited at a high level of generality. *See* Spec. ¶¶ 31–33, *cited in* Final Act. 10. Also, to the extent claimed, the Specification further

describes an NLP engine and a Q and A engine as “an existing tool” and “an existing application” respectively, and thus they perform their conventional and routine activities. Spec. ¶ 33.

Concerning the “executing” and the “computing” steps in claim 1, Appellants assert “there is no established or well-known universally binding correspondence between execution of a process and transmission.” Appeal Br. 9. Appellants further argue “‘computing a transition’ is a transmission step.” *Id.* As understood, Appellants contend the Examiner has not demonstrated a well-known correspondence between the “executing” and the “computing” steps in claim 1. *See id.*

We are not persuaded. First, we disagree that the “computing . . . a transition” step is a transmission step as argued (Appeal Br. 9) but rather is a step that determines a transition. Second, we previously indicated that we need to consider whether the *additional* elements in claim 1 add a specific limitation or combination of limitations that are not well-understood, routine, or conventional activity in the field. Thus, even assuming without agreeing the above step concerns transmission, this “computing” step is part of the judicial exception (excluding the processor and memory) and thus as stated above, does not constitute an additional element in claim 1. Third, concerning the “executing” step, Appellants do not dispute this step is well-understood, routine, or conventional in the field. Appeal Br. 9. Rather, Appellants assert there is *no well-known* universally binding *correspondence between* execution of the process and transmission steps. *See id.* Such an argument is unavailing to challenge that the additional steps themselves or in combination are not well-known, routine, or conventional and add

something significant beyond the judicial exception. *See Mayo*, 566 U.S. at 79–80 (citing *Parker*, 427 U.S. at 590).

Appellants further list other limitations in claim 1 but do not assert that these steps are not well-understood, routine, or conventional. Appeal Br. 9.

We conclude the additional elements in claim 1 alone or in combination simply append well-understood, routine, and conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception. As such, we determine the additional elements do not provide an inventive concept in claim 1.

For the foregoing reasons, Appellants have not persuaded us of error in the rejection of independent claim 1 and claims 2–12, which are not separately argued.

OBVIOUSNESS REJECTION OVER YUAN, FERRUCCI, AND WOODS

The Examiner finds Yuan teaches many of the limitations in claim 1. Final Act. 12–14. The Examiner turns to Ferrucci in combination with Yuan to teach the limitations related to the “threshold level.” Final Act. 14–15 (citing Ferrucci 64). The Examiner also turns to Woods in combination with Yuan and Ferrucci to teach or suggest the recitations concerning information related to “a state in the business¹⁰ process,” “information comprising an execution history of the process up to the state,” and “a transition from the

¹⁰ Notably, claim 1 does not recite “business.” Appeal Br. 17 (Claims App’x).

state defined in the business process.” Final Act. 15 (citing Woods 8:60–65, 9:65–10:6, 10:35–40).

Among other arguments, Appellants assert the proposed combination does not teach transforming the information into a set of natural language questions. Appeal Br. 14–15; Reply Br. 5.

ISSUE

Under § 103, has the Examiner erred in rejecting claim 1 by determining that Yuan, Ferrucci, and Woods as proposed would have taught or suggested “transforming the information [related to the state in the process, the information comprising an execution history of the process up to the state] into a set of natural language (NL) questions”?

ANALYSIS

Based on the record, we find error. We agree with Appellants that the Examiner relies on Yuan to teach the disputed “transforming” limitation. Appeal Br. 15 (stating “[o]nly *Yuan* has been relied upon for these features in claim 1”). Although the rejection further discusses Woods when addressing the information and its content (Final Act. 15), we presume the Examiner relies on Yuan alone to teach transforming this information into a NL question set. Final Act. 13 (citing Yuan 4–5); Ans. 7–8 (same). We thus confine our discussion to Yuan.

Yuan teaches a user can ask a question to a Q&A system, such as why a heartburn medicine did not work. Yuan 4, *cited and discussed in* Final Act. 13. However, Yuan does not teach or suggest entering information into the Q&A system that transforms into a question but rather receiving a NL

question directly. Yuan 4. We thus agree with Appellants that this example in Yuan does not take information and transform that information into NL questions as recited. *See* Appeal Br. 15.

Yuan further discusses Watson parses an NL question to generate a search query, searches a search engine for related documents, parses the NL-based search results, and generates potential answers or hypotheses. Yuan 4–5. The Examiner states the “hypothesis is a conjecture or question.” Ans. 8. But, as noted by Appellants (Reply Br. 5), Yuan’s hypotheses are answers. Yuan 5 (stating “potential answers (hypotheses)”). As such, Yuan’s parsing of an NL question and generating potential answers cannot reasonably be construed as teaching “transforming the information into a set of natural language (NL) questions” as recited in claim 1.

Yuan also teaches parsing the hypotheses/answers, generating a search query, parsing evidence/search results, and scoring the evidence. Yuan 5. The Examiner has not explained sufficiently how these additional steps teach or suggest “transforming the information into a set of natural language [] questions” as recited in claim 1. We thus are constrained to conclude the proposed combination does not teach the above limitation.

For the foregoing reasons, Appellants have persuaded us of error in the rejection of independent claim 1 and dependent claims 2–8 for similar reasons.

THE OBVIOUSNESS REJECTION OVER YUAN, FERRUCCI,
WOODS, AND BALKO

Appellants contend Balko does not overcome the distinctions addressed for claim 1. Appeal Br. 15. We agree. The Examiner does not

further rely on *Balko* to teach the above-noted disputed limitation. Final Act. 19–21. Accordingly, Appellants have persuaded us of error in the rejection of claims 9–12 for reasons previously stated.

DECISION

We affirm the provisional rejection of claims 1–5 on nonstatutory double-patenting rejection grounds.

We affirm the Examiner’s rejection of claims 1–12 under § 101.

We reverse the Examiner’s rejections of claims 1–12 under §§ 112(a) and 103.

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

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

AFFIRMED