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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

_____

Appeal 2018-000529
Application 14/104,493
Technology Center 3600

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Before DENISE M. POTHIER, STEVEN M. AMUNDSON, and
LARRY J. HUME, *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 13–20. Appeal Br. 4.[3] We have jurisdiction under
35 U.S.C. § 6(b). We affirm.

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[1] Throughout this opinion, we refer to the Final Action ("Final Act.") mailed
March 6, 2017, the Appeal Brief ("Appeal Br.") filed July 18, 2017, the
Examiner's Answer ("Ans.") mailed August 24, 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 "system[] and computer program product 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., using an interface or a decision making tool) 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 related to U.S. Application No. 14/332,464, which has also been appealed and has been assigned Appeal No. 2018-000546. Appeal Br. 3.

Independent claim 20 exemplifies the claims at issue and reads as follows:

> 20. A data processing system comprising:
>   a storage device including a storage medium, wherein the storage device stores computer usable program code; and
>   a processor, wherein the processor executes the computer usable program code, and wherein the computer usable program code comprises:
>   computer usable code for executing a process in a data processing system to reach a state in the process;

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[3] Other than pages 21 through 23, the Appeal Brief has not been numbered. We refer to the pages in the Appeal Brief sequentially as they are presented in the record.

computer usable code for 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;

computer usable code for 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;

computer usable code for transforming the information
into a set of natural language (NL) questions;

computer usable code for parsing an NL question from
the set of NL questions into a set of major features;

computer usable code for constructing a query from the
set of major features;

computer usable code for executing the query on a
knowledgebase corresponding to the process;

computer usable code for generating a set of hypotheses
corresponding to a set of NL answers;

computer usable code for performing a deep analysis and
statistical modeling on an NL answer in the set of NL answers
to produce a confidence rating; and

computer usable code for auto-executing, responsive to
the confidence rating exceeding a threshold level of confidence,
the transition in the process.

Appeal Br. 20–21 (Claims App'x).

The Examiner relies on the following as evidence of unpatentability

under 35 U.S.C. § 103:

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* 1–13[4] (April 12, 2011),
https://www.ibm.com/developerworks/library/os-ind-watson/ ("Yuan") (last
visited May 18, 2017).

The Rejections

Claims 13–17 and 20 are provisionally rejected on the ground of
nonstatutory double patenting as being unpatentable over claims 1–5 of U.S.
Application No. 14/332,464. Final Act. 5–6.

Claims 13–20 are rejected under 35 U.S.C. § 112(a) as failing to
comply with the written-description requirement. Final Act. 6–8.

Claims 13–20 are rejected under 35 U.S.C. § 101 as being directed to
a judicial exception without significantly more. Final Act. 8–12.

Claims 13–20 are rejected under 35 U.S.C. § 103 as unpatentable over
Yuan, Ferrucci, and Woods. Final Act. 13–19.

THE DOUBLE-PATENTING REJECTION

Appellants request this "rejection be held in abeyance" (Appeal Br. 9),
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.").

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

THE WRITTEN-DESCRIPTION REJECTION

Among other limitations, illustrative claim 20 recites:

> a processor, wherein the processor executes the computer usable program code, and wherein the computer usable program code comprises . . .
> computer usable code for performing a deep analysis and statistical modeling on an NL answer in the set of NL answers to produce a confidence rating; and
> computer usable code for auto-executing, responsive to the confidence rating exceeding a threshold level of confidence, the transition in the process.

Appeal Br. 20–21 (Claims App'x). The Examiner asserts the limitations directed to "performing the deep analysis and statistical modeling" and "auto-executing, responsive to the confidence rating exceeding a threshold level of confidence, the transition in the business process" in claims 13 and 20 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. 7[5] (citing Spec. ¶¶ 37–38); *see also* Final Act. 8; *see also* Ans. 5–7. Appellants disagree. Appeal Br. 12–14 (citing Spec. ¶¶ 37–38).

ISSUE

Has the Examiner erred in determining that claim 20's "processor, wherein the processor executes the computer usable program code, and

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[5] The Examiner discusses a limitation "a task to perform the transition" in claim 13. Final Act. 7. Based on the reference to claims 13 and 20 and the rest of the quoted language, we presume the Examiner is referring to "the transition" in claims 13 and 20.

wherein the computer usable program code comprises: . . . computer usable code for [(1)] performing a deep analysis and statistical modeling on an NL answer in the set of NL answers to produce a confidence rating" and (2) "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.

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. 13. 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 20.

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. 13. 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 20'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 20.

As for "auto-executing, responsive to the confidence rating exceeding a threshold level of confidence, the transition in the process" in claim 20, 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 20'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.

Lastly, the Specification states a processor is used to execute the computer usable program code, including executing a task responsive to confidence level. Spec. ¶ 7. The Specification also discusses processors or processing devices (e.g., 206) that execute instructions or create means to implement the functions/acts specified in the block diagrams and flowcharts,

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including Figures 3 and 5 (e.g., performing deep analysis and statistical modeling on NL answers to produce a confidence level). *See* Spec. ¶ 104, Figs. 2–5.

For the foregoing reasons, Appellants have persuaded us of error in the rejection of (1) independent claim 20, (2) independent claim 13, which is commensurate in scope, and (3) dependent claims 14–19 for similar reasons.[6]

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 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)).

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[6] 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).

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 13–20 are argued as group. Appeal Br. 9–12. We select
claim 20 as representative. *See* 37 C.F.R. § 41.37(c)(1)(iv).

At the outset, we note that claim 20 recites a storage device including
a storage medium storing computer usable program code that comprises
code for performing a series of steps and a processor that executes the code
(Appeal Br. 20–21 (Claims App'x)) and, therefore, falls within the machine
category of § 101. Even so, we must still determine whether claim 20 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 20 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.*

<div align="center">

Alice Step One, Revised Step 2A - Prong 1

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Appellants argue claim 20 is not abstract. Appeal Br. 9–11. 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 concepts[7]; (b) certain methods of organizing human activity[8]; or (c) mental processes.[9] In the rejection, the Examiner determines that claim 20 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 threshold, and auto-executing a process transition responsive to the rating.

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

[8] 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.*

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

Final Act. 8–9; Ans. 3–4. Upon reviewing the record, we agree with the Examiner that claim 20 recites at least one judicial exception. As explained below, the recited judicial exception can be categorized as mental processes. Appeal Br. 20–21 (Claims App'x).

Claim 20 recites the code for performing 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 code for performing 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 an 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

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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 or instructions, there is nothing in claim 20 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.

Although some of claim 20'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

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not practically be performed in the human mind, other embodiments covered by claim 20's scope can.

Appellants also contend claim 20 is directed to "NLP and Q and A technologies, which satisfy an 'article of manufacture' or 'machine' requirement for patentability." Appeal Br. 11. We disagree. First, although reciting NL features, claim 20 does not recite a "NLP" or "Q and A" machine. Appeal Br. 20–21 (Claims App'x). Second, as discussed in more detail below under Revised Step 2A - Prong 2, the limitations to machines (e.g., the storage device, storage medium, and processor) are additional elements separate from the identified judicial exception.

Accordingly, we determine claim 20 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 20 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. 11. We are not persuaded.

The additionally recited elements beyond the above-identified judicial exception in claim 20 are "a storage device," "a storage medium," "a processor," and "computer usable program code," and "a knowledgebase [sic]." Appeal Br. 20–21 (Claims App'x); *see also* Final Act. 10. Claim 20 also recites code for "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. 20–21 (Claims App'x). 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 storage device, storage medium, processor, code, 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 storage device and storage medium are tools to store computer usable program code. Appeal

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Br. 20–21 (Claims App'x). The claimed processor and code are tools to execute the recited steps (e.g., "executing a process . . . to reach a state in the process" and "auto-executing . . . the transition in the process"). *Id.* Similarly, the processor and code 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 the claimed invention implements its functions that perform a specific method to solve a problem using NLP and Q and A technologies. Appeal Br. 11; Reply Br. 3. Claim 20 recites code for performing 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 requirement. Appeal Br. 21–22 (Claims App'x). Claim 20 thus is not limited to NLP and Q and A technologies. But even assuming claim 20 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 20 and *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014). Appeal Br. 11–12. Appellants contend certain machine interactions with humans "were not unavailable prior to the advent of NL-enabled systems" and thus "*DDR* applies." Appeal Br. 12. 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 20 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. 11), 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 20 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. 21–22 (Claims App'x). Similar to the Examiner (*see* Ans. 4–5), we determine these additional executing steps do not apply

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the judicial exception in a meaningful way, such that claim 20 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 recited "code for executing a process" step is merely a nominal extra-solution instruction or step for use in computing a transition in the process and extracting information as recited in claim 20. The "code for executing the query on a knowledgebase [sic]" is a tangential extra-solution instruction or step because, as recited, this code is not used by the latter "generating," "performing," and "auto-executing" steps in claim 20. Appeal Br. 20–21 (Claims App'x). Furthermore, the "code for auto-executing" instruction or step is merely an insignificant extra-solution instruction or step that uses the confidence rating to determine whether to execute the process transition as claim 20 recites. All these instructions or steps are not enough to transform the judicial exception into a patentable machine or process (*see Parker*, 427 U.S. at 590) and do not impose meaningful limits on claim 20 (*see* Final Act. 10; *see also* Ans. 5).

Finally, claim 20'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 storage device, storage medium, and processor are not recited as a particular type of storage device, storage medium, and processor. Appeal Br. 20–21 (Claims App'x). Merely manipulating or reorganizing data, like some of claim 20's instructions or steps, is also not enough to satisfy the transformation test. *See CyberSource*, 654 F3.d at 1375. No new or

different function has been created using the additional elements in claim 20, 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 20, whether considered alone or in combination, are not integrated into a practical application.

Alice/Mayo Step Two, Step 2B

Because we determine claim 20 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 20 perform generic computer functions that are well-understood, routine, and conventional activities. Final Act. 10–11 (citing Spec. ¶¶ 31–33); Ans. 4–5. 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. 10–11. 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.

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Concerning the code for "executing" and "computing" instructions or steps in claim 20, Appellants assert "there is no established or well-known universally binding correspondence between execution of a process and transmission." Appeal Br. 10. 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. *See id.*

We are not persuaded. First, we disagree that the "code for computing . . . a transition" is a transmission instruction or step as argued (Appeal Br. 10) but rather an instruction or a step that determines a transition. Second, we previously indicated that we need to consider whether the *additional* elements in claim 20 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 instruction or step concerns transmission, this "computing" instruction or step is part of the judicial exception (excluding the storage device and processor) and thus as stated above, does not constitute an additional element in claim 20. Third, concerning the "executing" instruction or step, Appellants do not dispute this instruction or step is well-understood, routine, or conventional in the field. Appeal Br. 10. 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 20 but do not assert that these steps are not well-understood, routine, or conventional. Appeal Br. 10.

We conclude the additional elements in claim 20 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 20.

For the foregoing reasons, Appellants have not persuaded us of error in the rejection of independent claim 20 and claims 13–19, which are not separately argued.

OBVIOUSNESS REJECTION OVER YUAN, FERRUCCI, AND WOODS

The Examiner finds Yuan teaches many of the limitations in claim 20. Final Act. 13–15. The Examiner turns to Ferrucci in combination with Yuan to teach the limitations related to the "threshold level." Final Act. 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 business[10] process," "information comprising an execution history of the process up to the state," and "a transition from the state defined in the business process." Final Act. 16 (citing Woods 8:60–65, 9:65–10:6, 10:35–40).

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[10] Notably, claim 20 does not recite "business." Appeal Br. 20 (Claims App'x).

Among other arguments, Appellants assert the proposed combination does not teach transforming the information into a set of natural language questions. Appeal Br. 15–16; Reply Br. 5.

ISSUE

Under § 103, has the Examiner erred in rejecting claim 20 by determining that Yuan, Ferrucci, and Woods as proposed would have taught or suggested "a processor, wherein the processor executes the computer usable program code, and wherein the . . . code comprises: . . . computer usable code for 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. 16 (stating "[o]nly *Yuan* has been relied upon for these features in claim [20]"). Although the rejection further discusses Woods when addressing the information and its content (Final Act. 16), we presume the Examiner relies on Yuan alone to teach transforming this information into a NL question set. Final Act. 14 (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. 14. 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. 16.

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 [] questions" as recited in claim 20.

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 "code for transforming the information into a set of natural language (NL) questions" as recited in claim 20. 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 (1) independent claim 20, (2) independent claim 13, which is similar in scope, and (3) dependent claims 14–19 for similar reasons.

DECISION

We affirm the provisional rejection of claims 13–17 and 20 on nonstatutory double-patenting rejection grounds.

We affirm the Examiner's rejection of claims 13–20 under § 101.

We reverse the Examiner's rejections of claims 13–20 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).

<u>AFFIRMED</u>