UNITED STATES PATENT AND TRADEMARK OFFICE

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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 PRABHDEEP SINGH, KRIS GANJAM, SUMIT GULWANI,
MARK MARRON, YUN-CHENG JU, and KAUSHIK CHAKRABARTI

_____

Appeal 2019-003139
Application 14/283,254
Technology Center 2600

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Before JASON V. MORGAN, DEBORAH KATZ, and JOHN A. EVANS,
Administrative Patent Judges.

Opinion for the Board filed by *Administrative Patent Judge* MORGAN.

Opinion dissenting filed by *Administrative Patent Judge* EVANS.

MORGAN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Introduction

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the
Examiner's decision to reject claims 1–6, 8, 9, and 11–22. Claims 7 and 10
are canceled. Appeal Br. 29. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37
C.F.R. § 1.42. Appellant identifies the real party in interest as Microsoft
Technology Licensing, LLC. Appeal Br. 2.

Summary of the Disclosure

Appellant's claimed subject matter relates to "performing an operation relative to tabular data based upon voice input" using an automatic speech recognition system that "includes a language model that is customized based upon content of the tabular data." Abstract.

Exemplary Claim (Key Limitations Emphasized and Bracketing Added)

1. A computing device comprising:

a processor; and

memory that comprises an application that is executed by the processor, the application has tabular data loaded therein, the tabular data comprises a modifiable text string in a cell of column of the tabular data, wherein the processor, when executing the application in the memory, performs acts comprising;

> responsive to receiving voice input in the form of a natural language query, receiving a transcription of the natural language query, wherein [1] *the natural language query includes the modifiable text string in the column of the tabular data*;

> constructing a program based upon the transcription of the natural language query, wherein the program, when executed by the processor, is configured to perform a computing operation with respect to content of a second cell in the column; and

> executing the program to perform the computing operation.

The Examiner's rejections and cited references

The Examiner rejects claims 1–6, 8, 9, and 11–22 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 4–5.

The Examiner rejects claims 1, 3–6, 8, 9, 11, 13, and 19–22 under 35 U.S.C. § 103 as being unpatentable over Coifman (US 2007/0038449 A1;

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published Feb. 15, 007) and The McGraw-Hill Companies, *Voice Recognition with Software Applications*: *Script to Construct an Excel 2000 Worksheet Using Dragon NaturallySpeaking 5.0*, archived copy available at http://web.archive.org/web/20050421084504/http://www.mhhe.com/ps/vr/scripts/excel1.htm (archive snapshot taken April 21, 2005) ("Excel-by-Voice"). Final Act. 5–14.

The Examiner rejects claims 2 and 12 under 35 U.S.C. § 103 as being unpatentable over Coifman, Excel-by-Voice, and Gupta (US 2003/0120493 A1; published June 26, 2003). Final Act. 14–16.

The Examiner rejects claims 14–17 under 35 U.S.C. § 103 as being unpatentable over Coifman, Excel-by-Voice, and Cerra et al. (US 8,886,540 B2; issued Nov. 11, 2014) ("Cerra"). Final Act. 16–18.

The Examiner rejects claim 18 under 35 U.S.C. § 103 as being unpatentable over Coifman, Excel-by-Voice, and Microsoft, *About speech recognition in Excel*, Knowledge Base Article 288979, archived copy available at https://mskb.pkisolutions.com/kb/288979 (Jan. 31, 2007) ("Excel Webpage"). Final Act. 18–19.

PRINCIPLES OF LAW

To constitute patent-eligible subject matter, an invention must be a "new and useful process, machine, manufacture, or composition of matter, or [a] new and useful improvement thereof." 35 U.S.C. § 101. There are implicit exceptions to the categories of patentable subject matter identified in 35 U.S.C. § 101, including: (1) laws of nature; (2) natural phenomena; and (3) abstract ideas. *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014). The U.S. Supreme Court has set forth a framework for

distinguishing patents with claims directed to these implicit exceptions "from those that claim patent-eligible applications of those concepts." *Id.* at 217 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012)). The evaluation follows a two-part framework: (1) determine whether the claim is *directed to* a patent-ineligible concept, e.g., an abstract idea; and (2) if so, then determine whether any element, or combination of elements, in the claim is sufficient to ensure that the claim amounts to *significantly more* than the patent-ineligible concept itself. *See id.* at 217–18.

Under U.S. Patent and Trademark Office USPTO 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 activity such as a fundamental economic practice, or mental processes) (MPEP § 2106.04(a)(2); USPTO, 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 52 (Jan. 7, 2019) ("2019 Revised Guidance") (step 2A, prong one); USPTO, October 2019 Update: Subject Matter Eligibility, 3–9, available at https://www.uspto.gov/ sites/default/files/documents/peg_oct_2019_update.pdf (Oct. 17, 2019) ("Oct. 2019 Update")); and

> (2) additional elements that integrate the judicial exception into a practical application (MPEP §§ 2106.04(d), 2106.05(a)–(c), (e)–(h); 2019 Revised Guidance, 84 Fed. Reg. at 54–55; Oct. 2019 Update at 10–14).

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, conventional"
>
> in the field; or

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

MPEP § 2106.05(d); 2019 Revised Guidance, 84 Fed. Reg. at 56; Oct. 2019 Update at 16.

35 U.S.C. § 101

Step 2A, Prong One

In rejecting claim 1 as being directed to patent-ineligible subject matter, the Examiner determines claim 1 recites performing "functions which can be otherwise performed by [a] human mental process, i.e., manipulation of tabular data." Ans. 5; Final Act. 4. That is, the Examiner determines that claim 1 recites "[m]ental processes—concepts performed in the human mind (including an observation, evaluation, judgment opinion)"—and thus recites an abstract idea. MPEP § 2106.04(a).

Appellant contends the Examiner erred because "claim 1 is directed towards generation of a computer-executable program that is to be executed over tabular data, wherein the computer-executable program is generated based upon natural language voice input set forth by the user." Reply Br. 5; *see also id.* at 7 (it is "unclear as to how constructing a program to be

executed by a processor with respect to a spreadsheet application can be fairly characterized as a human mental process"); Appeal Br. 10–13. Thus, Appellant argues the features of claim 1 "are not able to be characterized as a mathematical concept, a method of organizing human activity, *a mental process*, a law of nature, or a natural phenomenon." Reply Br. 5 (emphasis added).

Appellant's arguments are not persuasive because claim 1 recites "responsive to receiving voice input in the form of a natural language query . . . constructing a program based upon . . . the natural language query." That is, claim 1 recites interpreting natural language instructions and generating a programmatic interpretation of the instructions, albeit for execution over tabular data. A "limitation that can practically be performed in the human mind, with or without the use of a physical aid such as pen and paper, . . . falls within the mental processes grouping, and the claim recites an abstract idea." MPEP § 2106.04(a)(2)(III)(B) (citing *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)).

The human mind, however, is fully capable of generating a computer-executable program that is to be executed over tabular data based upon natural language voice input. That is a human can listen to natural language instructions (i.e., receive a natural language query) and generate a programmatic interpretation of the instructions (i.e., a program believed to perform the requested task). Spec. ¶ 34. For example, a human hearing the instruction to "SHOW ME COMPANIES THAT HAVE 25% MORE EMPLOYEES THAN OFFICE SEATS" would be capable of creating a program (i.e., identifying the step to perform) to set as a filter "EMPLOYEES > (OFFICE SEATS * 1.25)." Spec. Figs. 11–12. Indeed,

interpreting natural language instructions or requirements of a task to generate a program that is believed to perform that task—if the program is executed on a suitable machine—is a mental process that predates construction of even the first general purpose computer. *See, e.g.*, Betty Alexandra Toole, *Ada Byron, Lady Lovelace, An Analyst and Metaphysician*, IEEE Annals of the History of Computing, Vol. 18, No. 3, 4–12, at 10 (citing R. Taylor ed., *Scientific Memoirs*, Vol. 3, Art. XXIX, pp. 666–731 (1843)) (reproducing Ada Byron Lovelace's plan for how to compute Bernoulli numbers with the Analytical Engine planned, but never built, by Charles Babbage, originally published in Lovelace's translator notes to L.F. Menabrea, *A Sketch of the Analytical Engine Invented by Charles Babbage Esq.*).

Furthermore, "[c]laims can recite a mental process even if they are claimed as being performed on a computer." MPEP § 2106.04(a)(2)(III)(C) (noting that *Benson*'s abstract idea was claimed as "a mathematical algorithm for converting binary coded decimal to pure binary within a computer's shift register").

For these reasons, we determine that claim 1, which recites interpreting natural language instructions and generating a programmatic interpretation of the instructions, at least recites an abstract idea in the form of mental processes—concepts performed in the human mind (including an observation, evaluation, judgment opinion).

Step 2A, Prong Two

Appellant contends that claim 1 has additional recitations that integrate any underlying abstract idea into a practical application. Reply Br. 6–7. Specifically, Appellant argues that claim 1 helps novice users of

spreadsheet application perform "complex or nuanced manipulation of tabular data" by allowing a user to "set forth a voice command (in natural language) to perform nuanced and/or complex manipulation of tabular data presented to the user by way of an electronic spreadsheet application," rather than requiring that the user "construct a macro using syntax that the user may be unfamiliar with." *Id.* at 6. Thus, Appellant argues the features of claim 1 "are directed to a solution to problems associated with conventional computer-implemented spreadsheet applications, and thus integrate any alleged abstract idea into a practical application." *Id.* at 7. Appellant's arguments, however, are based unpersuasively on the underlying abstract idea of interpreting natural language instructions and generating a programmatic interpretation of the instructions rather than on *additional* recitations that integrate this abstract idea into a practical application. MPEP § 2106.04(d).

Appellant argues that *Data Engine Technologies LLC v. Google LLC*, 906 F.3d 999, 1008 (Fed. Cir. 2018), "stands for the proposition that claims directed towards electronic spreadsheet applications are eligible for patenting, so long as the claims are directed towards a specific solution to conventional problems in prior art spreadsheet applications." Reply Br. 3; *id.* at 8. Thus, Appellant argues that claim 1 includes additional recitations that integrate the underlying abstract idea into a practical application.

Appellant's arguments are not persuasive because, in determining that the patent-eligible claimed invention in *Data Engine* required "a specific interface and implementation for navigating complex three-dimensional spreadsheets using techniques unique to computers," our reviewing court emphasized the claim did not merely "recite the idea of navigating through

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spreadsheet pages using buttons or a generic method of labeling and organizing spreadsheets." *Data Engine,* 906 F.3d at 1008–09. This was supported by substantial evidence detailing both the problem confronted by users of conventional spreadsheets and industry acclaim directed to the solution provided by the commercial implementation of the claimed invention. This evidence showed that even executing simple computer tasks required that users "search through complex menu systems to find appropriate commands [thus requiring] users to memorize frequently needed commands." *Data Engine*, 906 F.3d at 1008 (citing Anderson et al. (US 5,590,259; issued Dec. 31, 1996) ("Anderson"), 2:29–45). "This was particularly true for three-dimensional spreadsheets, which allowed users to build spreadsheet workspaces consisting of multiple two-dimensional spreadsheets, further increasing the complexity of using and navigating between multiple spreadsheets." *Id.* (citing Anderson 2:66–3:24). Thus, before the patent-eligible invention of *Data Engine*, implementing three-dimensional spreadsheets was "an advanced feature beyond the grasp of many spreadsheet users." Anderson 3:10–11.

Here, Appellant merely points to evidence that "[w]hile novice users can generally learn basic functions supported by [a] spreadsheet application relatively quickly, novice users often find more complex or nuanced manipulation of tabular data difficult to perform." Spec. ¶ 4. In particular, "it is often difficult for a user to remember or know how the proper syntax or different spreadsheet environments (even when the user is an expert), as the different spreadsheet environments have their own respective nuances." *Id.* But the mere general existence of a learning curve for using a spreadsheet, and the typical challenges a user would face when switching from one

spreadsheet environment to another, fail to provide persuasive evidence that functionality such as querying tabular data that comprises a modifiable text string in a cell of column of the tabular data (e.g., filtering data) are "beyond the grasp" of many users of such applications. Spec. Figs. 11–12. Moreover, Appellant fails to provide evidence of industry acclaim such as that found in *Data Engine*, which included "[n]umerous contemporaneous articles attribute[ing] the improved three-dimensional spreadsheets' success to its notebook tab feature." *Data Engine*, 906 F.3d at 1008.

One way to demonstrate that an abstract idea is integrated into a patent-eligible invention is to show "the claimed invention improves the functioning of a computer or improves another technology or technical field." MPEP § 2106.04(d)(1). To that end, Appellant argues that "[t]he ability to construct a program to manipulate tabular data, through the use of natural language input, was not available in computing devices prior to the invention . . . and therefore the claims are directed towards *an improvement in computer capabilities*." Appeal Br. 12 (emphasis added). But Appellant cannot show that claim 1 is patent-eligible merely because claim 1 recites new or non-obvious functionality. "The '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); *Mayo*, 566 U.S. at 90 (a novel and nonobvious claim directed to a purely abstract idea is, nonetheless, patent ineligible); *Parker v. Flook*, 437 U.S. 584, 594–95 (1978) (holding claims to "a new and presumably better method for calculating alarm limit values," of undisputed usefulness, to be directed to patent-ineligible subject matter); *Ass'n for Molecular Pathology*

v. Myriad Genetics, Inc., 569 U.S. 576, 591 (2013) ("[g]roundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry").

Appellant argues claim 1 "recites features that are directed to <u>improvements</u> over conventional approaches for computer-implemented manipulation of tabular data" because

> rather than relying upon knowledge of complicated syntax of a spreadsheet application to manipulate tabular data, and rather than attempting to input commands via touch screen, the computing device [of claim 1] manipulates tabular data based upon natural language commands set forth via voice (e.g., by constructing a program that is executed over the tabular data).

Appeal Br. 16 (citing *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016)). But the patent-eligible claims in *Enfish* were "directed to an innovative logical model for a computer database." *Enfish*, 822 F.3d at 1330. "Contrary to conventional logical models, the patented logical model include[d] all data entities in a single table, with column definitions provided by rows in that same table." *Id.* The claimed database technology of *Enfish* had a "self-referential" property that contrasted with the "more standard 'relational' model [where] each entity (i.e., each type of thing) that is modeled is provided in a separate table." *Id.* Thus, the patent-eligible claims in *Enfish* focused on a "specific asserted improvement in computer capabilities (i.e., the self-referential table for a computer database)," not "on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool." *Id.* at 1336.

Here, the additional recitations of claim 1 merely use computer technologies as tools for carrying out the recited mental processes of interpreting natural language instructions to generate a programmatic

interpretation of the instructions. Claim 1 does not recites improvements to, for example, the computer, the application that has tabular data loaded therein, or the technologies of receiving voice input in the form of a natural language query and a transcription of the natural language query.

Furthermore, although claim 1 recites a processor that performs acts that comprise "constructing a program based upon the transcription of the natural language query," claim 1 fails to recite—and the Specification fails to disclose—how a program is constructed such that claim 1 recites a "particular arrangement of elements [that] is a technical improvement over [the] prior art." *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016); Spec. ¶¶ 44, 46 (cited in Appeal Br. 4). Rather, the Specification refers generically to a "program constructor component 304," which has no further explanation than a box in Figure 3. *See* Spec. ¶¶ 44, 45, 67. The lack of specificity in the program construction recitation of claim 1 means the claim does not, for example, contain limited rules structured to reflect a specific implementation of such program construction that differs from what a human would have used. *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1316 (Fed. Cir. 2016).

The processor of claim 1 could even construct the program by submitting a transcript to another human who would then interpret the natural language query to create an appropriate program. This technique has long been used in "Wizard of Oz" experiments to give experimental participants "the impression that they are interacting with a program that understands English as well as another human would." J. F. Kelley, *An Iterative Design Methodology for User-Friendly Natural Language Office Information Applications*, ACM Trans. on Office Info. Sys., Vol. 2, No. 1,

pp. 26–41 (Mar. 1984); David E. Price et al., *Off to see the wizard: Using a "Wizard of Oz" study to learn how to design a spoken language interface for programming*, 32nd Annual Frontiers in Education, Session T2G (2002).

Appellant further argues that "[t]he acts of constructing a computer-executable program and then executing that program to update content of a cell in tabular data cannot be done in the human mind." Appeal Br. 12–13. Appellant's arguments is not persuasive because, as discussed above with respect to step 2A, prong one, the human mind can construct a computer-executable program. Although executing that program with a processor cannot be done with the human mind, such execution represents insignificant post-solution activity that is insufficient to render claim 1 patent-eligible. MPEP 2106.04(d)(II) (citing *Flook*, 437 U.S. at 589–90). Specifically, the claimed solution is not a new way of executing a program; rather, the claim's solution is creating the program in the first place (i.e., from a natural language query). Thus, executing the program, rather than being part of the solution, is merely post-solution activity.

Appellant also argues that claim 1 applies any underlying abstract concept "to a new and useful end – the ability to construct a program that, when executed by a processor, manipulates tabular data loaded into an application, wherein the program is constructed based upon natural language voice input." Appeal Br. 19 (citing *Benson*, 409 U.S. at 67). The claim recitations, however, generally link the underlying mental processes to a particular technological environment or field of use (i.e., to manipulation of tabular data). *See Bilski v. Kappos*, 561 U.S. 593, 595 (2010).

For these reasons, we determine that claim 1 does not integrate the underlying mental process of claim 1 into a patent-eligible abstract idea.

Step 2B

The Examiner further determines that claim 1 lacks additional recitations "sufficient to amount [to] significantly more than [the underlying] abstract idea." Final Act. 5; *id.* at 3 (automated speech recognition and natural language processing are known technologies). Appellant contends the Examiner erred by failing to provide sufficient evidence that the additional recitations of claim 1 are well-understood, routine, or conventional, particularly with respect to the program construction recitation. Appeal Br. 21; Reply Br. 7–8.

Appellant's arguments are not persuasive because the Specification's broad disclosure of suitable automated speech recognition systems is at a high level that shows that suitable technologies were well-understood, routine, or conventional. Spec. ¶ 35. Moreover, as discussed above, the program construction recitation is broad enough to encompass even human-assisted program construction. Thus, we agree with the Examiner that it was well-understood, routine, and conventional to enable such construction to "be performed by a human." Final Act. 4.

Appellant does not dispute that other additional recitations (e.g., the claimed processor and memory) are well-understood, routine, or conventional. Thus, for these reasons, we agree with the Examiner that claim 1 does not include additional recitations (i.e., an inventive concept) that transform the underlying mental process, to which claim 1 is directed, to a patent-eligible innovation.

Additional Arguments

Appellant argues, for example, that "claim 1 sets forth an unconventional technological solution . . . to a technological problem."

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Appeal Br. 17 (citing *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1300 (Fed. Cir. 2016)). That claim 1 recites "features that provide a solution to a problem existent in conventional computing devices – conventionally, computer-implemented spreadsheet applications may not be easy for novice users to employ, particularly when somewhat complex manipulation of tabular data is desired." *Id.* at 20 (citing *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014)). And that claim 1 recites "features specific to a solution to a problem in the software arts – namely, the ability to construct a program based upon natural language voice input, wherein the program, when executed, performs an operation relative to tabular data." *Id.* at 18 (*Trading Techs. Int'l, Inc. v. CQG, Inc.*, 675 F. App'x 1001, 1005 (Fed. Cir. 2017) ("*Trading Techs. I*")). Appellant does not show how the holdings of these cases show that claim 1 is patent-eligible.

Claim 1 recites natural language interpreting instructions and generating a programmatic interpretation of the instructions. Appellant does not show that this is comparable to the problem of "massive record flows requiring huge databases." *Amdocs*, 841 F.3d at 1302. Appellant does not show that interpreting natural language instructions and generating a programmatic interpretation of the instructions (i.e., developing an algorithm for carrying out natural language instructions) requires computer technology to be possible. *DDR*, 773 F.3d at 1258. And the more recent decision in *Trading Trading Technologies International, Inc. v. IBG LLC*, 921 F.3d 1378 (Fed. Cir. 2019)—a precedential decision related to a method for displaying market information on a graphical user interface that was

determined to be unpatentable—weighs against reliance on the non-precedential holding of *Trading Techs. I.*

Appellant further argues claim 1 does not preempt an underlying abstract idea. Appeal Br. 21 (citing, e.g., *Alice*, 573 U.S. at 216–17). Characterizing preemption as a driving concern for patent eligibility is not the same as characterizing preemption as the sole test for patent eligibility. "The Supreme Court has made clear that the principle of preemption is the basis for the judicial exceptions to patentability" and "[f]or this reason, questions on preemption are inherent in and resolved by the § 101 analysis." *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) (citing *Alice*, 573 U.S. at 216). Although "preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility." *Id.*

For these reasons, we sustain the Examiner's 35 U.S.C. § 101 rejection of claim 1, and claims 2–6, 8, 9, 11–22, which Appellant does not argue separately with respect to this rejection.

35 U.S.C. § 103

In rejecting claim 1 as obvious, the Examiner finds that Coifman's speech recognition system teaches responding to [1] a "natural language query [that] includes [a] modifiable text string in the column of the tabular data." Final Act. 6 (citing Coifman ¶¶ 9–10, 38, 48–49, Figs. 4, 7). Appellant contends the Examiner erred because Coifman merely enables "a user [to] populate a cell based upon voice input," but that Coifman fails to "contemplate interpretation of voice input [that] includes reference to [the] existing content of a cell." Appeal Br. 25 (citing Coifman ¶ 38).

Appellant's characterization of Coifman accords with Coifman's teaching that "[f]ollowing a textual match from the speech input by speech recognition system **212**, the text output from base vocabulary database **220** is then provided as input to any one a number of other computer-based applications **230** into which the user desires the text." Coifman ¶ 38. Thus, although Coifman teaches using voice input for data entry (e.g., to populate a cell), Coifman fails to teach or suggest a query that includes a modifiable text string in the column of tabular data.

In the Answer, the Examiner finds that Excel-by-Voice teaches the use of natural language processing to name column headers. Ans. 8 (citing Excel-by-Voice, commands 18–20). Appellant contends the Examiner erred in relying on Excel-by-Voice to cure the noted deficiency of Coifman because Excel-by-Voice merely teaches examples where "the voice input includes the text <u>that is to be included in the cell</u>," rather than teaching or suggesting a query that makes "reference to <u>what is already in the cell</u>." Reply Br. 10.

Appellant's arguments accord with Excel-by-Voice, which teaches saying commands such as "Cap-store <pause> press right arrow" to enter a column header. Excel-by-Voice, commands 18–20. Therefore, the Examiner's finding also fail to show that Excel-by-Voice, alone or in combination with Coifman, teaches or suggests recitation [1].

The Examiner does not show that Gupta, Cerra, or Excel Webpage cure the noted deficiency of Coifman and Excel-by-Voice. Accordingly, we do not sustain the Examiner's 35 U.S.C. § 103 rejection of claim 1, and the Examiner's 35 U.S.C. § 103 rejections of claims 2–6, 8, 9, 11–22, which contain similar recitations.

CONCLUSION

Claims Rejected	35 U.S.C. §	References/Basis	Affirmed	Reversed
1–6, 8, 9, 11–22	101	Eligibility	1–6, 8, 9, 11–22	
1, 3–6, 8, 9, 11, 13, 19–22	103	Coifman, Excel-by-Voice		1, 3–6, 8, 9, 11, 13, 19–22
2, 12	103	Coifman, Excel-by-Voice, Gupta		2, 12
14–17	103	Coifman, Excel-by-Voice, Cerra		14–17
18	103	Coifman, Excel-by-Voice, Excel Webpage		18
Overall Outcome			**1–6, 8, 9, 11–22**	

TIME PERIOD FOR RESPONSE

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

AFFIRMED

UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE PATENT TRIAL AND APPEAL BOARD
_____

Ex parte PRABHDEEP SINGH, KRIS GANJAM, SUMIT GULWANI,
MARK MARRON, YUN-CHENG JU, and KAUSHIK CHAKRABARTI
_____

Appeal 2019-003139
Application 14/283,254
Technology Center 2600
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Before JASON V. MORGAN, DEBORAH KATZ, and JOHN A. EVANS,
Administrative Patent Judges.

MORGAN, *Administrative Patent Judge*.

EVANS, *Administrative Patent Judge*, Dissenting.

CLAIMS 1–6, 8, 9, AND 11–22: OBVIOUSNESS.

I fully concur with my colleagues analysis and conclusions that the claims are not unpatentable under 35 U.S.C. § 103.

CLAIMS 1–6, 8, 9, AND 11–22: INELIGIBLE SUBJECT MATTER

Appellant argues the merits of the claims as a group with reference to the limitations of Claim 1. *Cf.* Appeal Br. 7. Therefore, we decide the appeal of the § 101 rejection on the basis of illustrative Claim 1 and refer to the rejected claims collectively herein as "the claims." *See* 37 C.F.R. § 41.37(c)(1)(iv); *In re King*, 801 F.2d 1324, 1325 (Fed. Cir. 1986).

We reviewed the record *de novo*. *SiRF Tech., Inc. v. Int'l Trade Comm'n*, 601 F.3d 1319, 1331 (Fed. Cir. 2010) ("Whether a claim is drawn to patent-eligible subject matter is an issue of law that we review de novo."). Based upon our review of the record in light of recent policy guidance with respect to patent-eligible subject matter rejections under 35 U.S.C. § 101,[2] I would reverse the rejection of Claims 1–6, 8, 9 and 11–22 for the specific reasons discussed below.

I acknowledge my colleagues open-mindedness and generosity in considering my discussion of the claims under 35 U.S.C. § 101.

35 U.S.C. § 101

Section 101 provides that a patent may be obtained for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." 35 U.S.C. § 101.[3] The Supreme Court has long recognized, however, that § 101 implicitly excludes "[l]aws of nature, natural phenomena, and abstract ideas" from the realm of patent-eligible subject matter, as monopolization of these "'basic tools of scientific and technological work'" would stifle the very innovation that the patent system aims to promote. *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216

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[2] *See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) ("Revised Guidance"). "All USPTO personnel are, as a matter of internal agency management, expected to follow the guidance." *Id.* at 51; see also October 2019 Update at 1 (October 2019 Update: Subject Matter Eligibility) (hereinafter "October 2019 Update").

[3] This threshold analysis of whether a claim is directed to one of the four statutory categories of invention, i.e., a process, machine, manufacture, or composition of matter, is referred to as "Step 1" in the USPTO's patent-eligibility analysis under § 101. MPEP § 2106.

(2014) (quoting *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)); *see also Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72–78 (2012); *Diamond v. Diehr*, 450 U.S. 175, 185 (1981).

Under the mandatory Revised Guidance, we reconsider whether Appellant's claims recite:

1. any **judicial exceptions**, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes), and

2. **additional elements** that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h)).

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

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

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

A.   Whether the claims recite a judicial exception

The Revised Guidance extracts and synthesizes key concepts identified by the courts as abstract ideas to explain that the abstract-idea exception includes the following groupings of subject matter:

(a) mathematical concepts,[4] i.e., mathematical relationships, mathematical formulas, equations,[5] and mathematical calculations[6]; (b) certain methods of organizing human activity—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)[7]; and (c) mental processes—concepts performed in the human mind (including observation, evaluation, judgment, opinion).[8]

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[4] *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) ("The concept of hedging . . . reduced to a mathematical formula . . . is an unpatentable abstract idea.").

[5] *Diehr*, 450 U.S. at 191 ("A mathematical formula as such is not accorded the protection of our patent laws"); *Parker v. Flook*, 437 U.S. 584, 594 (1978) ("[T]he discovery of [a mathematical formula] cannot support a patent unless there is some other inventive concept in its application.").

[6] *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1163 (Fed. Cir. 2018) (holding that claims to a "series of mathematical calculations based on selected information" are directed to abstract ideas).

[7] *Alice*, 573 U.S. at 219–20 (concluding that use of a third party to mediate settlement risk is a "fundamental economic practice" and thus an abstract idea); *see* Revised Guidance, at 52 n.13 for a more extensive listing of "[c]ertain methods of organizing human activity" that have been found to be abstract ideas.

[8] *Mayo*, 566 U.S. at 71 ("'[M]ental processes[ ] and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work'" (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972))).

The preamble of independent Claim 1 recites: "A computing device comprising." The limitations recited in the body of Claim 1 are analyzed in Table I against the categories of abstract ideas as set forth in the Revised Guidance. As set forth in Table I below, we find limitations [c] and [d] of independent Claim 1 recite abstract ideas, i.e., "mental processes."

Table I

Claim 1	Revised Guidance
[a][9] a processor; and	An additional element that adds insignificant extra-solution activity to the judicial exception. *See* Revised Guidance, 84 Fed. Reg. at 55.
[b]; memory that comprises an application that is executed by the processor, the application has tabular data loaded therein, the tabular data comprises a modifiable text string in a cell of column of the tabular data, wherein the processor, when executing the application in the memory, performs acts comprising;	An additional element that adds insignificant extra-solution activity to the judicial exception. *See* Revised Guidance, 84 Fed. Reg. at 55.
[c] responsive to receiving voice input in the form of a natural language query, receiving a transcription of the natural language query, wherein the natural language query includes the modifiable text string in the column of the tabular data;	Mental processes, i.e., concepts performed in the human mind (including an observation, evaluation, judgment, opinion). *See* Revised Guidance, 84 Fed. Reg. at 52.

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[9] Step designators, e.g., "[a]," were added to facilitate discussion.

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[d] constructing a program based upon the transcription of the natural language query, wherein the program, when executed by the processor, is configured to perform a computing operation with respect to content of a second cell in the column; and	Mental processes, i.e., concepts performed in the human mind (including an observation, evaluation, judgment, opinion). *See* Revised Guidance, 84 Fed. Reg. at 52.
[e] executing the program to perform the computing operation.	An additional element that adds insignificant extra-solution activity to the judicial exception. *See* Revised Guidance, 84 Fed. Reg. at 55.

At Step 2A, Prong 1, I agree with my colleagues the claims recite abstract ideas, i.e., mental processes.

Step 2A(ii): Judicial Exception Integrated into a Practical Application?

If the claims recite a patent-ineligible concept, as we so conclude above, we proceed to the "practical application" *Step 2A(ii)* wherein the "claims are considered in their entirety to ascertain whether their character as a whole is directed to excluded subject matter." *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1312 (Fed. Cir. 2016) (quotes and citation omitted). This test determines whether the recited judicial exception is integrated into a practical application of that exception by: (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception(s); and (b) evaluating those additional elements individually and in combination to determine whether they integrate the exception into a practical application.

For the reasons which follow, I would conclude that Appellant's claims do, in fact, integrate the judicial exception into a practical application.

> MPEP § 2106.05(a) "*Improvements to the Functioning of a Computer or to Any Other Technology or Technical Field*"

"In determining patent eligibility, examiners should consider whether the claim 'purport(s) to improve the functioning of the computer itself'" or "any other technology or technical field." MPEP § 2106.05(a).

Appellant recites various claimed limitations to contend the claimed: "features relate to an embodiment described in the specification where a user can set forth a natural language voice command to a computer-executable application, and further where the voice command makes reference to content in tabular data." Appeal Br. 8. Appellant argues that Specification Figures 11 and 12: "depict an example where a user is interacting with tabular data by way of natural language voice commands, and the tabular data is updated based upon the natural language voice commands." *Id.* Appellant contends:

> This is an improvement over conventional approaches for updating tabular data loaded into an application, where conventional approaches require an end user to have knowledge of proper programmatic syntax of the application (e.g., spreadsheet application) to manipulate tabular data.

Appeal Br. 8 (citing Spec., ¶ 4). Appellant analogizes the claims to those of *Trading Technologies*:[10]

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[10] *Trading Technologies International. Inc. v. COG. Inc.*, 675 Fed. Appx. 1001 (Fed. Cir. 2017).

> The claims at issue here, like those at issue in Trading
> Technologies, recite features specific to a solution to a problem
> in the software arts - namely, the ability to construct a program
> based upon natural language voice input, wherein the program,
> when executed, performs an operation relative to tabular data.

Appeal Br. 18. Appellant argues: "[s]imilar to the claims at issue in

Enfish, at least the independent claims recite features that are directed to

improvements over conventional approaches for computer-implemented

manipulation of tabular data." Appeal Br. 16. Appellant states the

"Background" of the Specification "notes that performing complex

operations over tabular data is difficult for novice users, and further notes

that small displays on mobile devices can render manipulation of tabular

data difficult." *Id.*

> The Examiner finds:
>
> The cited Enfish and Trading Tech cases each includes
> respectively unconventional feature elements that are directed
> to patent-eligible. The Enfish case includes a self-referential
> data table structure and the Trading Tech includes a GUI that
> prevents order entry at a changed price. They are
> unconventional because these concepts are not relating to
> functions that can be performed by human mental process.

Ans. 5.

"Precedent has recognized that specific technologic modifications to

solve a problem or improve the functioning of a known system generally

produce patent-eligible subject matter." *Trading Technologies*, at 1004–

1005. The Federal Circuit court upheld the patent eligibility of claims

"necessarily rooted in computer technology" that "overcome a problem

specifically arising in the realm of computer networks." *DDR Holdings,*

LLC v. Hotels.com, L.P., 773 F.3d 1245, 1257 (Fed. Cir. 2014).

Appellant discloses:

> A conventional spreadsheet application is well-suited for
> organizing and manipulating tabular data, particularly if the
> user of the spreadsheet application is familiar with functions
> that are natively supported by the spreadsheet application and
> commands that invoke such functions.

Spec. ¶ 3.

> While novice users can generally learn basic functions
> supported by the spreadsheet application relatively quickly,
> novice users often find more complex or nuanced manipulation
> of tabular data difficult to perform. Further, it is often difficult
> for a user to remember or know the proper syntax for different
> spreadsheet environments (even when the user is an expert), as
> the different spreadsheet environments have their own
> respective nuances.

Spec. ¶ 4.

> [S]ome types of spreadsheet-related operations can be difficult
> on mobile computing devices, due to the relatively small display
> real estate on these devices. To overcome problems associated
> with smaller displays, users can enlarge views on the display,
> providing a zoomed in" view of a portion of the spreadsheet.
> This, however, can prevent the user from obtaining a more global
> view of the tabular data, potentially negatively impacting the
> experience of the user with the spreadsheet application.

Spec. ¶ 5. Appellant's disclosure frames a problem "necessarily
rooted in computer technology" and one where the claims "overcome a
problem specifically arising in the realm of computer networks." *DDR
Holdings*, at 1257.

Humans cannot directly interact with data contained within a
computerized database, but require some type of user interface. For
example, Appellant discloses:

> [I]t is often difficult for a user to remember or know the proper syntax for different spreadsheet environments (even when the user is an expert), as the different spreadsheet environments have their own respective nuances. For example, a novice user of the conventional spreadsheet application may have difficulty performing certain types of sort operations over tabular data loaded in the spreadsheet application. In another example, the novice user may have difficulty creating a sequence of commands supported by the spreadsheet application to re-organize tabular data. In some situations, for example, a novice user will undertake the arduous task of manually copying cell values and placing them in desired positions rather than constructing a macro that can perform the reorganization automatically.

Spec. ¶ 4. Appellant further discloses:

> [S]ome types of spreadsheet-related operations can be difficult on mobile computing devices, due to the relatively small display real estate on these devices. To overcome problems associated with smaller displays, users can enlarge views on the display, providing a "zoomed in" view of a portion of the spreadsheet. This, however, can prevent the user from obtaining a more global view of the tabular data, potentially negatively impacting the experience of the user with the spreadsheet application.

Spec. ¶ 5.

The prior art limited a user's ability to manipulate tabular data using voice commands:

> [a]rithmetic operators are not necessarily entered in the way that you typically say a formula aloud. A standard formula such as, Equals 29 plus 63, may require unexpected verbiage as the formula gets more complex."

Microsoft,[11] 3. Moreover, "Creating a worksheet using Dragon

NaturallySpeaking 5.0 requires your using different strategies than when you

use Dragon NaturallySpeaking 5.0 to create a document that will be moved

to a word processor." Dragon Naturally Speaking,[12] 1. The prior art also

limits how a user may speak. For example, to access an Excel 2000

program, "[d]ictate the following voice commands exactly as shown in the

script. Do not dictate the word pause shown in angle brackets <pause>.

Instead, pause briefly before dictating the next word or group of words." *Id.*

at 2.

> The *Trading Technologies* Court found:
>
> For Section 101 purposes, the claimed subject matter is
> "directed to a specific improvement to the way computers
> operate," for the claimed graphical user interface method
> imparts a specific functionality to a trading system "directed to
> a specific implementation of a solution to a problem in the
> software arts."

675 Fed. Appx. at 1006 (internal citations omitted). Similarly, for Section

101 purposes, I would find the claimed voice user interface is "directed to a

specific improvement to the way computers operate." *Id.* I would so find

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[11] Microsoft, *About speech recognition in Excel, Knowledge Base Article 288979*, archived copy available at https://mskb.pkisolutions.com/kb/288979 (Jan. 31, 2007) ("Excel Webpage") (cited by the Examiner).

[12] The McGraw-Hill Companies, *Voice Recognition with Software Applications: Script to Construct an Excel 2000 Worksheet Using Dragon NaturallySpeaking 5.0*, archived copy available at http://web.archive.org/web/20050421084504/http://www.mhhe.com/ps/vr/scripts/excel1.htm (archive snapshot taken April 21, 2005) ("Excel-by-Voice") (cited by the Examiner).

because the claimed natural language interface improves and simplifies a user's interaction with a computerized database.

Although I find Limitation [c] ("responsive to receiving voice input in the form of a natural language query") to be a mental process, I would find the present claims "are not dealing with a situation in which there is a method that can be performed without a machine." *SiRF Technology, Inc. v. International Trade Com'n*, 601 F.3d 1319, 1333 (2010). I would so find because a human cannot interact with a computerized database. I would find the presence of this limitation "places a meaningful limit on the scope of the claims." 601 F.3d, 1333.

In view of the foregoing, I would reverse the rejection of Claims 1–6, 8, 9, and 11–22 under 35 U.S.C. § 101.