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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* WINNIE TAK YU WAN

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Appeal 2018-009184  
Application 14/506,931  
Technology Center 2100

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Before MAHSHID D. SAADAT, MICHAEL R. ZECHER, and  
MICHAEL T. CYGAN, *Administrative Patent Judges*.

CYGAN, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's Final Rejection of claims 1–5, 7–15, 17–18, and 20–23, which are all of the claims pending. App. Br. 5. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

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<sup>1</sup> 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 Oracle International Corporation. App. Br. 3.

## BACKGROUND

The disclosure relates to performing metadata reconciliation to update the metadata of objects in a data warehouse. Abs. According to the Specification, a data warehouse is a centralized collection of data. Spec. ¶ 5. When changes to the warehouse are introduced, such as a new column in a source table, the data warehouse design becomes out of sync and requires fixes. *Id.* ¶ 7. The process of fixing a data warehouse design so that it becomes in sync with the new changes is called reconciliation and focuses on reconciling “metadata,” which, according to the Specification, is data that defines other data. *Id.* ¶¶ 7–8. For example, metadata may include the database schema used in a source database or in a data warehouse. *Id.*

Independent claim 1, reproduced below, exemplifies the claimed invention:

1. A method comprising:
  - receiving, at one or more computer systems, a change to metadata of a first object stored in a data warehouse;
  - performing, with one or more processors associated with the one or more computer systems, an impact analysis for the first object to identify a first set of objects that depend from the first object and that are impacted by the change to the metadata of the first object, wherein each of the first set of objects is stored in the data warehouse in locations different from a location of the first object; and
  - generating, with the one or more processors associated with the one or more computer systems, at least one first task to propagate an impact of the change to the metadata of the first object to the first set of objects that are impacted by the change to the metadata of the first object.

App. Br. 16 (Claims App.).

Dependent claims 2–5, 7–10, and 21 incorporate these limitations through their dependency on claim 1. Independent claim 11, and its dependent claims 12–15, 17–18, and 22, recite a computer-readable medium having limitations commensurate with those of claim 1. Independent claim 20, and its dependent claim 23, recite a system having limitations commensurate with those of claim 1.

The Examiner has set forth the following rejections:

(1) claims 1–5, 7–9, 11–15, 17–18, and 20–23 under 35 U.S.C.

§ 103 as obvious over pre-AIA 35 U.S.C. § 103(a)<sup>2</sup> over Chu et al., US 6,493,720 B1, issued December 10, 2002 (hereinafter “Chu”) in view of Alumbaugh et al., US 2003/0172368 A1, published September 11, 2003 (hereinafter “Alumbaugh”).  
Final Act. 3–10.<sup>3</sup>

(2) claim 10 as obvious over pre-AIA 35 U.S.C. § 103(a) over Chu in view of Alumbaugh, further in view of Shah et al., US 2005/0044108 A1, published February 24, 2005 (hereinafter “Shah”). Final Act. 10–11.

(3) claims 1–5, 7–15, 17–18, and 20–23 under 35 U.S.C. § 101 as failing to claim eligible subject matter. This rejection was added as a new ground of rejection in the Answer. Ans. 4.

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<sup>2</sup> The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. § 103, effective March 16, 2013. Because the ‘931 application claims the benefit of a parent application that was filed before this date, and Appellant has not asserted that the application ever contained a claim to a claimed invention that has an effective filing date after that date, the pre-AIA version of § 103 applies.

<sup>3</sup> All references to the Final Action refer to the Final Action mailed on October 6, 2017.

## ANALYSIS

We have reviewed the Examiner's rejections (Final Act. 2–16) in light of Appellant's contentions that the Examiner has erred (App. Br. 10–14). Further, we have reviewed the Examiner's response to Appellant's contentions (Ans. 4–16), and Appellant's Reply Brief (Reply Br. 2–7).

### I.

The Examiner rejects claims 1–5, 7–9, 11–15, 17–18, and 20–23 as obvious over pre-AIA 35 U.S.C. § 103(a) over Chu in view of Alumbaugh. With respect to claim 1, the Examiner finds Chu to teach or suggest receiving a change to metadata of a first object, citing Chu's monitoring objects and synchronizing metadata for those objects if there is a manipulation occurring. Final Act. 3. The Examiner relies upon Alumbaugh to teach or suggest performing an impact analysis, citing Alumbaugh's change monitoring capability that produces a "change specification" and "Impact Analysis Reports" to assess the impact of change across an application and the organization. *Id.* at 4–5 (citing *inter alia* Alumbaugh ¶¶ 324–331). The Examiner further finds Chu to teach or suggest generating at least one task to propagate an impact of the change to a set of objects impacted by the change, citing Chu's maintenance of timestamps for comparison of, and to determine the source of, the most current metadata, and updating the objects in an information catalog. *Id.* at 3.

Appellant first contends that Alumbaugh does not perform an impact analysis as set forth in the second phrase of claim 1, which recites "performing an impact analysis for the first object to identify a first set of objects that depend from the first object and that are impacted by the

change to the metadata of the first object.” App. Br. 12–13. Appellant characterizes Alumbaugh as determining how a change to a code in one application (object) affects other applications (objects). *Id.* at 13. Appellant argues that Alumbaugh does not determine how a change to metadata impacts other objects. *Id.* at 12–13.

We are not persuaded by Appellant’s argument. The Examiner relies upon Alumbaugh’s “change specification,” which identifies a change in schema elements from a data source (Alumbaugh ¶ 330), wherein the schema elements may be extracted metadata elements (Alumbaugh ¶ 327). The change specification reports show “how specific changes to monitored data sources will impact existing management reports[ and] ad hoc reports.” Alumbaugh ¶ 331. Appellant has characterized these reports as objects. App. Br. 13 (stating that “[b]oth the reports and the monitored data sources would be considered ‘objects’”). Accordingly, the Examiner’s finding that Alumbaugh teaches or suggests identifying a first set of objects (reports) that depend from a first object and are impacted by a change to the metadata of the first object is supported by the record.

Furthermore, Appellant has argued solely against the teachings of Alumbaugh, rather than against the combined teachings of Alumbaugh and Chu. One cannot show nonobviousness by attacking references individually where the rejection is based on a combination of references. *In re Keller*, 642 F.2d 413 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091 (Fed. Cir. 1986). Here, although Appellant argues that Alumbaugh does not teach determining how a change to metadata affects other objects, Appellant admits that Chu teaches or suggests receiving a change to metadata of a first object and that Alumbaugh teaches determining how a change to an object

affects other objects. App. Br. 11–13. The Examiner has stated that Alumbaugh’s change determination accounts for metadata, which is supported by the record. Ans. 14 (citing Alumbaugh ¶¶ 234, 324–331). Accordingly, Appellant has not persuasively explained why the Examiner’s combination of Alumbaugh and Chu would not teach or suggest identifying a first set of objects that depend from a first object and are impacted by a change to the metadata of the first object.

Appellant further contends that Chu does not propagate changes in metadata as claimed. App. Br. 11. Appellant argues that Chu synchronizes changes to different versions of the metadata of a single object rather than propagating an impact of the change to a set of entirely different objects. *Id.* at 12. Further, Appellant argues that Chu merely alters metadata, but does not make changes to a first set of objects associated with the metadata. *Id.*

However, Appellant provides an example that instead supports an interpretation of Chu as modifying a set of objects associated with metadata. Appellant provides the example of a media file (object) having metadata, such as song titles. App. Br. 11. Appellant characterizes Chu as addressing the situation in which the media file (object) is distributed to different devices, wherein a change is made to the metadata for one media file on one device. *Id.* Appellant characterizes the metadata synchronizer of Chu as determining which metadata should be synchronized with other versions. *Id.* However, because the media file is distributed to different devices, Appellant’s characterization of Chu involves a set of objects associated with the metadata, even though the content of each of the separate objects may be the same. Under Appellant’s characterization of Chu, when one object undergoes a change to the metadata, the metadata synchronizer determines if

that change should be synchronized, i.e., propagated to the metadata of other object files having the same content. Accordingly, the Examiner's finding that Chu teaches or suggests generating a task to propagate an impact of a change to metadata of a first object to a first set of objects that are impacted by the change to the metadata of the first object is consistent with Appellant's characterization of Chu.

Furthermore, Appellant has argued solely against the teachings of Chu, rather than against the combined teachings of Chu and Alumbaugh. The step of propagating an impact of the change to metadata is dependent on the prior step of identifying a set of objects that depend from the first object and are impacted by the change to metadata, which the Examiner finds to be taught or suggested by Alumbaugh. Final Act. 4–5. To the extent that Appellant argues that Chu teaches making changes to a single object rather than an identified set of objects (Reply Br. 4), Appellant has not persuasively argued how the combined teachings or suggestions of Chu and Alumbaugh do not account for that claim limitation.

For the above-discussed reasons, we affirm the Examiner's obviousness rejection of claim 1. Because Appellant has provided no additional argument for claims 2–5, 7–9, 11–15, 17–18, and 20, and because those claims are rejected on the same grounds of rejection, we determine that those claims stand or fall together. 37 C.F.R. § 41.37(c)(1)(iv). Accordingly, we affirm the Examiner's obviousness rejection of claims 2–5, 7–9, 11–15, 17–18, and 20.

With respect to claim 10, Appellant has provided no additional arguments other than those provided for claim 1. Accordingly, we affirm

the Examiner's obviousness rejection of claim 10 for the same reason as for claim 1. *See* App. Br. 11–13.

With respect to claims 21–23, Appellant argues that Chu does not perform a lineage analysis as claimed. App. Br. 13–14; Reply Br. 6. Appellant does not contest the Examiner's finding that Chu “can be used to create, maintain and display metadata properties and lineage for objects.” Reply Br. 6 (citing Ans. 16). Appellant admits that Chu “allows a user to view a hierarchy of objects.” App. Br. 14. Appellant instead argues that this finding does not show that Chu identifies objects on which a first object depends and determines whether they are impacted by a change to the metadata of the first object. *Id.*, Reply Br. 6.

We are not persuaded by Appellant's argument. Appellant argues that Chu does not perform an identification of objects from which a first object depends and are impacted by a change to the metadata of the first object. *Id.* As noted, *supra* at 6, Appellant has not persuasively explained why the Examiner's combination of Alumbaugh and Chu would not teach or suggest identifying a first set of objects that depend from a first object and are impacted by a change to the metadata of the first object. The Examiner finds Alumbaugh to provide “a change monitoring capability that monitors changes to objects such as product versions in order to know exactly what is different.” Final Act. 4 (citing Alumbaugh ¶¶ 234, 324-331). The Examiner further references Alumbaugh's change specification as utilizing an impact analysis feature to assess the impact of change. *Id.* Further, Appellant admits that Chu “allows for the monitoring and display of an object in a hierarchy such that a lineage could be visible to a user.” Reply Br. 6. Accordingly, we are not persuaded of error in the Examiner's determination

that the combined teachings and suggestions of Alumbaugh and Chu render obvious claim 21. Since claims 22 and 23 are not argued separately from claim 21, and are rejected upon the same grounds as claim 21, they stand or fall with claim 21. We, therefore, affirm the Examiner's obviousness rejection of claims 21–23.

## II.

We have reviewed the Examiner's subject matter eligibility rejection (Ans. 4–11) in light of Appellant's contentions that the Examiner has erred (Reply Br. 2–4). We are not persuaded by Appellant that the Examiner erred in rejecting the pending claims 1–5, 7–9, 10–15, 17–18, and 20–23 under 35 U.S.C. § 101.<sup>4</sup>

Patent-eligible subject matter is defined in 35 U.S.C. § 101 of the Patent Act, which recites:

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

There is, however, an implicit, longstanding exception to patent-eligible subject matter in 35 U.S.C. § 101: “[l]aws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014) (citation omitted). This exception precludes

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<sup>4</sup> We note Appellant's concerns about the timing of the 35 U.S.C. § 101 rejection and the inability to submit additional evidence in a reply brief. Reply Br. 2. However, Appellant was afforded an opportunity to reopen prosecution to submit additional evidence or, alternatively, maintain the appeal by filing a reply brief. Ans. 16–17. Appellant choose the latter. Further, concerns relating to actions taken during examination are addressable through timely petition under 37 C.F.R. § 1.181, rather than through appeal.

patenting of “the basic tools of scientific and technological work” from which all inventions spring. *Id.* at 216–17 (quotation marks and citation omitted). Invention or discovery under § 101 is distinguished as being the application of such tools to an end otherwise satisfying the requirements of the patent statutes. *See Gottschalk v. Benson*, 409 U.S. 63, 67 (1972).

The Supreme Court has established a framework for this eligibility determination. Where a claim is directed towards a law of nature, natural phenomena, or abstract idea, the elements of the claim, as a whole, must ensure that the claim, in practice, amounts to significantly more than a patent on the law of nature, natural phenomena, or abstract idea itself. *Alice*, 573 U.S. at 217–18. In applying this eligibility analysis, our reviewing court has stated, “the decisional mechanism courts now apply is to examine earlier cases in which a similar or parallel descriptive nature can be seen[,] . . . the classic common law methodology for creating law when a single governing definitional context is not available.” *Amdocs (Isr.) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1294 (Fed. Cir. 2016) (citation omitted).

To address the growing body of precedent, the U.S. Patent and Trademark Office (“USPTO”) recently published revised examination guidance on the application of § 101. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 50 (Jan. 7, 2019) (hereinafter “2019 Guidance”). The 2019 Guidance seeks to improve the clarity of the subject matter eligibility analysis and improve consistency of this analysis across the USPTO. *Id.*

Under the 2019 Guidance, we first look to whether the claim is directed to a judicial exception because:

(1) the claim recites a law of nature, natural phenomenon, or abstract idea, the last of which includes certain groupings, identified as mathematical concepts, certain methods of organizing human activity and mental processes; and

(2) the claim as a whole fails to recite additional elements that integrate the judicial exception into a practical application (*see* MANUAL OF PATENT EXAMINATION PROCEDURE (hereinafter “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 look to whether the claim: adds a specific limitation beyond the judicial exception that are not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); or instead, simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

*See* 2019 Guidance, *passim*.

*“Recites an Abstract Idea”*

The Examiner states (Ans. 4) that claim 1 recites the steps of:

receiving . . . a change to metadata of a first object stored in a data warehouse, performing . . . an impact analysis for the first object to identify a first set of objects that depend from the first object and that are impacted by the change to the metadata of the first object and generating . . . at least one first task to propagate an impact of the change to the metadata of the first

object to the first set of objects that are impacted by the change to the metadata of the first object.

The Examiner characterizes these limitations as generation of rule-based tasks based on an analysis, which is a type of practice that humans have long performed, and as such, is an abstract idea. Ans. 4–5.

Appellant disagrees with the Examiner’s determination, arguing that no human action is involved; instead, the computerized database management system performs the claimed tasks of performing the impact analysis and generating tasks. Reply Br. 2.

We are not persuaded by Appellant’s arguments. The involvement of the computing device in performing these steps does not preclude a finding that the steps recite an abstract idea. 2019 Guidance, 84 Fed. Reg. at 52 n.14 (citing *Versata Dev. Grp. v. SAP Am., Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015)) for the proposition that “[c]ourts have examined claims that required the use of a computer and still found that the underlying, patent-ineligible invention could be performed via pen and paper or in a person’s mind.”).

Here, the Examiner has identified steps in claim 1 as setting forth a process for performing rule-based tasks based upon analysis, which involve acts of observation, opinion, and judgment that have been characterized as mental processes. 2019 Guidance, 84 Fed. Reg. at 52. Such characterization is consistent with the Appellant’s explanation that the problem being solved is the amount of resources involved in the conventional maintenance of data warehouses by warehouse designers, i.e., persons. Reply Br. 3; Spec. ¶ 12. The record before us, therefore, indicates that the claimed processes are of the type that can be practically performed in the human mind; i.e., of the

warehouse designer. Accordingly, we are not persuaded by Appellant's arguments that the Examiner has not shown sufficient reasoning to support a finding that claim 1 recites a mental process that qualifies as an abstract idea under the 2019 Guidance.

*“Directed to an Abstract Idea”*

Having determined that the claims recite an abstract idea, we next determine, under Step 2A, Prong 2 of the 2019 Guidance, whether the claims are directed to that abstract idea, or whether the claims integrate the abstract idea into a practical application of that abstract idea. 2019 Guidance, 84 Fed. Reg. at 54.

The Examiner finds claim 1 to have elements additional to those limitations reciting an abstract idea; namely, storage of data and processors for executing the limitations identified as corresponding to the abstract idea. Ans. 5–6. The Examiner determines these limitations do not improve the computer itself or improve any other technology. *Id.*

Appellant contends that claim 1 improves the technology of data warehousing and the technical process of data migration and data updates through performance of the impact analysis. Reply Br. 3. Appellant contends that the decision of *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (2016) illustrates that a claim that enables the automation of tasks that previously could not be automated provides a technological improvement over the prior art. *Id.*

We are not persuaded by Appellant's arguments that claim 1 improves any particular technology. Although Appellant contends improvement to the technical process of data migration and data updates, Appellant has not explained if these improvements result from improvements to technology or

from improvements to the abstract idea. The Specification attributes these improvements to the impact analysis; however, the impact analysis relies upon determining the dependencies among objects, which “may vary from context to context.” Spec. ¶ 41. Appellant’s invention is “not limited to a particular type of dependency rules,” but instead the “dependency rules may be determined based upon a set of heuristics specified for a particular context.” *Id.* ¶ 42.

As best understood, the claimed processor, database, and data storage function as computational tools to carry out the claimed impact analysis based upon determination of dependencies among objects via an unclaimed approach for determining these dependencies. Appellant has not explained how the alleged improvement necessarily results from the involvement of the claimed technological components, and is not solely from either the manner by which dependency rules have been determined, or the tasks themselves that the Examiner has identified as the abstract idea. Further, the decision in *McRO* relied, in part, on a determination that the computer performed a function in a distinctly different manner from a subjective mental process, such that the computer was not merely used as a tool for automating subjective mental activity. *McRO*, 837 F.3d at 1314. We are not persuaded that such a difference has been shown here. Accordingly, we are not persuaded that claim 1 is directed to any improvement in a technology or technological field so as to show error in the Examiner’s determination that the additionally-recited elements are not more than a processing tool that aids in the above-identified judicially excepted mental process. Accordingly, we conclude that the Appellant has not demonstrated error in the Examiner’s determination that the claim, as a whole, fails to recite

additional elements that integrate the judicial exception into a practical application.

*“Significantly More than the Abstract Idea”*

Having determined that the claims are directed to an abstract idea, we next determine, under Step 2B of the 2019 Guidance, whether the additional elements of the claim provide significantly more than the recited abstract idea. 2019 Guidance, 84 Fed. Reg. at 56.

The Examiner concludes that the additional processor, database, and storage devices are conventional for storage and performing tasks with data. Ans. 5–6. Appellant has not contended that the claims recite non-conventional arrangements of additional elements. Appellant has not pointed out, nor do we find in the Specification, how the combination of steps causes the generically claimed computer to manipulate data in an unconventional manner. The Specification, for example, describes the invention as not being limited to a particular arrangement of databases and servers (Spec ¶ 29), links to source databases (Spec. ¶ 30), arrangement of source databases, data warehouse, and warehouse manager (Spec. ¶ 31), or any particular implementation of the component parts of the warehouse manager performing the claimed functions (Spec. ¶ 33). Furthermore, the use of a generically claimed computer to store, retrieve, and perform electronic recordkeeping tasks have been recognized by the courts as well-understood, routine, conventional activity. *See Alice*, 573 U.S. at 225 (creating and maintaining “‘shadow’ accounts”); *Ulramercial Inc. v. Hulu*, 772 F.3d 709, 716 (Fed. Cir. 2014) (updating an activity log); *Versata Dev. Grp.*, 793 F.3d at 1334 (Fed. Cir. 2015) (storing and retrieving information in memory). Accordingly, we are not persuaded that the combination of the

additional elements of processor, data storage, and database function together in an unconventional way and, therefore, include an inventive concept sufficient to provide eligibility at Step 2B.

In view of the foregoing, under the 2019 Guidance, informed by our governing case law concerning 35 U.S.C. § 101, Appellant has not shown the Examiner erred in concluding claim 1 is directed to a judicial exception, i.e., an abstract idea, without significantly more, and thus is patent-ineligible under § 101. We, therefore, sustain the Examiner's 35 U.S.C. § 101 rejection of claim 1. Appellant has not argued claims 2–5, 7–15, 17–18, and 20–23 separately, and those claims therefore stand or fall with claim 1. Accordingly, we therefore sustain the Examiner's 35 U.S.C. § 101 rejection of those claims.

## CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1–5, 7–15, 17–18, and 20–23	§ 103(a)	1–5, 7–15, 17–18, and 20–23	
1–5, 7–15, 17–18, and 20–23	§ 101	1–5, 7–15, 17–18, and 20–23	
<b>Overall Outcome</b>		1–5, 7–15, 17–18, and 20–23	

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

**AFFIRMED**