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EXAMINER
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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* MURUGESH KARUNAMURTHY and VINEET VIVEKANAND  
KULKARNI<sup>1</sup>

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Appeal 2018-002945  
Application 13/839,431  
Technology Center 3600

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Before CAROLYN D. THOMAS, JOSEPH P. LENTIVECH, and  
SCOTT RAEVSKY, *Administrative Patent Judges*.

THOMAS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants seek our review under 35 U.S.C. § 134(a) of the Examiner's Final Rejection of claims 1, 2, 4, 5, 7–9, 11, 12, 14–16, 18, and 19, all the pending claims in the present application. Claims 3, 6, 10, 13, 17, and 20 are canceled (*see* Claims Appendix). We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup>Appellants name SAP SE as the real party in interest (App. Br. 2).

The present invention relates generally to distributing costs in a transportation management system (*see* Abstract).

Claim 1 is illustrative:

1. A method comprising:

retrieving, at a computer system, a charge element for a transportation cost to be applied for a transport between two physical locations, the charge element being a data structure in a database that identifies a charge amount, the charge amount applying to a hierarchy of different levels of items in the database, wherein the hierarchy includes at least one level including a plurality of distribution items and at least one level including a parent item for the plurality of distribution items;

identifying, using one or more hardware processors of the computer system, a resolution base corresponding to the charge element and a calculation level corresponding to the charge element in the database, the resolution base being an indication of at what level of the transport the charge element is to be assigned, the calculation level being an indication of at what level the charge amount in the charge element will be distributed;

in a first pass of execution of a hierarchical distribution operation by the one or more hardware processors, designating each parent item as a transient distribution item, and then the one or more hardware processors performing the following:

for each transient distribution item, creating a transient distribution element in the database corresponding to the transient distribution item in response to a determination that the charge element is applicable to the transient distribution item, each transient distribution item corresponding to a grouping of items transported in the transport between the two physical locations, the creating comprising determining that the charge element is applicable to a particular transient distribution item based on the resolution base corresponding to the charge element and the calculation level corresponding to the charge element and creating a data object corresponding to the particular transient distribution item:

forming a first transient distribution method instance containing data objects created during the creating;  
passing the first transient distribution method instance to a host business object action;  
executing the first transient distribution method instance, causing:  
determining a quantity type identified in a distribution rule for the charge element;  
obtaining quantities of the quantity type for each transient distribution element;  
summing the quantities for all of the transient distribution elements to calculate an aggregate quantity; and  
for each transient distribution element, allocating a cost for the charge element equal to a quantity of the transient distribution element divided by the aggregate quantity multiplied by the charge amount;  
in a second pass of execution of the hierarchical distribution operation, for a particular transient distribution item, performing the following:  
for each distribution item in the particular transient distribution item, creating a distribution element in the database corresponding to the distribution item in response to a determination that the charge element is applicable to the distribution item, each distribution item in the particular transient distribution item corresponding to an item in the grouping of items in the particular transient distribution item and transported in the transport between the two physical locations, the creating a distribution item for the particular transient distribution item comprising determining that the charge element is applicable to a particular distribution item based on the resolution base corresponding to the charge element and the calculation level corresponding to the charge element and creating a data object corresponding to the particular distribution item;  
forming a second distribution method instance containing data objects created during the creating the distribution element corresponding to the distribution item;  
passing the second distribution method instance to a host business object action;

executing the second distribution method instance,  
causing:  
determining the quantity type identified in the  
distribution rule for the charge element;  
obtaining quantities of the quantity type for each  
distribution element;  
summing the quantities for all of the distribution  
elements to calculate an aggregate quantity; and  
for each distribution element allocating a cost for the  
charge element equal to a quantity of the distribution element  
divided by the aggregate quantity multiplied by the charge  
amount.

Appellants appeal the following rejection:

R1. Claims 1, 2, 4, 5, 7–9, 11, 12, 14–16, 18, and 19 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to patent-ineligible subject matter (Final Act. 5–9).

We review the appealed rejections for error based upon the issues identified by Appellants, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

## ANALYSIS

### *Rejection under § 101*

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. *E.g., Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

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*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with the 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.”). For example, 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)).

Recently, the USPTO published revised guidance on the application of 35 U.S.C. § 101. USPTO’s 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Memorandum”). Under the Memorandum “Step 2A,” the office first looks 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); and
- (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)-(c), (e)-(h)). 84 Fed. Reg. at 51–52, 55.

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, does the Office then (pursuant to the Guidance “Step 2B”) look to 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. 84 Fed. Reg. at 56.

*Alice/Mayo—Step 1 (Abstract Idea)*

*Step 2A—Prongs 1 and 2 identified in the Memorandum*

Step 2A – Prong 1

With respect to independent method claim 1, and similarly, system claim 7 and computer-readable storage medium claim 15, the Examiner determines that the claims are at least directed to the abstract idea of “*allocating a transportation cost using charge elements, hierarchal distribution, and rules, categorized as an idea of itself*” (Final Act. 5; *see also* Ans. 3), whereby the claims “use rules to determine a transportation cost, including using organized classifications and hierarchy” (Final Act. 6), which we conclude are certain methods of organizing human activity, i.e., a fundamental economic practice.

For example, the Specification discloses:

During transportation of these goods, a carrier renders a variety of services to make sure that the goods reach their destination without any damage. The goods are usually packaged during transfer and then loaded in a container. Based on the agreement with the carrier, the shipper can calculate various charges, including container handling charges (applied to each container), packaging charges (applied to the relevant

packages), basic freight (applied to each product), stop charges (applied at each stage of transportation), and document fees ([a]ppplied to each freight order). A shipper plans his order such that he gets the optimal price from the carrier. In an example embodiment, an automated system of allocation allows for the distribution of the various charges to each product in the freight order.

Spec. ¶ 22. In other words, in the claimed invention various charges associated with transportation of goods are look at and a shipper plans his order so as to get the optimal price.

Claim 1 recites: (1) “retrieving . . . a charge element,” (2) “identifying . . . a resolution base . . . and a calculation level,” then in a first pass: (3) “designating each parent item as a transient distribution item,” (4) “creating a transient distribution element,” (5) “determining that the charge element is applicable to a particular transient distribution item,” (6) “creating a data object,” (7) “forming a first transient distribution method instance,” (8) “passing the first transient . . . to a host,” (9) “executing the first transient distribution method instance,” (10) “determining a quantity type,” (11) “obtaining quantities,” (12) “summing the quantities,” (13) “allocating a cost,” then in a second pass: (14) “creating a distribution element,” (15) “determining that the charge element is applicable to a particular distribution item,” (16) “forming a second distribution method instance,” (17) “passing the second distribution . . . to a host,” (18) “executing the second distribution,” (19) “determining the quantity type,” (20) “obtaining quantities,” (21) “summing the quantities,” and (22) “allocating a cost.”

These specific limitations, under their broadest reasonable interpretation, recite certain methods of organizing human activity akin to

fundamental economic principles and commercial interactions because the limitations all recite operations that would ordinarily take place in a commercial environment involving data records, sales activities, and business relations, i.e., distributing the cost for transporting items associated with a transportation invoice (*see* Abstract; *see also* Spec. ¶ 43). Our reviewing court has found claims to be directed to abstract ideas when they recited similar subject matter.

For example, at least the following decisions from our reviewing court have found many types of fundamental commercial practices patent ineligible: *OIP Technologies, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359 (Fed. Cir. 2015), *cert. denied*, 136 S. Ct. 701 (mem) (2015) (offer-based price optimization); *buySafe, Inc. v. Google, Inc.*, 765 F.3d 1350 (Fed. Cir. 2014) (transaction guaranty); *Personalized Media Communications, L.L.C. v. Amazon, Inc.*, 671 F. App'x 777 (mem) (Fed. Cir. 2016) (receiving instructions for ordering); *Macropoint, LLC v. Fourkites, Inc.*, 671 F. App'x 780 (mem) (Fed. Cir. 2016) (tracking freight); *Wireless Media Innovations, LLC v. Maher Terminals, LLC*, 636 F. Appx. 1014 (mem) (Fed. Cir. 2016) (monitoring shipping containers); *America's Collectibles Network Inc. v. Jewelry Channel, Inc. USA*, 672 F. App'x 997 (mem) (Fed. Cir. 2017) (conducting reverse auction by adjusting price and inventory); and *EasyWeb Innovations, LLC v. Twitter, Inc.*, No. 2016-2066, 2017 WL 1969492 (Fed. Cir. 2017) (receiving, authenticating, and publishing data).

Appellants do not directly challenge whether the claims are directed to an abstract idea, but instead present arguments that more closely touch on whether the claims integrate the judicial exception into a practical application (*see* App. Br. 19) and how certain features are not well-

understood, routine, or conventional (*see id.* at 20). Such arguments will be addressed below.

Therefore, for at least the aforementioned reasons, we agree with the Examiner that representative claim 1 is directed to an abstract idea, which we conclude is “a fundamental economic practice.”

Step 2A—Prong 2 (integration into Practical Application)<sup>2</sup>

Under the Memorandum, we now must determine if additional elements in the claims integrate the judicial exception into a **practical application** (*see* MPEP § 2106.05(a)–(c), (e)–(h)).

We discern no additional element (or combination of elements) recited in Appellants’ representative claim 1 that integrates the judicial exception into a practical application. *See* Revised Guidance, 84 Fed. Reg. at 54–55 (“Prong 2”). For example, Appellants’ claimed additional elements (e.g., “computer system,” “a data structure,” “database,” “hardware processors,” and a “transient distribution element”) do not: (1) improve the functioning of a computer or other technology; (2) are not applied with any particular machine (except for a generic computer); (3) do not effect a transformation of a particular article to a different state; and (4) are not applied in any meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the

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<sup>2</sup> We acknowledge that some of the considerations at Step 2A, Prong 2, properly may be evaluated under Step 2 of *Alice* (Step 2B of the Office guidance). For purposes of maintaining consistent treatment within the Office, we evaluate them under Step 1 of *Alice* (Step 2A of the Office guidance). *See* Memorandum, 84 Fed. Reg. at 55 n.25, 27–32.

claim as a whole is more than a drafting effort designed to monopolize the exception. *See* MPEP §§ 2106.05(a)–(c), (e)–(h).

Appellants contend that

the ‘two pass execution method’ is not itself abstract because it utilizes unique data structures, specifically the transient distribution items, which have special properties within the computer system. . . . treated as distribution items in the first pass . . . but not treated as distribution items in the second pass.

App. Br. 19.

For example, Appellants’ Specification indicates:

One common example of a case where a parent item has a feature that can impact cost is the tare weight of containers. While individual distribution items may have their own weights that can affect costs, the containers that hold the combination of individual distribution items may also have their own weights. In such a case, the parent items may first be designated as transient distribution items. These transient distribution items will be treated as distribution items for a first pass of the direct distribution method, but not in subsequent passes. . . . This may be known as a hierarchical distribution method.

Spec. ¶ 43. Although Appellants’ claim 1 describes “a data structure in a database that identifies a charge amount” (*see* claim 1), the recited data structure is not designed to improve the way a computer carries out its basic functions.

In contrast, the claims at issue in *Enfish* were directed to a specific type of data structure, i.e., a self-referential table for a computer database, designed to improve the way a computer carries out its basic functions of storing and retrieving data. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335-36 (Fed. Cir. 2016). In rejecting a § 101 challenge, the court in *Enfish* held that “the plain focus of the claims is on an improvement to

computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity.” *Id.* at 1336.

Here, Appellants do not point to anything in the claim that resembles the inventive self-referential data structure at issue in *Enfish*. The Appellants also do not direct our attention to anything in the Specification to indicate that the invention provides an improvement in the computer’s technical functionality. Instead, the claimed data structure improves economic tasks, i.e., distributing costs in a transportation management system. That is, here the arguably innovative technique of the appealed claims is inextricably a part of the abstract idea of allocating a transportation cost using charge elements, hierarchal distribution, and rules. Moreover, nothing in the claims, understood in light of the Specification, requires anything other than an off-the-shelf, conventional computer used for collecting and processing/analyzing various information/data. Therefore, unlike *Enfish*, the claims are directed not to improvement in computer capabilities, but to the results of applying an abstract idea.

Appellants are reminded that “relying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.” *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (citing *Alice*, 573 U.S. at 225 (“use of a computer to create electronic records, track multiple transactions, and issue simultaneous instructions” is not an inventive concept)).

Furthermore, the claimed “computer system,” “a data structure,” “database,” and “hardware processors” are merely described at a high level in Appellants’ Specification (*see* Spec. ¶ 59) without any meaningful detail about their structure or configuration. As such, we do not find that these

computer-related limitations are sufficient to integrate the judicial exception into a practical application.

For at least the reason noted *supra*, we determine that claim 1 (1) recites a judicial exception and (2) does not integrate that exception into a practical application.

*Alice/Mayo—Step 2 (Inventive Concept)*  
*Step 2B identified in the Memorandum*

Turning to the second step of the *Alice* inquiry, we now look to whether claim 1 contains any “inventive concept” or adds anything “significantly more” to transform the abstract concept into a patent-eligible application. *Alice*, 134 S.Ct. at 2357. As recognized by the Memorandum, an “inventive concept” under *Alice* step 2 can be evaluated based on whether an additional element or combination of elements:

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

*See* Memorandum, 84 Fed. Reg. at 56; MPEP § 2106.05(d).

Appellants contend that “the specific type of data structure, namely the transient distribution element, which contains unique properties in that it is treated as an ordinary distribution element for a first pass of execution but not for subsequent passes, is not well-understood, routine, or conventional.

. . . [because] the Examiner could not find prior art that teaches the creation or use of these transient distribution elements” (App. Br. 20).

We find no element or combination of elements recited in Appellants’ claim 1 that contains any “inventive concept” or adds anything “significantly more” to transform the abstract concept into a patent-eligible application. Appellants have not adequately explained how claim 1 is performed such that it is not a routine and conventional function of a generic computer. Furthermore, a finding of novelty or non-obviousness does not require the conclusion that the claimed subject matter is patent-eligible. Although the second step in the *Mayo/Alice* framework is termed a search for an “inventive concept,” the analysis is not an evaluation of novelty or nonobviousness, but, rather, is a search for “an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Alice Corp.*, 573 U.S. at 217–18. “Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry.” *Ass’n. for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 591 (2013). A novel and non-obvious claim directed to a purely abstract idea is, nonetheless, patent-ineligible. *See Mayo*, 566 U.S. at 90. *See also Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981) (“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.”).

Because Appellants’ independent claim 1 is directed to a patent-ineligible abstract concept, does not include additional elements that integrate the judicial exception into a practical application, and does not add

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a specific limitation beyond the judicial exception that is not “well-understood, routine, and conventional,” we sustain the Examiner’s rejection of the claims 1, 2, 4, 5, 7–9, 11, 12, 14–16, 18, and 19 under 35 U.S.C. § 101 as being directed to non-statutory subject matter in light of *Alice*, its’ progeny, and the Memorandum.

#### DECISION

We affirm the Examiner’s 35 U.S.C § 101 rejection of claims 1, 2, 4, 5, 7–9, 11, 12, 14–16, 18, and 19.

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

AFFIRMED