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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* AMELIE HOCQUETTE, VIU-LONG KONG,  
and STEPHANIE MICHEL<sup>1</sup>

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Appeal 2017-009679  
Application 13/709,517  
Technology Center 3600

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Before ROBERT E. NAPPI, CATHERINE SHIANG, and CARL L.  
SILVERMAN, *Administrative Patent Judges*.

NAPPI, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the Final Rejection of claims 1, 3 through 6, 8 through 11, 13 through 15, and 17 through 19.

We reverse.

INVENTION

The invention is directed to a method of automated partitioning of transportation routing problems. Abstract. Claim 1 is illustrative of the invention and is reproduced below:

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<sup>1</sup> According to Appellants, the real party in interest is International Business Machines Corporation. App. Br. 2.

1. A method for automated partitioning of transportation routing problems by a data processing system, comprising:
  - determining, by the data processing system, a threshold number of shipments per partition, wherein determining a threshold number of shipments per partition is determined dynamically based on a heuristic function;
  - initially dividing, by the data processing system, a routing problem into geographic centers to form a plurality of geographic center routing problems for each of the geographic centers;
  - selecting, by the data processing system, a geographic center from the geographic centers;
  - mapping, by the data processing system, delivery and/or pickup sites at geographic locations around the geographic center;
  - scanning, by the data processing system, radially around the geographic center to determine a sparsest or densest region of the sites and selecting a starting point in this region;
  - progressing, by the data processing system responsive to the scanning, from the starting point radially around the geographic center aggregating the sites into partitions with a maximum of the threshold number of shipments in each partition; and
  - outputting, for each of the partitions, a set of routes that each comprise a vehicle, list of shipments for the vehicle, and unload events associated with the vehicle.

#### REJECTION AT ISSUE

The Examiner rejected claims 1, 3 through 6, 8 through 11, 13 through 15, and

17 through 19 under 35 U.S.C. § 101 for being directed to patent-ineligible subject matter. Final Act 6–8.<sup>2</sup>

## PRINCIPLES OF LAW

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 are, however, three judicially created exceptions to the broad categories of patent-eligible subject matter in 35 U.S.C. § 101: “[I]aws of nature, natural phenomena, and abstract ideas.” *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012).

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 that framework, we first determine what concept the claim is “directed to.” *See Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk.”); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4

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<sup>2</sup> Throughout this Opinion, we refer to the Appeal Brief, filed February 22, 2017 (“App. Br.”), the Reply Brief, filed July 7, 2017 (“Reply Br.”), the Examiner’s Answer, mailed June 20, 2017 (“Answer”), and the Final Office Action, mailed November 17, 2016 (“Final Act”).

in petitioners’ application explain the basic concept of hedging, or protecting against risk.”).

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 69 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diamond v. Diehr*, 450 U.S. 175, 192 (1981)); “tanning, dyeing, making waterproof cloth, vulcanizing India rubber, smelting ores” (*id.* at 184 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1854))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that “[a] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 176; *see also id.* at 192 (“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula.”). Having said that, the Supreme Court also indicated that a claim “seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, . . . and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Id.* (citing *Benson* and *Flook*); *see, e.g., id.* at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula

to a known structure or process may well be deserving of patent protection.”).

If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where “we must examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 573 U.S. at 221 (quotation marks omitted). “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Id.* (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

The PTO recently published revised guidance on the application of § 101. USPTO’s January 7, 2019 Memorandum, *2019 Revised Patent Subject Matter Eligibility Guidance* (“Memorandum”). Under that guidance, we first determine whether the claim recites:

- (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human interactions 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 look to whether the claim:

- (3) adds a specific limitation beyond the judicial exception that are 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.

*See* Memorandum.

### ANALYSIS

Appellants argue on pages 8 through 19 of the Appeal Brief the Examiner’s rejection of independent claims 1, 11, and 18 is in error. The dispositive issue presented by these arguments is: whether the Examiner has shown that the independent claims are directed to an abstract idea. Appellants argue the Examiner’s characterization of the claims as being directed to generating an optimal vehicle pick-up/delivery routes is improper as it is characterizing the claims at a high level and is untethered to the language of the claim. App. Br. 11. Appellants argue the claims recite a partitioning front-end system that pre-processes information before passing the information to a system that generates optimum vehicle results. App. Br. 11, 14. Further, Appellants argue the Examiner has not shown that the claims are similar to those held to be abstract by the courts. App. Br. 12. Additionally, Appellants argue the steps of the claims are not steps that can be performed in the human mind. App. Br. 12, 14.

The Examiner responds that the characterization of the claim as generating optimal vehicle pick-up/delivery routes is a shorthand summary of the abstract idea. Answer 6–9. The Examiner identified in the Final

Rejection, that the claimed, “concept relates to optimization of business activities. The concept described in claims 1, 11, and 18 are not meaningfully different than that economic concept and/or certain method of organizing human activity found by the courts to be an abstract idea.” Final Act 7. The Examiner in the Answer identified that the claimed abstract idea is similar to determining an optimal number of visits by a business representative, which was held to be abstract by the courts. Answer 15 (citing *In re Maucorps* 609 F.2d 481 (CCPA 1979)).

We agree with the Appellants that the Examiner has not demonstrated that the claims are directed to an abstract idea, further we do not see that the claims are directed to one of the categories listed in the Memorandum. We fail to see how the claimed process of partitioning transportation routing problems is directed to an economic concept as discussed by the Examiner on page 7 of the Final Action. Further, we disagree with the Examiner the claims at issue recite an abstract idea similar to the claims at issue in *In re Maucorps*. The claims at issue in *Maucorps* recited a mathematical algorithm to calculate a number of regular visits by a business representative to a client. *In re Maucorps* 609 F.2d 481, 482. The decision in *Maucorps*, was decided before *Alice* and applied the two step analysis set forth in *In re Freeman*, 573 F.2d 1237, (CCPA1978) to determine eligibility under 35 U.S.C. § 101 *Id* at 483. The court found that the claims recite an algorithm and the claims as a whole preempt the recited algorithm. *Id*. Thus, the claims at issue in *Maucorps* are different than the claims in the instant case as the claims in *Maucorps* involve the recitation of a mathematical algorithm (an abstract concept), whereas the claims in the current application do not recite an mathematical algorithm. Thus, we do not find that the Examiner



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has demonstrated that claims recite an abstract idea and as such, the Examiner has not demonstrated that the claims are directed to patent patent-ineligible subject matter.

#### DECISION

The decision of the Examiner to reject claims 1, 3 through 6, 8 through 11, 13 through 15, and 17 through 19 is reversed.

REVERSED