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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/247,443	04/08/2014	Christopher R. Dance	20120334US01-CNDT2923US01	3051

144578 7590 12/27/2019

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EXAMINER	
HENRY, MATTHEW D	

ART UNIT	PAPER NUMBER
3683	

NOTIFICATION DATE	DELIVERY MODE
12/27/2019	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHRISTOPHER R. DANCE and ONNO R. ZOETER

Appeal 2018-002332
Application 14/247,443
Technology Center 3600

Before BRADLEY W. BAUMEISTER, SHARON FENICK, and RUSSELL E. CASS, *Administrative Patent Judges*.

BAUMEISTER, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1, 2, 4, 6–8, 10, 11, and 14–22, which constitute all of the pending claims.[1] Appeal Br. 3. These claims stand rejected under 35 U.S.C. § 101 as being directed to a judicial exception to patent-eligible subject matter without significantly more. Final Action mailed Mar. 16, 2017 ("Final Act."), 8–11. 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 Conduent Business Services, LLC. Appeal Brief filed August 22, 2017 ("Appeal Br."), 1.

STANDARD OF REVIEW

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

CLAIMED SUBJECT MATTER

Appellant describes the present invention as follows:

> A system and method for recommending pricing using blocking rates and traffic flux. For a given block face, occupancy and traffic flow information are collected and analyzed to determine a blocking rate. The traffic flux for the block face is determined using the collected traffic flow information. External costs, including cost to drivers slowed and cost to drivers blocked from parking are estimated and a cost rate is determined as a function of the blocking rate, the traffic flux, and the external costs. A utility rate is calculated and a price change is recommended based upon a maximization of the utility rate.

Abstract.

Claim 1 illustrates the claimed subject matter. Claim 1 is reproduced below with paragraph numbering added for clarity and emphasis added to the claim language that recites an abstract idea:

> 1. *A method for recommending prices for parking, comprising*:
>
> [i] *receiving*, at a computer system having a processor, *data representative of parking occupancy for an associated block face during an analysis period from at least one parking sensor over a computer network*;
>
> [ii] *receiving*, at the computer system, *data representative of traffic flow for the associated block face during the analysis period from at least one traffic sensor over the computer network*;

[iii] *estimating*, via the processor of the computer system, *a blocking rate for the analysis period in accordance with the received parking occupancy data and the traffic flow data*;

[iv] *determining*, via the processor of the computer system, *a traffic flux for the associated block face from the data representative of the traffic flow of the associated block face*;

[v] *determining*, via the processor of the computer system, *at least one externality cost associated with parking on the associated block face*;

[vi] *estimating*, via the processor of the computer system, *a cost rate for the associated block face during the analysis period in accordance with the blocking rate, the traffic flux, and the at least one externality cost*;

[vii] *determining*, via the processor of the computer system, *a valuation rate for each occupied space on the associated block face during a portion of a time interval of the analysis period*;

[viii] *calculating*, by the processor of the computer system, *an average valuation rate for parking during the portion of the time interval on the associated block face via the determined valuation rates*;

[ix] *calculating*, by the processor of the computer system, *a utility rate for each portion of the time interval of the analysis period, the utility rate corresponding to a difference between the average valuation rate and the cost rate for the portion of the time interval*; and

[x] *determining*, by the processor of the computer system, *a recommended price for parking on the associated block face during the analysis period in accordance with the estimated blocking rate and traffic flow data*,

[xi] wherein at least one of the receiving, receiving, estimating, or determining is performed by a processor in communication with associated memory.

PRINCIPLES OF LAW

A. SECTION 101

Inventions for a "new and useful process, machine, manufacture, or composition of matter" generally constitute patent-eligible subject matter. 35 U.S.C. § 101. However, the U.S. 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. *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 Court's two-step framework, described in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), and *Alice*. *Alice*, 573 U.S. at 217–18 (citing *Mayo*, 566 U.S. at 75–77). In accordance with that framework, we first determine what concept the claim is "directed to." *See Alice*, 573 U.S. at 219 ("On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk."); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) ("Claims 1 and 4 in petitioners' application explain the basic concept of hedging, or protecting against risk.").

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as "molding rubber products" (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); "tanning, dyeing, making water-proof cloth, vulcanizing India

rubber, smelting ores" (*id.* at 182 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 Court held that "a claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula." *Diehr*, 450 U.S. at 187; *see also id.* at 191 ("We view respondents' claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula."). Having said that, the 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.* at 191 (citing *Benson* and *Flook*) (citation omitted); *see also, 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 (internal 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.* (alterations in original) (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.*

B. USPTO SECTION 101 GUIDANCE

In January 2019, the United States Patent and Trademark Office ("USPTO") published revised guidance on the application of 35 U.S.C. § 101. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) ("2019 Guidance"), *updated by* USPTO, *October 2019 Update: Subject Matter Eligibility* (available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf) (jointly referred to as "the 2019 Guidance"); *see also* October 2019 Patent Eligibility Guidance Update, 84 Fed. Reg. 55942 (Oct. 18, 2019) (notifying the public of the availability of the October update).

Under the 2019 Guidance, we first look to whether the claim recites the following:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activities such as a fundamental economic practice, or mental processes); and
>
> (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP §§ 2106.05(a)–(c), (e)–(h)).

2019 Guidance, 84 Fed. Reg. at 52–55.

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

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

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

2019 Guidance, 84 Fed. Reg. at 56.

ANALYSIS

Step 2A, Prong 1

Under step 2A, prong 1, of the 2019 Guidance, we first look to whether the claim recites any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activities such as a fundamental economic practice, or mental processes). 84 Fed. Reg. at 52–54.

Limitation [i] recites "receiving . . . data representative of parking occupancy for an associated block face during an analysis period from at least one parking sensor over a computer network." Receiving data reasonably can be characterized as a certain method of organizing human activity. More specifically, receiving data reasonably can be characterized as a method of managing interactions between people, including teaching. The 2019 Guidance expressly recognizes this type of certain method of organizing human activity as constituting a patent-ineligible abstract idea. 84 Fed. Reg. at 52.

Receiving data alternatively can be reasonably characterized as a mental process. More specifically, receiving data reasonably can be characterized as an observation that can be performed in the human mind. The 2019 Guidance expressly recognizes mental processes, including observations, as constituting a patent-ineligible abstract idea. *Id.*

Accordingly, limitation [i] reasonably can be characterized as reciting a patent-ineligible abstract idea.

Limitation [ii] recites "receiving . . . data representative of traffic flow for the associated block face during the analysis period from at least one traffic sensor over the computer network." For the reasons discussed in relation to limitation [i], the data-receiving step of limitation [ii] also reasonably can be characterized as reciting a patent-ineligible abstract idea.

Limitation [iii] recites "estimating . . . a blocking rate for the analysis period in accordance with the received parking occupancy data and the traffic flow data." Estimating a rate based upon received data reasonably can be characterized as a performing a mathematical concept, such as determining a mathematical relationship or performing a mathematical calculation. The 2019 Guidance expressly recognizes mathematical relationships and calculations as constituting patent-ineligible abstract ideas. *Id.*

Estimating a rate based upon received data also can be characterized reasonably as a mental process, such as an evaluation or judgment that can be performed in the human mind. The 2019 Guidance expressly recognizes such mental processes as constituting patent-ineligible abstract ideas. *Id.*

Accordingly, limitation [iii] reasonably can be characterized as reciting a patent-ineligible abstract idea.

Limitations [iv] through [x] read, as follows:

> [iv] determining . . . a traffic flux for the associated block face from the data representative of the traffic flow of the associated block face;
>
> [v] determining . . . at least one externality cost associated with parking on the associated block face;

> [vi] estimating . . . a cost rate for the associated block face during the analysis period in accordance with the blocking rate, the traffic flux, and the at least one externality cost;
>
> [vii] determining . . . a valuation rate for each occupied space on the associated block face during a portion of a time interval of the analysis period;
>
> [viii] calculating . . . an average valuation rate for parking during the portion of the time interval on the associated block face via the determined valuation rates;
>
> [ix] calculating . . . a utility rate for each portion of the time interval of the analysis period, the utility rate corresponding to a difference between the average valuation rate and the cost rate for the portion of the time interval; and
>
> [x] determining . . . a recommended price for parking on the associated block face during the analysis period in accordance with the estimated blocking rate and traffic flow data.

Limitations [iv] through [x] reasonably can be characterized as reciting at least one or both of a mathematical concept and mental process that is recognized by the 2019 Guidance for the reasons set forth in relation to limitation [iii]. Accordingly, limitations [iv] through [x] reasonably can be characterized as reciting a patent-ineligible abstract idea. *Id.*

For these reasons, each of limitations [i] through [x] reasonably can be characterized as reciting a judicial exception to patent-eligible subject matter under step 2A, prong 1, of the 2019 Guidance.

Step 2A, Prong 2

Under step 2A, prong 2, of the 2019 Guidance, we next analyze whether the claims recite additional elements that individually or in combination integrate the judicial exception into a practical application. 2019 Guidance, 84 Fed. Reg. at 53–55. The 2019 Guidance provides exemplary considerations that are indicative of an additional element or

combination of elements integrating the judicial exception into a practical application, such as an additional element reflecting an improvement in the functioning of a computer or an improvement to any other technology or technical field. *Id.* at 55; MPEP § 2106.05(a).

Appellant argues that "the claims of the present application solve problems arising in a specific technical area." Appeal Br. 16. According to Appellant, the claims more specifically "solve the problem of how to establish a parking price during a particular level of traffic and parking capacity levels, and changes to that price when the level of traffic and parking capacity changes." *Id.* Appellant continues,

> it should be understood that prior to the claimed invention, existing parking price determination systems ignored arrival rates during busy traffic level times, levels of traffic congestion, and parking distance from a desired location (*see* at least pages 1 and 2 of the present specification). The present claims provide systems and methods to establish a parking price during a particular level of traffic and parking capacity levels, and changes to that price when the level of traffic and parking capacity changes.

Id.

These arguments are unpersuasive because solving the problem of how to establish parking prices based on various transient conditions entails the recited abstract ideas—not a technological problem. *See BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018) ("It has been clear since *Alice* that a claimed invention's use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention 'significantly more' than that ineligible concept."); *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) ("[A] claim for a new abstract idea is still an abstract idea.") (emphasis omitted); *SAP Am., Inc. v.*

InvestPic, LLC, 898 F.3d 1161, 1168 (Fed. Cir. 2018) ("What is needed is an inventive concept in the non-abstract application realm.").

Furthermore, claim 1's first two steps of

> [i] *receiving*, at a computer system having a processor, *data representative of parking occupancy for an associated block face during an analysis period from at least one parking sensor over a computer network*; [and]
>
> [ii] *receiving*, at the computer system, *data representative of traffic flow for the associated block face during the analysis period from at least one traffic sensor over the computer network*.

reasonably can be characterized as merely constituting insignificant pre-solution activity that is insufficient to add significantly more to claim 1:

> An example of pre-solution activity is a step of gathering data for use in a claimed process, *e.g.*, a step of obtaining information about credit card transactions, which is recited as part of a claimed process of analyzing and manipulating the gathered information by a series of steps in order to detect whether the transactions were fraudulent.

MPEP § 2106.05(g).

Appellant additionally argues that the claims are not directed to a patent-ineligible idea because they do not pre-empt all ways of calculating a parking price. *See* Appeal Br. 13 ("Claim 1 does not generate parking price information regardless by what method they are generated.").

This argument is unpersuasive. The Supreme Court has described "the concern that drives this exclusionary principle [i.e., the exclusion of abstract ideas from patent eligible subject matter] as one of pre-emption." *Alice*, 573 U.S. at 216. However, characterizing preemption as a driving concern for patent eligibility is not the same as characterizing preemption as the sole test for patent eligibility. As our reviewing court has explained: "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, Appellant does not persuade us that claim 1 is directed to an improvement in the function of a computer or to any other technology or technical field. MPEP § 2106.05(a). Nor is claim 1 directed to a particular machine or transformation. MPEP §§ 2106.05(b), (c). Nor has Appellant persuasively demonstrated that claim 1 adds any other meaningful limitations. MPEP § 2106.05(e). Accordingly, Appellant has not persuaded us that claim 1 integrates the recited abstract ideas into a practical application within the meaning of the 2019 Guidance. 84 Fed. Reg. at 52–55.

Step 2B

Under step 2B of the 2019 Guidance, we next analyze whether claim 1 adds any specific limitations beyond the judicial exception that, either alone or as an ordered combination, amount to more than "well-understood, routine, conventional" activity in the field. 84 Fed. Reg. at 56; MPEP § 2106.05(d).

Claim 1 recites the following additional elements beyond the recited abstract ideas: (1) "a computer system having a processor," upon which the claimed abstract ideas are practiced (claim 1, limitations [i] through [x]) and (2) "wherein at least one of the receiving, receiving, estimating, or determining is performed by a processor in communication with associated memory" (limitation [xi]).

Appellant's Specification provides evidence that the claimed "computer system having a processor" was well-understood, routine, and conventional within the meaning of the 2019 Guidance:

> The exemplary method may be implemented on one or more *general[-]purpose computers*, special purpose computer(s), a programmed microprocessor or microcontroller and peripheral integrated circuit elements, an ASIC or other integrated circuit, a digital signal processor, a hardwired electronic or logic circuit such as a discrete element circuit, a programmable logic device such as a PLO, PLA, FPGA, Graphical card CPU (GPU), or PAL, or the like. In general, *any device, capable of implementing a finite state machine* that is in turn capable of implementing the flowcharts 200 and 300 shown respectively in FIGURE 2 and FIGURES 3A–3B, *can be used to implement the exemplary price schedule optimization method*.

Spec. ¶ 110 (emphasis added).

Appellant's Specification also provides evidence that the claimed "memory" of limitation [xi], likewise, was well-understood, routine, and conventional within the meaning of the 2019 Guidance:

> The method illustrated in FIGURES 2–3 may be implemented in a computer program product that may be executed on a computer. The computer program product may comprise a non-transitory computer-readable recording medium on which a control program is recorded (stored), such as a disk, hard drive, or the like. Common forms of non-transitory computer-readable media include, for example, floppy disks, flexible disks, hard disks, magnetic tape, or any other magnetic storage medium, CD-ROM, DVD, or any other optical medium, a RAM, a PROM, an EPROM, a FLASH-EPROM, or other memory chip or cartridge, or any other tangible medium from which a computer can read and use.

Spec. ¶ 108.

Furthermore, Appellant's Specification does not indicate that consideration of these conventional elements as an ordered

combination adds any significance beyond the additional elements, as considered individually. Rather, Appellant's Specification indicates that the invention is directed to an abstract idea that is made more efficient with generic computer components—evaluating and recommending pricing based upon, *inter alia*, "the arrival rate, the congestion, and/or the distance." Spec. 8.

For these reasons, we determine that claim 1 does not recite additional elements that, either individually or as an ordered combination, amount to significantly more than the judicial exception within the meaning of the 2019 Guidance. 84 Fed. Reg. at 52–55; MPEP § 2106.05(d).

Accordingly, we sustain the Examiner's rejection of claim 1 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter.

Dependent claims 2, 4, 6–8, 10, 11, and 14–22.

Appellant additionally argues, likewise, that each of the dependent claims is not directed to an abstract idea, that each dependent claim improves computer related technology, and that each dependent claim recites significantly more. Appeal Br. 16–31.

These arguments are unpersuasive because each of the dependent claims merely sets forth more detail about the underlying abstract ideas of claim 1 or recites additional abstract ideas. For example, claim 2 recites the following two mental processes: "determining a blocking probability that a driver will be blocked from parking on the associated block face during the analysis period in accordance with the received occupancy data; and estimating the blocking rate in accordance with the determined blocking probability."

As another example, claim 19 recites similar abstract ideas as set forth in claim 1 and additionally recites "recommending at least one price change

to a price for parking on the block face of interest in accordance with a maximization of the utility rate for the portion of the time interval." Providing a recommendation reasonably can be characterized either as a mental process that entails a judgment or opinion. The 2019 Guidance expressly recognizes such types of mental processes as constituting abstract ideas. 84 Fed. Reg. at 52.

We, likewise, sustain the 101 rejection, then, of claims 2, 4, 6–8, 10, 11, and 14–22 for the reasons set forth in relation to claim 1.

CONCLUSION

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
1, 2, 4, 6–8, 10, 11, 14–22	§ 101	Eligibility	1, 2, 4, 6–8, 10, 11, 14–22	

TIME PERIOD FOR RESPONSE

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). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED