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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* B. SCOTT BODING and  
ANDREW NAUMANN ZU KOENIGSBRUECK

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Appeal 2017-008591  
Application 13/925,656<sup>1</sup>  
Technology Center 3600

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Before HUNG H. BUI, NABEEL U. KHAN, and  
KARA L. SZPONDOWSKI, *Administrative Patent Judges*.

BUI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants seek our review under 35 U.S.C. § 134(a) from the Examiner’s final rejection of claims 1–3, 5–9, and 11–24, which are all the claims pending in the application. Claims 4 and 10 are cancelled. App. Br. 45–50 (Claims App.). We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.<sup>2</sup>

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<sup>1</sup> According to Appellants, Visa U.S.A. Inc. is the real party in interest. App. Br. 2.

<sup>2</sup> Our Decision refers to Appellants’ Appeal Brief filed December 9, 2016 (“App. Br.”); Reply Brief filed May 23, 2017 (“Reply Br.”); Examiner’s Answer mailed March 23, 2017 (“Ans.”); Final Office Action mailed June 9, 2016 (“Final Act.”); and original Specification filed June 24, 2013 (“Spec.”).

## STATEMENT OF THE CASE

Appellants' invention relates to "systems and methods for detecting the likelihood that a transaction is fraudulent using [1] user access pattern data and [2] device fingerprint data." Spec. ¶ 5 (bracketing added); Abstract.

Claims 1, 7, and 15 are independent. Claim 1 is illustrative of the claimed subject matter, as reproduced below:

1. An authentication analysis system, comprising:
  - a processor;
  - an external interface coupled to the processor; and
  - a non-transitory computer-readable storage medium coupled to the processor, comprising code executable by the processor for implementing a method comprising:
    - receiving, by the processor over a network at the external interface, user access pattern data generated by a user client computer, where the user client computer is used to request an authentication process, wherein the user access pattern data corresponds to user interactions of a user with one or more input devices of the user client computer, the user interactions detected by the one or more input devices;
    - receiving, by the processor over the network, device fingerprint data associated with the user client computer;
    - determining, by the processor, a type of device for the user client computer by using the device fingerprint data to access a list of device types;
    - calculating, by the processor, a quantity of user interactions with the user client computer based on the user access pattern data;
    - determining, by the processor, a likelihood that the request is fraudulent by comparing the quantity to a previously measured quantity of user interactions associated with the user utilizing a user device that is of the same type of device as the user client computer;
    - declining, by the processor, authentication of the user if the likelihood indicates that the user access pattern data is inconsistent with the type of device determined based on the device fingerprint data; and

sending, by the processor over the network, an instruction to a server computer indicating that authentication of the user was declined, wherein the instruction causes the server computer to end the authentication process with the user client computer.

App. Br. 45 (Claims App).

### EXAMINER'S REJECTION<sup>3</sup>

Claims 1–3, 5–9, and 11–24 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to an abstract idea without significantly more. Final Act. 3–5.

### DISCUSSION

To determine whether claims are patent eligible under § 101, we apply the Supreme Court's two-step framework articulated in *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208 (2014). First, we determine whether the claims are directed to a patent-ineligible concept: laws of nature, natural phenomena, and abstract ideas. *Id.* at 216–18. If so, we then proceed to the second step to consider the elements of the claims “individually and ‘as an ordered combination’” to determine whether there are additional elements

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<sup>3</sup> The Examiner also finally rejected (1) claims 1–3, 7–9, 13–18, 23, and 24 under 35 U.S.C. § 103(a) as being obvious over Varghese et al. (US 2006/0282660 A1; published Dec. 14, 2006; “Varghese '660”) and Varghese (US 2009/0089869 A1; published Apr. 2, 2009; “Varghese '869”); (2) claims 5, 6, 11, and 12 under 35 U.S.C. § 103(a) as being obvious over Varghese '660, Varghese '869, and Dominguez (US 2011/0196791 A1; published Aug. 11, 2011); (3) claims 19–22 under 35 U.S.C. § 103(a) as being obvious over Varghese '660, Varghese '869, and Thavasi et al. (US 2013/0067547 A1; Mar. 14, 2013). App. Br. 26–43; *see also* Final Act. 6–23. However, these obviousness rejections were withdrawn in the Examiner's Answer and, as such, are no longer on appeal. Ans. 2.

that “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* at 217. In other words, the second step is to “search for an ‘inventive concept’—*i.e.*, 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.’” *Id.*

The Federal Circuit has described the *Alice* step 1 inquiry as looking at the “focus” of the claims, their “character as a whole,” and the *Alice* step-two inquiry as looking more precisely at what the claim elements add—whether they identify an “inventive concept” in the application of the ineligible matter to which the claim is directed. *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016); *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015).

Because there is no single definition of an “abstract idea” under *Alice* step 1, the PTO has recently synthesized, for purposes of clarity, predictability, and consistency, key concepts identified by the courts as abstract ideas to explain that the “abstract idea” exception includes the following three groupings:

- (a) Mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations;[]
- (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);[] and

(c) Mental processes—concepts performed in the human mind[] (including an observation, evaluation, judgment, opinion).

*See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 52 (Jan. 7, 2019) (“PTO § 101 Memorandum”). According to the PTO § 101 Memorandum, “[c]laims that do not recite [subject] matter that falls within these enumerated groupings of abstract ideas should not be treated as reciting abstract ideas,” except in rare circumstances. *Id.* at 53. Even if the claims recite any one of these three groupings of abstract ideas, these claims are still not “directed to” a judicial exception (abstract idea) and, thus, are “patent-eligible” if “the claim as a whole integrates the recited judicial exception into a practical application of that exception.” *Id.* “[I]ntegration into a practical application” requires an additional element or a combination of additional elements in the claim to apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the exception. *Id.* at 54–55.

For example, limitations that are indicative of “integration into a practical application” include:

- 1) Improvements to the functioning of a computer, or to any other technology or technical field – *see* MPEP § 2106.05(a);
- 2) Applying the judicial exception with, or by use of, a particular machine – *see* MPEP § 2106.05(b);
- 3) Effecting a transformation or reduction of a particular article to a different state or thing – *see* MPEP § 2106.05(c); and
- 4) Applying or using the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception – *see* MPEP § 2106.05(e).

In contrast, limitations that are **not** indicative of “integration into a practical application” include:

- 1) Adding the words “apply it” (or an equivalent) with the judicial exception, or mere instructions to implement an abstract idea on a computer, or merely uses a computer as a tool to perform an abstract idea – *see MPEP § 2106.05(f)*;
- 2) Adding insignificant extra-solution activity to the judicial exception – *see MPEP § 2106.05(g)*; and
- 3) Generally linking the use of the judicial exception to a particular technological environment or field of use – *see MPEP § 2106.05(h)*.

*See PTO § 101 Memorandum, 84 Fed. Reg. at 54–55 (“Prong Two”).*

*Examiner’s Determination of Patent-Ineligibility*

In rejecting claims 1–3, 5–9, and 11–24 under 35 U.S.C. § 101, the Examiner determines these claims are directed to an abstract idea of “identifying details of transactions and assessing risk, along with monitoring, organizing and reporting information” which is considered any one of (i) “a fundamental economic practice,” (ii) “an idea ‘of itself,’” i.e., mental processes, (iii) “certain methods of organizing human activity,” and (iv) “mathematical relationships/formulas,” and include limitations that are analogous or similar to (1) concepts of organizing information through mathematical correlations as discussed in *Digitech*; and (2) concepts of data collection, recognition, and storage as discussed in *Content Extraction*. Ans. 2–3; Final Act. 3; *see Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344 (Fed. Cir. 2014) (Holding claims directed to “a process of organizing information through mathematical correlations” are not patent-eligible.); *Content Extraction and Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (Holding claims directed to “data

collection, recognition, and storage” are not patent-eligible.); *see also CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1370 (Fed. Cir. 2011).

The Examiner also determines the claims fail to amount to “significantly more” than the “judicial exception” or contain an “inventive concept” because the additional elements recited (1) “are generic computer components . . . [to] perform purely generic computer functions,” (2) do not improve the functioning of a computer, improve any other technology, or “move beyond a general link of the use of an abstract idea.” Ans. 8–9.

Appellants argue all independent claims 1, 7, and 15 together (App. Br. 12–23). We select claim 1 as representative. Claims 2, 3, 5, 6, 8, 9, 11–14, and 16–24 stand or fall with claim 1 (*see* 37 C.F.R. § 41.37(c)(1)(iv)).

#### *Alice/Mayo—Step 1 (Abstract Idea)*

Turning to the first step of the *Alice* inquiry, Appellants argue claim 1 is not directed to an abstract idea because “detect[ing] fraud based on a relationship between detected user interactions with a device and a device type, where an authentication process can be ended if there is a likelihood that the user access pattern data is inconsistent with the device type” “only arise in processing of electronic communications” and (1) “are not basic to the ability of a person to perform an economic practice” or (2) “organize human activities,” (3) do not describe “mathematical concepts such as mathematical algorithms, mathematical relationships, mathematical formulas, and calculations,” and (4) do not involve any kind of mental steps. App. Br. 12–14. In addition, Appellants argue claim 1 “solves the technical issue of authenticating a person using a computer that is remote from the authentication computer and communicating information to the

authentication computer over a network,” a problem specifically arising in the realm of electronic authentication requests similarly to the claims in *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014); and “provides a specific solution to a technical problem” similar to the claims in *Enfish* (822 F.3d at 1335–36). App. Br. 16–17; Reply Br. 7–8.

In response, the Examiner takes the positions that (1) Appellants’ Specification describes a “fraud detection system in a payment processing network with an issuer computer, acquirer computer and merchant computer,” and “Figure 1 relates to finance and conducting financial transactions, which is a fundamental economic practice”; (2) “[a]nalyzing information by steps . . . are mental processes”; and (3) “determining the likelihood of fraud is done so with mathematical analysis, calculations, mathematical relationships and statistics.” Ans. 3–4.

We do not agree with the Examiner. Instead, we agree with Appellants that claim 1 does not recite an abstract idea under *Alice* step 1 and, specifically, the newly published PTO § 101 Memorandum that governs all patent-eligibility analysis under *Alice* and § 101 effective as of January 7, 2019. In particular, claim 1 does not recite (1) mathematical concepts; (2) mental processes; or (3) certain methods of organizing human activity—fundamental economic principles or practices, as identified by the PTO § 101 Memorandum, 84 Fed. Reg. at 54–55. According to the PTO § 101 Memorandum, “claims that do not recite [subject] matter that falls within these enumerated groupings of abstract ideas should not be treated as reciting abstract ideas.” 84 Fed. Reg. at 53.

For example, Appellants’ claim 1 recites:

An authentication analysis system, comprising:

- a processor;
- an external interface coupled to the processor; and
- a non-transitory computer-readable storage medium coupled to the processor, comprising code executable by the processor for implementing a method comprising:

- receiving, by the processor over a network at the external interface, user access pattern data generated by a user client computer, where the user client computer is used to request an authentication process, wherein the user access pattern data corresponds to user interactions of a user with one or more input devices of the user client computer, the user interactions detected by the one or more input devices;
- receiving, by the processor over the network, device fingerprint data associated with the user client computer;
- determining, by the processor, a type of device for the user client computer by using the device fingerprint data to access a list of device types;
- calculating, by the processor, a quantity of user interactions with the user client computer based on the user access pattern data;
- determining, by the processor, a likelihood that the request is fraudulent by comparing the quantity to a previously measured quantity of user interactions associated with the user utilizing a user device that is of the same type of device as the user client computer;
- declining, by the processor, authentication of the user if the likelihood indicates that the user access pattern data is inconsistent with the type of device determined based on the device fingerprint data; and
- sending, by the processor over the network, an instruction to a server computer indicating that authentication of the user was declined, wherein the instruction causes the server computer to end the authentication process with the user client computer.

App. Br. 45 (Claims App) (emphasis added).

In other words, Appellants' claim recites an authentication analysis system designed to address the problem of fraudulent activities associated

with transactions between a user client computer and a server computer over a network by way of (1) determining “a type of device for the user client computer by using the device fingerprint data to access a list of device types;” (2) calculating “a quantity of user interactions with the user client computer based on the user access pattern data;” and (3) determining “a likelihood that the request is fraudulent by comparing the quantity to a previously measured quantity of user interactions associated with the user utilizing a user device that is of the same type of device as the user client computer” before declining or accepting authentication of a user. As such, we are persuaded by Appellants’ arguments that claim 1 “solves the technical issue of authenticating a person using a computer that is remote from the authentication computer and communicating information to the authentication computer over a network,” similarly to the claims in *DDR* and also “provides a specific solution to a technical problem” similar to the claims in *Enfish*. App. Br. 16–17; Reply Br. 7–8.

As the claims are not directed to an abstract idea under the first step of the *Alice* analysis, we need not reach *Alice* step 2 (inventive concept). As such, we do not sustain the Examiner’s rejection of claims 1–3, 5–9, and 11–24 under 35 U.S.C. § 101.<sup>4</sup>

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<sup>4</sup> We note the PTO § 101 Memorandum provides the analysis herein “does not end the inquiry,” because “[t]he claims must also satisfy the other conditions and requirements for patentability, for example, under section[s] 102 (novelty), 103 (nonobviousness), or 112 (enablement, written description, definiteness).” PTO § 101 Memorandum 54 n.21. Such further inquiry, however, is not before us. Our review in this Appeal is limited only to the above rejections and the issues raised by Appellants. 37 C.F.R.

## CONCLUSION

On the record before us, we conclude Appellants have demonstrated the Examiner erred in rejecting claims 1–3, 5–9, and 11–24 under 35 U.S.C. § 101.

## DECISION

As such, we REVERSE the Examiner’s rejection of claims 1–3, 5–9, and 11–24 under 35 U.S.C. § 101.

REVERSED

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§ 41.50; *see also* MPEP § 1213.02 (“The Board’s primary role is to review the adverse decision as presented by the Examiner, and not to conduct its own separate examination of the claims.”).