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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KENNETH L. CLARKSON and DAVID P. WOODRUFF

Appeal 2017-004189
Application 14/024,135[1]
Technology Center 2100

Before CAROLYN D. THOMAS, KEVIN C. TROCK, and DAVID J. CUTITTA II, *Administrative Patent Judges*.

CUTITTA, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the final rejection of claims 1–3 and 5–16, which constitute all of the pending claims in the application on appeal.[2] Appeal Br. 2. We have jurisdiction over this appeal under 35 U.S.C. § 6(b).

We REVERSE.

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[1] According to Appellants, the real party in interest is the applicant, International Business Machines Corporation. *See* Appeal Br. 2.
[2] Claim 4 is cancelled. *See* Appeal Br. 11.

STATEMENT OF THE CASE

According to Appellants, the application relates to achieving a high data transmission rate by handling references on data to be transmitted, which are stored in a storage apparatus, instead of the actual data itself. *See* Abstract.[3]

CLAIMED SUBJECT MATTER

Claim 1 is reproduced below:

1. A system for retrieving stored data, comprising:

non-transitory processor readable memory configured to store a first matrix, A, having dimensions n x d, a first sparse matrix, R, and a second sparse matrix, S; and

a processor configured to:

receive an input value, k, corresponding to a selected rank;

generate a second matrix, AR, by multiplying the first matrix, A, by the first sparse matrix, R, the second matrix, AR, having dimensions n x t;

generate a third matrix, SA, by multiplying the second sparse matrix, S, by the first matrix, A, the third matrix, SA, having dimensions t' x d;

generate a fourth matrix, (SAR)', by calculating a Moore-Penrose pseudo-inverse of a matrix, (SAR);

approximate the first matrix, A, by generating a fifth matrix, Â, defined as AR x (SAR)' x SA;

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[3] Throughout this Decision, we refer to the following documents: (1) Appellants' Specification filed September 11, 2013 and Substitute Specification filed December 15, 2015 ("Spec."); (2) the Final Office Action ("Final Act.") mailed April 14, 2016; (3) the Appeal Brief ("Appeal Br.") filed September 14, 2016; (4) the Examiner's Answer ("Ans.") mailed November 4, 2016; and (5) the Reply Brief ("Reply Br.") filed January 4, 2017.

> receive a request to access at least one entry in the first matrix, A; and
>
> generate a response to the request by accessing an entry in the fifth matrix, $\hat{A}$,
>
> wherein the first matrix, A, corresponds to a data structure having a matrix configuration to store the data and provide the data as searchable via accessing a row or a column of the matrix, A,
>
> wherein the fifth matrix, $\hat{A}$, comprises an approximation to the first matrix, A, that provides access to the data stored in the first matrix, A, and
>
> wherein the fifth matrix, $\hat{A}$, provides access to the data with a degree of reliability in less time than when accessing the first matrix, A, directly.

Appeal Br., 10–11.

REJECTION[4]

Claims 1–3 and 5–16 stand rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 4–6.

Our review in this Appeal is limited only to the above rejections and issues raised by Appellants. We have not considered other possible issues that have not been raised by Appellants and which are, therefore, not before us. *See* 37 C.F.R. § 41.37(c)(1)(iv).

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[4] Claims 1–3 and 5–16 stand rejected on the ground of non-statutory, obviousness-type double patenting over claims 21–40 of U.S. Application No. 13/800,497. Final Act. 3. We note, however, that the '497 application has been abandoned. *See* Notice of Abandonment dated December 13, 2016. It is therefore unnecessary for us to reach the double patenting rejection.

ISSUE

Based on Appellants' arguments, the dispositive issue presented on appeal is whether the Examiner errs in rejecting the claims under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter?

ANALYSIS

The Examiner rejects claims 1–3 and 5–16 under 35 U.S.C. § 101 as directed to patent-ineligible subject matter that does not amount to significantly more than an abstract idea. Final Act. 4.

Appellants argue the claims are patent-eligible because the claims are directed to an improvement in existing technology and not to an abstract idea. Appeal Br. 5 (citing *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016).

Patent eligibility is a question of law that is reviewable de novo. *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012). The Supreme Court has set forth "a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014) (*citing Mayo Collaborative Servs. v. Prometheus Labs, Inc.*, 132 S. Ct. 1289, 1296–97 (2012)). According to the Supreme Court's framework, we must first determine whether the claims at issue are directed to one of those concepts (i.e., laws of nature, natural phenomena, and abstract ideas). *Id.* If so, we must secondly "consider the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application." *Id.* (internal citation

omitted). The Supreme Court characterizes the second step of the analysis as "a 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.* (internal citation omitted).

According to step one of *Alice*, "[w]e must first determine whether the claims at issue are directed to a patent-ineligible concept," such as an abstract idea. *Alice*, 134 S. Ct. at 2355. "The Supreme Court has suggested [that claims] 'purport[ing] to improve the functioning of the computer itself,'" or "improv[ing] an existing technological process" might not succumb to the abstract idea exception. *Enfish,* 822 F.3d at 1335 (citing *Alice*, 134 S. Ct. at 2358–59). Thus, our reviewing court guides that the first step in the *Alice* inquiry asks whether the focus of the claims is on a specific asserted improvement in computer capabilities or an existing technological process, or, instead, on a process that qualifies as an "abstract idea" for which computers are invoked merely as a tool. *Enfish*, 822 F.3d at 1335–1336. *Accord McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016) ("We therefore look to whether the claims in these patents focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery.").

We agree with Appellants that the Examiner does not provide sufficient analysis with respect to the first step of the *Alice* test for ascertaining whether a claim is directed to patentable subject matter. The Examiner's preliminary analysis in the Final Action merely lists known categories of judicial exceptions, "i.e., a law of nature, a natural

phenomenon, or an abstract idea," (Final Act. 4) without "look[ing] at the 'focus of the claimed advance over the prior art' to determine if the claim's 'character as a whole' is directed to excluded subject matter." *Affinity Labs of Texas, LLC v. DirectTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (quoting *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016)). In the response to arguments portion of the Final Action and in the Answer, the Examiner shifts the focus of the rejection to conclude the claim is directed to an abstract idea, namely, "a matrix computation for computing a matrix approximation." Ans. 4; *see* also Final Act. 5. The Examiner, however, merely recites various elements of the claim without showing a connection between the claim limitations and the identified abstract idea. *See* Final Act. 5 (citing *Enfish*). We do not see how the cited claim recitations support the Examiner's cursory determination of an abstract idea. Moreover, the Examiner does not provide support for the assertion that "the time for accessing a matrix data from a memory is based on the size of the matrix and how the matrix is store in the memory, rather than on how fast the matrix is computed." Ans. 4.

If anything, claim 1—which recites approximating a first matrix by generating a fifth matrix, receiving a request to access the first matrix, generating a response to the request by accessing an entry in the fifth matrix, "wherein the fifth matrix [] provides access to the data with a degree of reliability in less time than when accessing the first matrix [] directly," (Appeal Br. 10–11) appears to be directed to a specific asserted improvement in conventional databases by providing access to data in less time than conventional databases, as argued by Appellants. *See* Appeal

Br. 5–6. As such, the Examiner fails to establish the claim is directed to a judicial exception such as an abstract idea.

Because the Examiner does not provide sufficient evidence or analysis showing that claim 1 is directed to patent-ineligible subject matter, we do not sustain the Examiner's 35 U.S.C. § 101 rejection of claim 1, and of claims 2, 3, and 5–16, which are similarly rejected.

DECISION

We reverse the Examiner's decision rejecting claims 1–3 and 5–16 under 35 U.S.C. § 101.

REVERSED