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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JIM A. LAREDO, ARJUN NATARAJAN,
and MAJA VUKOVIC¹

Appeal 2018-002976
Application 14/198,780
Technology Center 3600

Before CAROLYN D. THOMAS, JAMES B. ARPIN, and
DAVID J. CUTITTA II, *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 1–3 and 6–18 (*see* Claims Appendix).
We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We REVERSE.

The present invention relates generally to bundling application
programming interfaces (*see* Abstract).

¹ Appellants name International Business Machines Corporation as the real party in interest (App. Br. 2).

Independent claim 1, reproduced below, is representative of the appealed claims:

1. A computer-implemented method for bundling application programming interfaces, the computer-implemented method comprising:

merging, by a computer, dependent application programming interfaces with corresponding application programming interfaces within a set of application programming interfaces and with corresponding composite application programming interfaces within a set of composite application programming interfaces consumed by a selected cluster of application programming interface consumers;

verifying, by the computer, interoperability within the set of application programming interfaces and their corresponding dependent application programming interfaces based on a first set of application programming interface method signatures that define inputs and outputs for methods associated with the set of application programming interfaces and their corresponding dependent application programming interfaces and terms of service features;

verifying, by the computer, interoperability within the set of composite application programming interfaces and their corresponding dependent application programming interfaces based on a second set of application programming interface method signatures that define inputs and outputs for methods associated with the set of composite application programming interfaces and their corresponding dependent application programming interfaces and the terms of service features;

generating, by the computer, a set of application programming interface bundles by combining related application programming interfaces within the set of application programming interfaces and their corresponding dependent application programming interfaces with related composite application programming interfaces within the set of composite application programming interfaces and their corresponding dependent application programming interfaces based on functional and non-functional properties of the related

application programming interfaces and the related composite application programming interfaces;
pruning, by the computer, the set of application programming interface bundles based on a determined application programming interface budget pattern that corresponds to the selected cluster of application programming interface consumers; and
pricing, by the computer, the pruned set of application programming interface bundles based on an application programming interface bundle pricing model.

Appellants appeal the following rejection²:

Claims 1–3 and 6–18 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to patent-ineligible subject matter (Final Act. 2–3); and

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

² The Examiner withdrew the rejections under 35 U.S.C. § 103 (*see* Ans. 3).

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) (“Revised Guidance”). Under the Revised Guidance “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)). Revised Guidance, 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 Revised 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. Revised Guidance, 84 Fed. Reg. at 56.

Step 2A, Prong 1 (Does the Claim Recite a Judicial Exception?)

With respect to independent method claim 1, and similarly, system claim 14 and computer readable storage medium claim 16,³ the Examiner determines that the claims are directed to “mathematical concepts such as mathematical relationships and calculations, and specifically organizing and manipulating information through mathematical correlations” (Final Act. 2). Pursuant to the Revised Guidance, we disagree with the Examiner.

Appellants’ Specification discloses:

Illustrative embodiments may cluster application programming interfaces and composite application programming interfaces by using consumption data regarding the application programming interfaces and composite application programming interfaces. For example, illustrative embodiments may generate a vector corresponding to each application programming interface and composite application programming interface as input for

³ Pending claims 1–3 and 6–15 are directed to enumerated categories of statutory subject matter. MPEP § 2106.03; *see* Revised Guidance, 84 Fed. Reg. at 53 (discussing “Step 1” of the eligibility analysis); *but see infra* note 4 (discussing pending claims 16–18).

clustering of the application programming interfaces and composite application programming interfaces.

Spec. ¶ 60.

Illustrative embodiments may then compute similarity of or distance between the generated vectors corresponding to the different application programming interfaces and composite application programming interfaces. Illustrative embodiments may apply a k -means clustering algorithm given a set of numeric points in a dimensional space d and an integer k . Illustrative embodiments use the k -means clustering algorithm to generate k or fewer clusters as follow: 1) assign each vector to a cluster at random; 2) repeat process until clusters are stable (i.e., no new clusters are created); 3) compute a centroid for each cluster; and 4) reassign each vector to a nearest centroid.

Id. ¶ 61.

However, because claim 1 may *use mathematical* relationships is not sufficient to determine the claim “falls within the subject matter groupings of abstract ideas enumerated” in the Revised Guidance. Revised Guidance, , 84 Fed. Reg. at 54 (Section 111(A)(1) (Prong One: Evaluate Whether the Claim Recites a Judicial Exception)). Particularly, although some of the limitations may be based on mathematical concepts, we note that the specific mathematical concepts *are not recited in the claim*. Under the Revised Guidance, the claims do not recite a mathematical concept. *See, e.g., Subject Matter Eligibility Examples: Abstract Ideas*, at 7 (Jan. 7, 2019) (discussing Example 38 and noting that “[t]he claim does not recite a mathematical relationship, formula, or calculation. While some of the limitations may be based on mathematical concepts, the mathematical concepts are not recited in the claims.”).

Nor has the Examiner determined that the claim recites certain methods of organizing human activity or mental processes (*see* Final Act. 2–3). While building application programming interfaces, i.e., a set of routines, protocols, and tools for building software applications, generally can be performed by a human, the claims here are directed to a specific implementation including the steps of merging dependent application programming interfaces with corresponding interfaces, verifying interoperability within the set of application programming interfaces and their corresponding dependent application programming interfaces based on signatures, and generating a set of application programming bundles based on functional and non-functional properties. These are not steps that can practically be performed mentally. Nor do we see how the claimed invention recites organizing human activity. For example, the claims do not include fundamental economic principles or practices, commercial or legal interactions, managing personal behavior or relationships or interactions between people. As such, the claims do not recite a mental process nor a method of organizing human activity.

Therefore, the Examiner has not shown that claim 1 recites an abstract idea under Step 2A, Prong 1. As such, this ends our § 101 analysis.

Accordingly, we reverse the Examiner’s rejection of claims 1–3 and 6–18 under 35 U.S.C. § 101.

DECISION⁴

We reverse the Examiner's § 101 rejection.

REVERSED

⁴ In the event of further prosecution, we leave it to the Examiner to consider if the computer program product claim, claim 16, should be rejected under 35 U.S.C. § 101 because the ordinary and customary meaning of “computer readable storage medium” to a person of ordinary skill in the art is broad enough to encompass both non-transitory and transitory media. Signals are not patentable eligible subject matter under § 101. *In re Nuijten*, 500 F.3d 1346, 1357 (Fed. Cir. 2007). *See also* MPEP § 2106(I) (8th ed. Rev. 9 Aug. 2012) and *Ex parte Mewherter*, 107 USPQ2d 1857 (PTAB 2013) (precedential).