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| Tong, Rea, Bentley & Kim, LLC/Conduent 12 Christopher Way Suite 105 Eatontown, NJ 07724 | | | PRATT, EHRIN LARMONT | |
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte LEI LI, WEI PENG,
SAURABH KATARIA, and TONG SUN

Appeal 2019-005278
Application 13/836,233
Technology Center 3600

Before CARL W. WHITEHEAD JR, DAVID M. KOHUT, and
IRVIN E. BRANCH, Administrative Patent Judges.

KOHUT, Administrative Patent Judge.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the
Examiner's decision to reject claims 1–3, 5–8, 10–12, 14–17, 19, and 20.
We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ We use “Appellant” to reference the applicant as defined in
37 C.F.R. § 1.42. Appellant identifies the real party in interest as “Conduent
Business Services, LLC.” Appeal Br. 3.

STATEMENT OF THE CASE

Appellant's Invention

According to Appellant, “[t]he present [invention] relates generally to customer relationship management (CRM) using social media and, more particularly, to a method and an apparatus for recommending topic-cohesive and interactive implicit communities in social CRM.” Spec. ¶ 1. Claim 1, reproduced below, is illustrative of the claimed subject matter.

1. A method for posting a reply that includes a recommended topic-cohesive and interactive implicit community on a social media website, comprising:

generating, by a processor, a plurality of implicit communities using a bipartite graph $K(V,U,F)$ of a soft clustering algorithm, where $V = \{v_i\}_{i=1}^n$ contains all the data objects, $U = \{u_p\}_{p=1}^m$ contains all the clusters, and F contains all the conditional probabilities that v_i belongs to u_p ;

identifying, by the processor, one or more topics associated with each one of the plurality of implicit communities, wherein each one of the plurality of implicit communities is identified from a plurality of individual users of a plurality of different social media websites accessed via the Internet;

receiving, by the processor, a request for customer care at a customer relationship management service provider, wherein the request is received by detecting a message on the social media website;

calculating, by the processor, a relevance score as a function of a topic associated with the request for customer care for each one of the plurality of implicit communities based upon a respective topic of the one or more topics associated with each one of the plurality of implicit communities identified using a combined community and user topic generative model, wherein the combined community and user topic generative model selects a word for the one or more topics used to calculate the relevance score by implementing a Gibbs sampling method on the combined community and user topic generative model that

comprises probabilistic dependencies of all variables related to the one or more topics in an implicit community set inside of all variables related to a user set and all variables related to each topic discussed in the social media website;

calculating, by the processor, an influence factor for each one of the plurality of implicit communities, wherein the influence factor is a function of a number of interactions of a customer with each member of a respective one of the plurality of implicit communities and a friend of the customer in one or more of the plurality of different social media websites;

selecting, by the processor, an implicit community of the plurality of implicit communities based upon the relevance score and the influence factor, wherein the implicit community includes the friend of the customer in the one or more of the plurality of different social media websites; and

posting, by the processor, a reply to the request for customer care on the social media website that the request was detected to help resolve a customer issue, wherein the reply includes the implicit community that is selected.

Appeal Br., Claims Appendix.

Rejection

Claims 1–3, 5–8, 10–12, 14–17, 19, and 20 stand rejected under 35 U.S.C. § 101 as being directed to a judicial exception. Ans. 3–9; Final Act. 2–7.

OPINION

We are persuaded of error in the rejection of claims 1–3, 5–8, 10–12, 14–17, 19, and 20 under 35 U.S.C. § 101 as being directed to a judicial exception. Accordingly, the rejection is not sustained.

We address the rejection with respect to claim 1, reproduced above. Our analysis applies to each of claims 1–3, 5–8, 10–12, 14–17, 19, and 20.

Principles of Law

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 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) (citation omitted).

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*. *Alice*, 573 U.S. 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 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 (1853)); 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 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 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 (citation 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.*

PTO Guidance

The PTO provides guidance for 35 U.S.C. § 101. USPTO’s 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Guidance”).² Under the Guidance, we first look 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, and mental processes); and
- (2) additional elements that integrate the judicial exception into a practical application (*see* Manual of Patent Examining Procedure (MPEP) § 2106.05(a)–(c), (e)–(h) (9th ed. 2018)).

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 conclude the claim is directed to a judicial exception (*id.* at 54) and look to whether the claim:

² The Examiner’s Answer, but not the Final Action, was mailed after the Guidance’s publication. Because the Guidance revises examination for patent-eligibility (84 Fed. Reg. at 50) and the Answer changes the rejection per the Guidance (Ans. 3–9; *compare* Final Act. 2–7), we take the Answer as presenting the rejection and as incorporating only the Final Action’s statements that are material under the Guidance. *See also* 37 C.F.R. § 41.39(a)(1) (“An examiner’s answer is deemed to incorporate all of the grounds of rejection set forth in the Office action from which the appeal is taken.”).

(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.

Id. at 56.

ANALYSIS

Though the Examiner reasonably characterized a bipartite graph as a “mathematical concept” (Ans. 5) and generic use of a processor and Internet as a mere “computer environment” (*id.* at 8), the Examiner summarized *all remaining claim features* as “an ‘idea of itself’ type abstract idea [(]because they describe steps of posting a reply to a request for customer care[)]” and as “managing personal behavior or relationships or interactions between people.” *Id.* at 6–7. The Examiner also found that all claim features solved a “business challenge”—namely “a problem of creating implicit communities associated with a topic . . . to address a customer care request.” *Id.* at 9. We disagree with the Examiner’s findings.

Appellant identifies error in the following reply to the Examiner’s above findings:

[T]he Examiner . . . overgeneralizes the claims[.]

. . . .

The claims provide a unique way of creating implicit communities from users across different social media websites and using the implicit communities to a customer care request via a social media website. . . . Moreover, the claims recite limitations that provide specifics as to how the implicit

communities are created and do not recite limitations that broadly generalize the concepts of implicit communities.

Reply Br. 2–3. In the Appeal Brief, Appellant contends “the claims specify a way that the implicit communities are created and a way that a particular implicit community is selected for a customer care request.” Appeal Br. 15. We agree with Appellant.

The Examiner should have addressed with greater particularity the following claim features. First, data objects, clusters, and probabilities of data objects belonging to clusters are input to a bipartite graph to determine communities; e.g., the bipartite graph clusters Facebook® users into communities based on their “follow” activities (Spec. ¶¶ 27–28, 36–37). Second, the customer request and each community are ascribed topics, e.g., from the request and the Facebook® posts of each determined community’s members (id. ¶ 30). Third, the customer request is ascribed a relevance score, for each community, based on a combined community and user topic model, e.g., by correlating the topics ascribed to the request, community, and individual members thereof (id. ¶¶ 30–32, 40). Fourth, the customer is ascribed an influence factor, for each community, based on the customer’s interactions with each community member and a friend, e.g., based on the customer’s quantity of interactions with a community’s members and a friend’s inclusion in the community (id. ¶ 57). Fifth, the request is ascribed a community based on the relevance score and influence factor.

We find that the Examiner should have discussed in more detail how these elements solved a business challenge.. Additionally, the Examiner should have discussed whether these elements could be characterized as judicial exceptions. The Examiner should have provided more explanation as to how the Guidance’s listed methods of organizing human activity

include the aforesaid specific steps that result in assigning a customer request to a community. *See* October 2019 Patent Eligibility Guidance Update at 16 (*Prima facie* showing for Step 2A(1) is reached by identifying judicial exceptions described by the Guidance, mapping the specific claim limitations corresponding to each exception, and ***explaining why*** the specific limitations fall within the exceptions.),³ available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf; see also 84 Fed. Reg. 55942 (Oct. 18, 2019) (notifying the public of the Guidance Update).

Additionally, the Examiner should have addressed the specifics of claim 1 as pertinent to the Guidance’s “practical application” considerations under Step 2A(2).⁴ We explain why with reference to *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299 (Fed. Cir. 2016), which addresses a

³ “However, if possible, the examiner should consider the limitations together to be an abstract idea for Step 2A Prong Two and Step 2B (if necessary) rather than a plurality of separate abstract ideas to be analyzed individually.” Guidance Update at 2.

⁴ The Guidance separates the enumerated issues (1) to (4) (*see supra* 6–7) into the following Steps 2A(1), 2A(2), and 2B:

[T]he revised procedure . . . focuses on two aspects [of whether a claim is “directed to” a judicial exception under the first step of the *Alice/Mayo* test (USPTO Step 2A)]: (1) [w]hether the claim recites a judicial exception; and (2) whether a recited judicial exception is integrated into a practical application. [W]hen a claim recites a judicial exception and fails to integrate the exception into a practical application, . . . further analysis pursuant to the second step of the *Alice/Mayo* test (USPTO Step 2B) . . . is needed . . . in accordance with existing USPTO guidance as modified in April 2018. [footnote omitted].

84 Fed. Reg. at 51.

patent-eligible software implementation of an abstract idea (*id.* at 1307, 1316).

Equating an abstract idea to a “result,” *McRO* held the claim patent-eligible because it recites a “means” sufficiently specific to prevent preemption. *Id.* at 1314. *McRO* explains:

The preemption concern arises when the claims are not directed to a specific invention and instead . . . abstractly cover results where it matters not by what process or machinery the result is accomplished. . . . We therefore look to whether the claims in these patents focus on a specific means or method that improves the relevant technology[.]

Id. (quotation marks and citations omitted). In holding the claim overcame the above preemption “concern underlying the exceptions to § 101” (*id.* at 1315), *McRO* identified a claimed “set of rules” that applied unconventional data—particularly a keyframe at a point that no phoneme is being pronounced, i.e., at a “phoneme sub-sequence”—to the abstract idea of using of morph weights to lip synchronize animation (thereby preventing preemption). *Id.* at 1306–07 (comparison of morph weighting and invention’s specific morph weighting), 1311 (claim interpretation emphasizing phoneme sub-sequences), 1314–15 (analysis emphasizing appointment of keyframes to phoneme sub sequences).

With respect to this case, *McRO* indicates that a computer-implemented method’s inputs and rules (e.g., the *McRO* invention’s use of a phoneme sub-sequence) for a judicial exception (e.g., to achieve the *McRO* invention’s abstract result of morph-weighting) cannot be summarily dismissed as merely narrowing the exception. Rather, the inputs and rules should be considered for their specificity and, particularly, for whether they “prevent broad preemption of all rules-based means” (*id.*

at 1315) for implementing the judicial exception. This end is achieved by showing—i.e., explaining why—the specific inputs and rules are either part of the exception itself or do not prevent its preemption. Because the Examiner has not provided sufficient explanation, we cannot sustain the rejection.

CONCLUSION

We reverse the Examiner’s decision to reject claims 1–3, 5–8, 10–12, 14–17, 19, and 20.

DECISION SUMMARY

| Claims Rejected | 35 U.S.C. § | Basis | Affirmed | Reversed |
|--------------------------------|--------------------|--------------|-----------------|--------------------------------|
| 1–3, 5–8, 10–12, 14–17, 19, 20 | § 101 | Eligibility | | 1–3, 5–8, 10–12, 14–17, 19, 20 |

REVERSED