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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BISWAJIT PAL and RITWIK SINHA

Appeal 2017-001125
Application 13/483,785¹
Technology Center 3600

Before DAVID M. KOHUT, ERIC B. CHEN, and SCOTT E. BAIN,
Administrative Patent Judges.

BAIN, *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, 2, and 4–21. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ Appellants identify Hewlett Packard Enterprise Development LP as the real party in interest. App. Br. 2.

STATEMENT OF THE CASE

Appellants' invention is directed to determining "customer conversion propensity," i.e., the propensity of a customer to make a purchase. Abstract, Spec. ¶ 1. Claims 1, 8, and 15 are independent. Claim 1 is illustrative of the invention and the subject matter of the appeal, and is reproduced below.

1. A method comprising:

identifying, via a processing unit coupled to a database of customer information, a source group of customers from the database;

calculating, via the processing unit [and] the customer information of a plurality of customers within the source group[, and by] using a mixture cure modeling technique with logistic regression, a probability value for a conversion event for each of the plurality of customers within the source registrant group,

categorizing, via the processing unit, the plurality of customers, the categorizing including,

assigning, via the processing unit, customers having a probability value above a threshold value to a high conversion-propensity group, and

assigning, via the processing unit, customers having a probability value below the threshold value to a low conversion-propensity group; and

after the categorizing, calculating, by the processing unit to predict through a parametric survival analysis approach, a conversion timing for each of the customers within only the high conversion-propensity group.

REJECTIONS²

Claims 1, 2, and 4–21 are rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 2–8.

Claims 1, 2, 4, 6, 8–10, 13, 15–18, and 21 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Shah et al. (US 2003/0046096 A1; pub. Mar. 6, 2003, hereinafter “Shah”), Lukose et al. (US 2010/0114654 A1; pub. May 6, 2010, hereinafter “Lukose”), Corbière (Corbière, F. and P. Joly. “*A SAS macro for parametric and semiparametric mixture cure models*” *Computer Methods and Programs in Biomedicine*, Vol. 85, 173–180 (2007), hereinafter “Corbière”), Bixby et al. (US 2011/0307327 A1; pub. Dec. 15, 2011, hereinafter “Bixby”), and Maga et al. (US 2007/0112614 A1; pub. May 17, 2007, hereinafter “Maga”). Final Act. 9–22.

Claims 5, 7, 11, 12, 14, 19, and 20 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Shah, Lukose, Corbière, Bixby, Maga, and Deaton et al. (WO 1995/003570 A2; pub. Feb. 2, 1995, hereinafter “Deaton”). Final Act. 23–27.

ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellants’ arguments presented in this appeal. Arguments which Appellants could have made but did not make in the Brief are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). On the record before us, we are not persuaded the Examiner erred. We adopt as our own the findings and reasons set forth

² The Examiner’s rejection of claims 1, 2, and 4–21 under pre-AIA 35 U.S.C. § 112, first paragraph was withdrawn in the Answer. Ans. 2.

in the rejections from which the appeal is taken and in the Examiner's Answer, and provide the following discussion for highlighting and emphasis.

Rejection Under 35 U.S.C. § 101

The Examiner concludes claim 1 is directed to the patent-ineligible abstract idea of “calculating conversion timing[,] based on a parametric survival analysis approach . . . [, for] customers that are categorized in the high conversion-propensity group.” Final Act. 5. The Examiner further finds the features in claim 1 are implemented by conventional uses of a processor and database to input, calculate, compare, and store data. Ans. 8–9; Final Act. 7–8. Appellants argue claim 1 does not encompass an abstract idea, and that the Examiner “fails to compare the claims in the present application to the claims already found to be directed to an abstract idea in previous court decisions.” Reply Br. 6.³ Appellants further argue that even if the claims involve an abstract idea, they encompass “significantly more.” We, however, are not persuaded the Examiner erred. App. Br. 8–9; Reply Br. 9–10.

Section 101 of the Patent Act provides “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. The Supreme Court has long held that this provision contains an implicit exception: “[l]aws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. Pty. Ltd. v.*

³ Appellants' arguments regarding claims 2 and 4–21 are redundant to those regarding independent claim 1. App. Br. 8–13; *see also* Reply Br. 3–11.

CLS Bank Int'l, 134 S.Ct. 2347, 2354 (2014) (quoting *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589–590 (2013)). The Court has set forth a two-part inquiry to determine whether this exception applies. First, we must “determine whether the claims at issue are directed to one of those patent-ineligible concepts.” *Alice*, 134 S.Ct. at 2355 (citation omitted). Second, if the claims are directed to one of those patent-ineligible concepts, we 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.” *Alice*, 134 S.Ct. at 2355 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 77–78 (2012)). Put differently, we must search the claims for an “inventive concept,” that is, “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.’” *Alice*, 134 S.Ct. at 2355 (quoting *Mayo*, 566 U.S. at 72–73).

Regarding step one of the *Alice* analysis, as Appellants argue, claim 1 fundamentally is about “predicting the likelihood of conversion,” i.e., a calculation. App. Br. 8. The claim recites steps of “identifying,” “calculating,” “categorizing,” and “assigning” information. App. Br. 20. Our reviewing Court has repeatedly held that claims involving data collection, analysis, and display are directed to an abstract idea. *See, e.g., Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (holding that “collecting information, analyzing it, and displaying certain results of the collection and analysis” are “a familiar class of claims ‘directed to’ a patent ineligible concept”); *see also In re TLI Communications LLC Patent Litigation*, 823 F.3d 607, 611 (Fed. Cir. 2016);

FairWarning IP, LLC v. Iatric Systems, Inc., 839 F.3d 1089, 1093–94 (Fed. Cir. 2016). Accordingly, we discern no error in the Examiner’s conclusion that claim 1 is directed to an abstract idea.

Turning to the second step in *Alice*, Appellants argue claim 1 is directed to significant improvements in accuracy and timing of conversion. App. Br. 8. Appellants argue the claim is similar to those found patent-eligible in *Enfish* and *McRO*. Reply Br. 6–7 (citing *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016); *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299, 1312 (Fed. Cir. 2016)). We disagree.

The claims in *Enfish* were directed to a “specific improvement to the way computers operate,” i.e., an improved database configuration that permitted faster searching for data. *Enfish*, 822 F.3d at 1336. Appellants’ claims do not recite an advance in hardware or software that, for example, causes a processor to operate faster or more efficiently. Similarly, the claims in *McRO* recited a “specific . . . improvement in computer animation” using “unconventional rules that relate[d] sub-sequences of phonemes, timings, and morph weight sets.” *McRO*, 837 F.3d at 1302–03, 1307–08, 1314–15. Appellants, however, do not direct us to any evidence that the claimed conversion calculations correspond to unconventional rules.

Similarly, we are unpersuaded by Appellants’ argument that the claims do not preempt the field of conversion propensity. Reply Br. 8–9. Although “preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.” *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1098 (Fed. Cir. 2016) (quoting *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371,

1379 (Fed. Cir. 2015); *see also OIP Technologies, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015), *cert. denied*, 136 S.Ct. 701, 193 (2015) (“[T]hat the claims do not preempt all price optimization or may be limited to price optimization in the e-commerce setting do not make them any less abstract.”). Where, as here, “a patent’s claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework . . . preemption concerns are fully addressed and made moot.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015).

For the foregoing reasons, we are unpersuaded the Examiner erred in rejecting claims 1–2 and 4–21 as being directed to patent-ineligible subject matter. Accordingly, we sustain the rejection.

Rejections Under 35 U.S.C. § 103(a)

A. Claims 1, 2, 4, 6, 8–10, 13, 15, 18, and 21

Appellants argue the Examiner erred in finding claim 1 obvious over the combined references because, according to Appellants, Corbière is non-analogous art. App. Br. 14. Specifically, Appellants contend Corbière is non-analogous art because the claimed invention is CRM technology and “[Corbière’s] statistics used in biomedicine . . . is a non-analogous art field to the [CRM] field.” *Id.* at 14. Appellants further argue the Examiner erred in finding a rationale to combine the references because Corbière does not suggest modifying Shah’s system. *Id.* at 14–15. Appellants also argue the combination of references does not teach “calculating . . . a conversion timing for . . . customers within only the high conversion propensity group,”

as recited by claim 1.⁴ *Id.* at 16–17; Reply Br. 12–13. Appellants’ arguments, however, do not persuade us of error.

We first address the non-analogous art argument. Appellants acknowledge that CRM “questions naturally lend themselves to the field of ‘survival analysis.’” Spec. ¶ 8. Corbière is directed to “[s]urvival analysis.” Corbière 173 (*see, e.g.*, keywords section). Thus, we, like the Examiner, find that an ordinarily skilled artisan would consider Corbière’s techniques pertinent and applicable to the claimed invention. *See In re Clay*, 966 F.2d 656, 659–60 (Fed. Cir. 1992) (“[P]rior art is analogous . . . if . . . reasonably pertinent to the particular problem with which the [applicant] inventor is involved.”).

Similarly, we are unpersuaded by Appellants’ arguments that the Examiner erred in finding a rationale to combine the references. Appellants argue Corbière teaches away from applying its teachings to other fields, such as CRM, because Corbière states:

[T]here are potential problems in applying the mixture cure model in cases where it may not be adequately justified. The use of such models should be restricted to problems in which there are strong biological evidences of the presence of a cured fraction.

App. Br. 15 (quoting Corbière 180). This statement in, Corbière however, does not discourage use of the mixture cure model in other fields. Read in light of the overall disclosure, this passage urges restriction of the model to a “possibility of cure” that results in two outcomes: “susceptible individuals,

⁴ We need only address the rejection of claim 1. With respect to claims 2, 4, 6, 8–10, 13, 15, 18, and 21, regarding the rejection under 35 U.S.C. § 103, Appellants’ arguments present us with the same dispositive issue as independent claim 1. App. Br. 13–19; Reply Br. 11–13.

who may experience the event of interest” (might be cured) and “non-susceptible individuals that will never experience it” (incurable). Corbière 173, Abstract. That is, Corbière teaches restriction of the statistical model to a binary outcome. Similarly, the Examiner applies Corbière’s teachings to the binary outcome of high and low propensity purchasers. *See, e.g., KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (“[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”). The Examiner also finds that applying Corbière’s teachings to the other references “would have yielded predictable results,” which “would have been recognized” by one of ordinary skill in the art.” Final Act. 14–15. Appellants do not demonstrate error in this finding, and we discern none on the record before us.

Finally, Appellants argue that adding Corbière’s conversion timing to the Shah-Lukose combination still does not teach the claimed invention because Corbière’s conversion timing is calculated for *all* subjects (patients) and the conversion timing recited in claim 1 is calculated *only* for high-propensity subjects (customers). App. Br. 16–17. The Examiner, however, relies on Maga, not Corbière, as suggesting the claimed calculation of conversion timing for only high-propensity subjects. Specifically, the Examiner: (i) analogizes Maga’s “positive response propensity” and “ARPU increase propensity” to, respectively, conversion propensity and conversion timing; (ii) finds Maga filters the high “positive response propensity” customers for calculations of “ARPU increase propensity” and; (iii) finds Maga thereby suggests filtering high-propensity customers for

calculations of conversion timing. Final Act. 12–13; *see also* Ans. 14 (citing Maga ¶ 56); Maga ¶¶ 57–59. Thus, Appellants’ argument regarding Corbière does not persuade us of error.

In the Reply Brief, Appellants alter their argument, asserting “Maga does not discuss any threshold that is used to categorize the customers” with a high-propensity to purchase. Reply Br. 12–13. This new argument could have been raised in the Appeal Brief, *see* Final Act. 12–13 (citing Maga), and therefore is waived as untimely. *See* 37 C.F.R. § 41.37(c)(4). Even if our reviewing court were to find the argument timely raised, we would not be persuaded the Examiner erred. Maga describes calculating “ARPU increase propensity” as “drilling down” on the “wedges” of “customers having a high propensity to respond positively,” e.g., the wedges for customers having a 40% or higher propensity to respond positively. Maga ¶¶ 56–58, Figs. 10–11. Moreover, Maga teaches “to contact *only* those customers who are likely to accept the offer.” Maga ¶ 59 (emphasis added). Thus, one of ordinary skill in the art would understand Maga as teaching “drilling down” and contacting *only high* “positive response propensity” customers, which supports the Examiner’s finding that Maga filters *only* such customers for further calculations (of “ARPU increase propensity”). *Id.* ¶¶ 56, 57, 59.

For the foregoing reasons, we are unpersuaded the Examiner erred in rejecting claims 1, 2, 4, 6, 8–10, 13, 15, 18, and 21 under 35 U.S.C. § 103(a). Accordingly, we sustain the rejection.

B. Claims 5, 7, 11, 12, 14, 19, and 20

Claims 5, 7, 11, 12, 14, 19, and 20 are rejected as obvious over Shah, Lukose, Corbière, Bixby, Maga, and Deaton. Appellants do not address

Appeal 2017-001125
Application 13/483,785

these claims separately. App. Br. 19. Accordingly, we sustain their rejection under 35 U.S.C. § 103(a).

DECISION

We affirm the Examiner's decision rejecting claims 1, 2, and 4–21.

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)(iv).

AFFIRMED