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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte NAOKI ABE and EDWIN PETER DAWSON PEDNAULT

Appeal 2017-002170
Application 13/715,169
Technology Center 3600

Before JEAN R. HOMERE, NABEEL U. KHAN, and
MICHAEL M. BARRY, *Administrative Patent Judges*.

HOMERE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from a Final Rejection of claims 1 and 18–20, which constitute all claims pending in this application.[1] App. Br. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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[1] Appellants identify the real party in interest as International Business Machines, Inc. App. Br. 3.

Introduction

According to Appellants, the claimed subject matter relates to a method utilizing a Markov Decision Process (MDP) framework for modeling batch reinforcement learning, and an optimum mix of marketing media for a brand at various points during the lifetime of the brand to produce different quantities of printing, TV advertising, emailing, and distribution of product catalogs at those various points during the lifetime of the brand. Spec. 4, Fig. 1.

Representative Claim

Independent claim 1 is representative, and reads as follows:

> 1. A computer implemented method of marketing optimization with respect to brand lifetime management for a brand having a lifetime and that comprises one or more branded products, without the method steps using data tied to individual customers, comprising the steps performed by a computer of:
>
> storing, using a computer, data that relate to the one or more branded products of the brand during the lifetime of the brand but which are not tied to individual customers, the data being characterized by being tied to said one or more branded products and by the impossibility to ascertain individual customers from the data, wherein the storing step includes storing:
>
> (a) transaction data that contain historical, dated records of transactions, with information that specifies what products were sold and corresponding sales amount with or without specifying profit amount, the transaction data being stored in a transaction data store,
>
> (b) marketing data which consist of historical, dated records of marketing actions, the marketing data being stored in a marketing data store,
>
> (c) product taxonomy data, the product taxonomy data being stored in a product taxonomy data store;
>
> for a mix of marketing media, and using the stored data obtained from the transaction data store, the marketing data

store, and, optionally, the product taxonomy data store, performing using the computer a long term reward optimization problem using batch reinforcement learning with function approximation wherein each of Introducing New Brand, Developing Brand, Maturing Brand, Fading Brand, Branding Driving Other Brands, Profitable Brand and Failing Brand is defined as a state at a given point in time, wherein the computer writes a feature vector into a feature vector memory location in the computer, where the feature vector comprises categorical and numerical fields which characterize what is known about each brand or product of the brand at a time a decision is made during the lifetime of the brand;

optimizing the marketing mix using the computer;

maximizing a net present value of profits and losses over the lifetime of the brand using the computer and a display which permits visual evaluation results obtained with one or more lifetime value models for said batch reinforcement learning generated using the stored data obtained from the transaction data store, the marketing data store, and, optionally, the product taxonomy data store;

outputting using the computer an action vector that is a set of marketing actions which is a marketing mix optimization, optimized over the life cycle of the brand, wherein the action vector has been computed from stored data, wherein said action vector specifies an investment mix over a set of marketing media that comprises mass marketing, printing, TV, email and catalogues based on a value function model which determines an expected lifetime of the brand given a particular feature vector and a particular action vector;

taking action on the outputted action vector, said taking action including performing one or more of printing, TV advertising, e-mailing, and distributing catalogues;

and after taking action based on the outputted action vector, repeating said steps of performing, optimizing, maximizing, outputting with said computer, and taking action on the outputted action vector at a plurality of different time points during the life cycle of the brand, wherein the computer modifies the feature vector during each repeating step in one or more of the categorical and numerical fields at the feature

> vector memory location with what is known about each brand or product of the brand at a time after action has been taken, wherein the computer iteratively modifies the action vector during the repeating step from an initial action vector to a current action vector towards a largest possible improvement in value function until a convergence criterion is met.

Rejection on Appeal

Claims 1 and 18–20 stand rejected under 35 U.S.C. § 101 as being directed to patent ineligible subject matter. Final Act. 11–14.

ANALYSIS

We consider Appellants' arguments *seriatim*, as they are presented in the Appeal Brief, pages 15–29, and the Reply Brief, pages 1–9.[2]

Appellants argue the Examiner erred in rejecting claims 1 and 18–20 as being directed to the abstract idea of "optimizing the brand management marketing mix, i.e. . . . a method of organizing human activity". App. Br. 15–16. In particular, Appellants allege that the Examiner's rejection is not supported by court-based evidence recognizing marketing or brand management as an abstract idea. *Id.* at 16–17. Appellants assert that, unlike methods for organizing financial transactions or contractual relations (which have been recognized by the courts as being directed to patent ineligible subject matter), the claims on appeal are directed to ". . . marketing

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[2] Rather than reiterate the arguments of Appellants and the Examiner's findings and conclusions, we refer to the Appeal Brief (filed July 14, 2016) ("App. Br."), the Reply Brief (filed November 14, 2016) ("Reply Br."), the Answer (mailed September 15, 2016) ("Ans."), and the Final Action (mailed February 17, 2016) ("Final Act") for the respective details. We have considered in this Decision only those arguments Appellants actually raised in the Briefs. Any other arguments Appellants could have made but chose not to make in the Briefs are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

optimization with respect to brand lifetime management for a brand having a lifetime and that comprises one or more branded products . . ." *Id.* at 18. According to Appellants, the Examiner has mischaracterized and oversimplified the claims as being directed to merely determining an optimal number of mailings. *Id.* at 19. Further, Appellants argue that the claims are not directed to an abstract idea such as a Markov process per se, nor do they preempt or monopolize all possible applications of "Markov Decision Process" or "batch reinforcement learning." *Id.* at 24. Appellants argue that these functions are instead applied to marketing optimization with respect to brand lifetime management in combination with additional features to output an action vector so as to produce printing, TV advertising, e-mail, and printing catalogues. *Id.* at 25–26. Accordingly, Appellants argue that the claims as a whole amount to significantly more than the abstract idea, and are consequently directed to patent eligible subject matter. *Id.* at 27–29.

These arguments are not persuasive. The U.S. Supreme Court provides a two-step test for determining whether a claim is directed to patent-eligible subject matter under 35 U.S.C. § 101. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014). In the first step, we determine whether the claims are directed to one or more judicial exceptions (i.e., law of nature, natural phenomenon, and abstract ideas) to the four statutory categories of invention (i.e., process, machine, manufacture, and composition of matter). *Id.* at 2355 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1296–97 (2012)) ("*Mayo*"). In the second step, 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."

(citing *Mayo*, 132 S. Ct. at 1298, 1297). 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.* (citing *Mayo*, 132 S. Ct. at 1294).

We agree with the Examiner that the claims on appeal are directed to the abstract idea of optimizing a brand management marketing mi(i.e., performing human activities). Ans. 4–7. The claims require that, during each stage in the lifetime of the brand, algorithms pertaining to a Markov Decision Process and a batch reinforcement learning are utilized to perform calculations upon various types of data collected about the brand in order to produce an action vector indicating an optimal mix of printing, TV advertising, and email distribution of product catalog printing. As noted by Appellants, the claims as a whole amount to the generation of mass marketing over the lifetime of a brand. App. Br. 5. Our reviewing court has consistently held that such marketing enhancement methods are mere characterizations of human activities within the stream of commerce, which are not patent eligible. S*ee, e.g., Elec. Power Grp. v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (claims directed to collection, manipulation, and display of data); *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015) (customizing information and presenting it to users based on particular characteristics). That these claims are directed to an abstract idea is confirmed by the fact that the claimed method of producing mass advertising over the lifetime of the brand is of the type that could be performed manually. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1373 (Fed. Cir. 2011) ("[A] method that can

be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101."). Prior to the Internet, such activities were widely practiced, and became computerized with the assistance of human administrators to facilitate marketing optimization. *See OIP Technologies, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1364 (Fed. Cir. 2015).

We likewise find unpersuasive Appellants' argument that the cited claim steps, as a whole, amount to significantly more than the abstract idea of mass marketing over the lifetime of a brand because the recited functions of those elements are conventional, well-understood, and do not go beyond those of a general purpose computer for merely accessing, manipulating, and displaying data. Therefore, they do not add any meaningful limitations beyond generally linking the abstract idea to the particular technological environment. *Id.*[3] Furthermore, Appellants' arguments asserting that the claims do not block others from using the abstraction do not persuade us that

[3] Considerations for determining whether a claim with additional elements amounts to "significantly more" than the judicial exception itself include improvements to another technology or technical field *(Alice Corp.,* 134 S. Ct. at 2359–60 (citing *Diamond v. Diehr,* 450 U.S. 175, 177–78 (1981); *Mayo,* 132 S. Ct. at 1298 (2012))); adding a specific limitation other than what is well-understood, routine and conventional in the field, or adding unconventional steps that confine the claim to a particular useful application *(Mayo,* 132 S. Ct. at 1299, 1302); or other meaningful limitations beyond generally linking the use of the judicial exception to a particular technological environment *(Alice Corp.,* 134 S. Ct. at 2360). *See, e.g., Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015) ("[M]erely adding computer functionality to increase the speed or efficiency of the process does not confer patent eligibility on an otherwise abstract idea.").

the claims are directed to patent eligible material. Pre-emption is not a separate test.

> To be clear, the proper focus is not preemption *per se*, for some measure of preemption is intrinsic in the statutory right granted with every patent to exclude competitors, for a limited time, from practicing the claimed invention. *See* 35 U.S.C. § 154. Rather, the animating concern is that claims should not be coextensive with a natural law, natural phenomenon, or abstract idea; a patent-eligible claim must include one or more substantive limitations that, in the words of the Supreme Court, add "significantly more" to the basic principle, with the result that the claim covers significantly *less*. *See Mayo* 132 S. Ct. at 1294. Thus, broad claims do not necessarily raise § 101 preemption concerns, and seemingly narrower claims are not necessarily exempt.

CLS Bank Int'l v. Alice Corp. Pty. Ltd., 717 F.3d 1269, 1281 (Fed. Cir. 2013); *see also Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) ("[w]hile preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility."). Because we find the claimed subject matter covers patent-ineligible subject matter, the pre-emption concern is necessarily addressed. "Where 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*, 788 F.3d at 1379. Accordingly, we are not persuaded of error in the Examiner's conclusion that claims 1 and 18–20 are directed to patent ineligible subject matter.

DECISION

For the above reasons, we affirm the Examiner's rejections of claims 1 and 18–20, as set forth above.

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