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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* ANIL KAMATH and ABHISHEK PANI

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Appeal 2018-007758  
Application 12/884,828<sup>1</sup>  
Technology Center 2400

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Before KALYAN K. DESHPANDE, NABEEL U. KHAN, and  
KARA SZPONDOWSKI, *Administrative Patent Judges*.

KHAN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Non-Final Rejection of claims 42–55, 58, 59, 61–63, and 65–70. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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<sup>1</sup> Appellants identify Adobe Systems Incorporated as the real party in interest. App. Br. 1.

## BACKGROUND

### THE INVENTION

According to Appellants, the invention relates to “generating bids for multi-channel advertising environments, including in embodiments, generating a multi-channel advertising model.” Abstract.

Exemplary independent claim 42 is reproduced below.

42. A computer-implemented method for modifying the use of electronic communication channels based on a bidding strategy that is determined based on tracked interaction data from a multichannel advertising environment, the method comprising:

tracking, by a computing device, interactions with a plurality of advertising channels using the interaction data, wherein the interactions are performed by computing devices associated with advertisees that access electronic advertisements provided via the plurality of advertising channels, wherein the interaction data is automatically generated and transmitted in response to the interactions with the electronic advertisements by the computing devices;

determining, by the computing device, contributions of the plurality of advertising channels, respectively, toward revenue-generating events associated with the advertisees, wherein the contributions comprise non-revenue-generating events in a first advertising channel influencing the revenue-generating events in a second advertising channel, wherein determining the contributions comprises:

deriving implicit attributes of the advertisees from the interaction data, wherein each of the implicit attributes indicates behavior or characteristics of an advertisee in addition to behavior or characteristics indicated by the interaction data,

grouping subsets of the advertisees into clusters based on the implicit attributes that are derived from the interaction data,

calculating, for the clusters, probabilities of additional interactions in the first advertising channel

resulting in additional revenue-generating events in the second advertising channel, and

identifying the contributions from the calculated probabilities; and

modifying, by the computing device, access to additional electronic advertisements via the plurality of advertising channels by modifying the bidding strategy, wherein the bidding strategy comprises an allocation of bids among the plurality of advertising channels and is modified based on the determined contributions of the plurality of advertising channels toward the revenue-generating events.

#### REFERENCES AND REJECTIONS

1. Claims 42–55, 58, 59, 61–63, and 65–70 stand rejected under 35 U.S.C. § 101 as directed to a judicial exception to patentable subject matter. Final Act. 2–6.

2. Claims 42–45, 48, 49, 51–54, 58, 61–63, and 66–70 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Collins (US 2008/0255915 A1, Oct. 16, 2008), Lin (US 2005/0071218 A1, Mar. 31, 2005), and Demir (US 2011/0047025 A1, Feb. 24, 2011). Final Act. 6–28.

3. Claims 46, 47, 55, and 65 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Collins, Lin, Demir, Chen (US 2010/0306161 A1, Dec. 2, 2010) and Liberty (US 2007/0214133 A1, Sept. 13, 2007). Final Act. 28–31.

#### DISCUSSION

##### REJECTION UNDER 35 U.S.C. § 101

Under 35 U.S.C. § 101, a patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new

and useful improvement thereof.” The Supreme Court has “long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. Pty. Ltd. v. 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 (2013)). The Supreme Court in *Alice* reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice*, 134 S. Ct. at 2355. The first step in that analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts,” such as an abstract idea. The Court acknowledged in *Mayo* that “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Mayo*, 566 U.S. at 71. We, therefore, look to whether the claims 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. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–1336 (Fed. Cir. 2016). If the claims are not directed to an abstract idea, the inquiry ends. Otherwise, the inquiry proceeds to the second step where the elements of the claims are considered “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*, 566 U.S. at 78–79).

*Step One of the Alice/Mayo Framework*

Under the first step of the *Alice/Mayo* framework, the Examiner finds the claims are directed to “modifying the use of electronic communication channels based on a bidding strategy that is determined based on tracked interaction data from a multichannel advertising environment.” Final Act. 2.

The Examiner finds:

These steps describe the concept which corresponds to concepts identified as abstract ideas by the courts, such as collecting and comparing known information (*Classen*), and collecting information, analyzing it, and displaying certain results of the collection and analysis (*Electric Power Group*). These concepts relate to an “idea” as well as “certain methods of organizing human activity”. These steps describe the concept of advertising, which corresponds to concepts identified as abstract ideas by the courts, such as displaying of advertising (*Ultramercial*).

Final Act. 3.

Appellants emphasize that one of the prior art references relied upon in rejecting the claims under 35 U.S.C. § 103(a), *Collins*, ultimately was allowed to issue as a patent by the Office. App. Br. 10. Because *Collins* “involves the same concept of generating a bidding strategy comprising an allocation of bids among advertising channels” as Appellants’ invention, this, according to Appellants, “shows that claims reciting novel and non-obvious features for using a bidding strategy to control the delivery of online content are not directed to abstract ideas.” App. Br. 10–11.

Appellants further argue, “although the Examiner cited various court decisions at Step 1 of the eligibility analysis, none of these decisions involves ‘a similar or parallel descriptive nature’ as compared to the present application.” App. Br. 9. Appellants then attempt to distinguish the cases the Examiner relied upon in finding the pending claims are directed to an

abstract idea. App. Br. 12–17 (arguing that *Ultramercial, Inc. v. Hulu*, 772 F.3d 709 (Fed. Cir. 2014), *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057 (Fed. Cir. 2011), and *Electric Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016) do not involve a concept similar to the pending claims).

Appellants argue “[e]ach pending claim is effects (or is directed to) an improvement in artificial intelligence, i.e., generating computer-implemented models that simulate decision-making. Therefore, the pending claims are patentable at least because they provide improvements to a technical field.” App. Br. 17. Appellants emphasize that “the claimed invention implements clustering methodologies that assist with model implicit attributes of particular targets of content.” App. Br. 18. Thus, Appellants argue, “the claimed method constitutes a technological improvement in how access to particular content is provided to certain network devices (e.g., user devices of advertisees) via a network.” App. Br. 19.

We disagree with Appellants. We first turn to the Examiner’s determination that the claims are directed to an abstract idea. “The ‘abstract idea’ step of the inquiry calls upon us to look 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)); *Enfish*, 822 F.3d at 1335 (“[T]he ‘directed to’ inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether ‘their

character as a whole is directed to excluded subject matter.” (citation omitted)).

In this regard, the Specification explains that there are various options for advertising through online channels, each with different pricing and different levels of effectiveness. Spec. ¶ 1. Examples of online advertising channels include search engine listings and displayed advertisements on websites. Spec. ¶ 1. The effects of online advertisements may be modeled to help allocate resources across the various channels and help determine the utility of bidding for advertising space on a website or paying for positions on search result listings. Spec. ¶ 2. The Specification, however, explains that these models sometimes capture only the conversion moment (i.e. moment of intent by the advertisee) rather than the “entire sales funnel” which includes the advertisees’s “journey through advertising stages of awareness, interest, desire, and intent.” Spec. ¶ 3. This may lead to disproportionate resource allocation to search campaigns (since they represent an explicit intent by the user) rather than display campaigns that contribute to branding and interest generation. Spec. ¶ 4. Some systems use heuristics to apportion revenue to events along an advertisee’s path but these systems do not provide for analysis of individual advertisees. Spec. ¶ 4.

The claimed embodiments, therefore, relate to a “multi-channel bid generation system” that includes a “multi-channel advertising model” that tracks advertisements across multiple advertisement channels. Spec. ¶ 24. “[T]he multi-channel bid generation system 100 may comprise one or more modules, such as software, hardware, and/or firmware modules to perform various modeling, optimization, and bid generation operations.” Spec. ¶ 29. The system may calculate the contribution of various advertising events to a

“conversion event” to help generate a bidding strategy for allocating resources to the various advertising channels (e.g. bids for search keywords, or placement of advertisements on a website). Spec. ¶¶ 24–26. The system may also track event histories to determine a “latent factor” of an advertisee. Spec. ¶ 30. The advertisees may then be clustered together based on the latent factors. An example of a cluster of advertisees with a common latent factor “would be males in California in the 20–25 age-group with [a] high propensity to travel but low intent towards stock trading.” Spec. ¶ 30.

Exemplary claim 42 is consistent with the aforementioned description of the invention. Claim 42 is directed to a method “for modifying the use of electronic communication channels based on a bidding strategy that is determined based on tracked interaction data from a multichannel advertising environment.” The claimed method requires “tracking . . . interactions with a plurality of advertising channels.” The method further requires determining contributions of non-revenue generating events in a first advertising channel toward revenue-generating events in a second advertising channel. Determining these contributions comprises “deriving implicit attributes of the advertisees” which indicate behavior or characteristics of an advertisee, grouping the advertisees into clusters and calculating probabilities of additional interactions in the first advertising channel resulting in revenue-generating events in the second advertising channel. The method finally requires modifying access to additional electronic advertisements by modifying the allocation of bids among a plurality of advertising channels based on the contributions of the plurality of channels towards revenue-generating events.

As described in the Specification and as recited in the claims, we agree with the Examiner that the claims are directed to the abstract idea of “modifying the use of electronic communication channels based on a bidding strategy that is determined based on tracked interaction data from a multichannel advertising environment.” The invention, as claimed and described in the Specification, involves data gathering steps and mathematical steps applied to advancing a business and economic practice. We, therefore, agree with the Examiner that the claims involve concepts similar to those in *Ultramercial* (involving using advertising as a currency), *Classen* (involving collecting and comparing known information), and *Electric Power Group* (involving collecting information, analyzing it, and displaying certain results of the collection and analysis).

Additionally, we note that other Federal Circuit decisions also provide support that the claims are directed to an abstract idea. For example, the Federal Circuit has found that “targeted advertising based on demographic information provided by the user” is directed to an abstract idea. *Affinity Labs of Texas, LLC v. Amazon.com Inc.*, 838 F.3d 1266, 1271 (Fed. Cir. 2016) (“tailoring of content based on information about the user—such as where the user lives or what time of day the user views the content—is an abstract idea that is as old as providing different newspaper inserts for different neighborhood”) (citing *Intellectual Ventures I, LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1369 (Fed. Cir. 2015)).

Furthermore, the claimed invention here is also analogous to that in *In re Schrader*, 22 F.3d 290 (Fed. Cir. 1994), where the Federal Circuit found that a claim directed to “determining an optimal combination of bids” is within “a class of well-known mathematical optimization procedures

commonly applied to business problems called linear programming.” *In re Schrader* at 293. This description from *In re Schrader* is analogous to the way the invention in this case is described in the Specification. For example, the Specification explains that “the multi-channel bid generation system 100 may perform an optimization using the model to determine one or more bids to provide in a bidding strategy.” Spec. ¶ 36. The Specification continues to explain that “[i]n various embodiments, the multi-channel bid generation system 100 may perform optimization by solving a mathematical optimization problem that aims to increase and/or maximize one or more pre-determined measurable goals for the advertiser over a predetermined time horizon,” such as “maximizing revenues, maximizing profits, maximizing traffic, and/or minimizing traffic acquisition/customer acquisition costs.” *Id.* “In various embodiments, the optimization problem may be modeled as a mathematical programming problem. For example, if models involved are linear models, the system *may optimize by solving a linear programming problem*, using a standard linear programming /optimization solver like CPLEX or MINOS.” Spec. ¶ 42. (emphasis added).

Appellants’ arguments regarding the Collins patent are not persuasive. Prior decisions, especially in an unrelated application, are not necessarily binding for purposes of this application. Appellants’ argument that the claims are directed to improvements in “generating computer implemented models that simulate decision-making” and therefore “provide improvements to a technical field” is also unpersuasive. Although the claims recite certain “computing device[s]” we find nothing in the claims that actually improve the functioning of these devices. Moreover, Appellants’ own description of the invention, as “simulat[ing] decision-

making” implies that the claims involve the abstract ideas of performing mental steps or mathematical calculations. App. Br. 17 (emphasis omitted).

*Step Two of the Alice/Mayo Framework*

Analyzing the claims individually, and as a ordered combination, under the second step of the *Alice/Mayo* framework, the Examiner finds that “the claims do[] not include additional elements that are sufficient to amount to significantly more than the judicial exception.” Final Act. 4. The Examiner finds the additional limitations, such as the recitation of a “system” and “computing device” are generic limitations. Final Act. 4–5. The Examiner also finds several limitations as directed to computer functions that are “well-understood, routine and conventional” under Supreme Court and Federal Circuit case law. Final Act. 4.

Appellants argue the claims are analogous to those in *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016), which Appellants characterize as directed to a “software tool that manipulates Internet data based on its content (e.g., through filters)” and compare to the pending claims which Appellants characterize as being directed to “a software tool that controls the transmission of electronic messages via the Internet by modifying the use of electronic communication channels based on tracked interaction data from a multichannel advertising environment.” App. Br. 20. Appellants further argue “[t]he combination of features recited in each pending claim requires significantly more than simply using the Internet as the intended transmission medium for a message.” App. Br. 21. Thus, Appellants argue, “like the claims in *BASCOM*, these claims ‘recite a specific, discrete implementation’ of the

alleged abstract idea rather than ‘preempt[ing] all ways’ of performing the abstract idea with respect to the Internet.” App. Br. 21.

Appellants also argue that dependent claims 49, 58, and 66 recite features that “further enhance the unconventional solution to a technological problem provided by their respective independent claims.” App. Br. 22. Appellants contend these claims are “rooted in computer technology” because they “require clicking links tracked via search engine optimization or marketing, both of which are specific to the Internet.” App. Br. 23.

Finally, in their Reply Brief, Appellants argue that under the Federal Circuit’s *Berkheimer* decision, “the Examiner has failed to provide evidentiary support, as required by the Federal Circuit, that the claimed feature of tracking interactions with a plurality of advertising channels, in which interaction data is automatically generated and transmitted in response to the interactions with electronic content by computing devices, is conventional.” Reply Br. 4 (citing *Berkheimer v. HP, Inc.*, 881 F.3d 1360 (Fed. Cir. 2018)).

We turn first to Appellants’ argument that the Examiner has failed to provide evidentiary support under the *Berkheimer*. We disagree with Appellants’ argument and note that Examiner has, in fact, provided support for finding that certain computer functions, such as “receiving, processing, and storing data” and “receiving or transmitting data over a network, e.g., using the Internet to gather data” are well-understood, routine, and conventional functions by citing to Supreme Court and Federal Circuit decisions. *See* Ans. 9–10 (citing *Alice*, 134 S. Ct. at 2360; *Ultramercial*, 772 F.3d at 715–17; *buySafe, Inv. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014)). This is sufficient under *Berkheimer*. *See* MPEP

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§ 2106.05(d)(II) (2015); *see also* USPTO Memorandum, *Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (Berkheimer v. HP, Inc.)*, Issued April 19, 2018.

We disagree with Appellants' argument that the claims here are analogous to those in *BASCOM*. The court in *BASCOM* found the claims patent eligible under step two of the *Alice/Mayo* framework because the inventive concept was directed to the "installation of a filtering tool at a specific location" not just to "filtering content along with the requirement to perform it on the Internet." *BASCOM*, 827 F.3d at 1350. Here, we find no such "inventive concept" that is significantly more than the abstract idea itself. Instead, when looked at individually, and as an ordered combination, the claim limitations are each directed to the abstract idea of "modifying the use of electronic communication channels based on a bidding strategy that is determined based on tracked interaction data from a multichannel advertising environment." For example, the limitations emphasized by Appellants, of "deriving implicit attributes of the advertisees from the interaction data," "grouping subsets of the advertisees into clusters based on the implicit attributes," and identifying "contributions of the plurality of advertising channels, respectively, toward revenue-generating events" (App. Br. 20–21) simply flesh out in more detail the data gathering and analysis involved in tracking advertising interaction data and generating the advertising model upon which the bidding strategy is based.

We disagree that the dependent claims are "rooted in computer technology" because they "require clicking links tracked via search engine optimization or marketing, both of which are specific to the Internet." App.

Br. 23. Here, we agree with the Examiner that the claimed “clicking” of links is not an affirmative step of the claimed method, but rather a description of the type and origin of the claimed “interactions” that are the subject of the “determining” steps of the claims. In other words, the dependent claims are directed to calculations involved in the abstract idea rather than to the physical act of clicking links.

Finally, we do not find persuasive Appellants’ argument that the claims do not preempt all ways of performing the abstract idea. “While preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). Moreover, “[w]here a patent’s claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework, as they are in this case, preemption concerns are fully addressed and made moot.” *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir.), cert. denied, 136 S.Ct. 701 (2015).

Accordingly, we sustain the Examiner’s rejection of claims 42–49 and 61–68 under 35 U.S.C. § 101.

REJECTION UNDER 35 U.S.C. § 103

*Claim 42*

Appellants argue the prior art references do not teach “grouping subsets of advertisees into clusters based on implicit attributes that (i) are derived from interaction data and (ii) indicate behavior or characteristics of advertisees in addition to behavior or characteristics indicated by the interaction data.” App. Br. 23.

Appellants argue “Lin’s ‘hidden event’ is ‘an ‘artificial’ event added to each user’s event stream,’ . . . [and] not an implicit attribute of a user.” App. Br. 24. Further, Appellants argue, even if hidden events are considered “implicit attributes,” users are not assigned to groups based on hidden events but are rather grouped based on attributes such as “common event streams, common user demographics, common geographic locations, or common web site visits.” App. Br. 24. Common event streams, common web site visits, geographic locations, and demographics are not implicit attributes *derived from interaction data*, according to Appellants. App. Br. 24–25.

Appellants argue Demir does not cure this deficiency because “Demir only teaches, at best, using interaction data to categorize a user rather than grouping users based on implicit attributes derived from interaction data.” App. Br. 25. Appellants argue that Demir categorizes users based on “present user conversion state,” such as “*searched but not clicked, clicked but not converted, clicked and converted*, etc.” App. Br. 25. However, Appellants argue that these “‘user conversion states’ are not *implicit attributes* derived from interaction data” but rather “explicitly observed actions of users.” App. Br. 25.

We are unpersuaded by Appellants’ arguments. Instead we agree with the Examiner that Lin teaches grouping users based on implicit attributes such as hidden events. Lin discloses grouping users into “a plurality of hidden event groups” (Lin ¶ 110) where “a unique hidden event is introduced to each group” (Lin ¶ 113). Because each group has a unique hidden event, one of ordinary skill would recognize that Lin teaches grouping users based on a hidden event. This is true even if the groups are

formed using other attributes as well, such as event streams, demographics, and location. *See* Lin ¶¶ 115–119.

Further, we also agree that Demir separately teaches this limitation. Demir explains that “a user’s activity or conduct over time may allow determination or prediction with regard to a state of mind or intent of the user in some particular regard.” Demir ¶ 15. Demir also explains that users can be categorized according to user conversion state such as “clicked, clicked but not converted, clicked and converted.” Demir ¶ 29. These user activities “leading up to an action such as a conversion or a purchase can be divided into phases, which phases may relate to the intent or state of a mind of the user . . . .” Demir ¶ 50. Thus, Demir teaches that users may be grouped up according to user activities (such as searched but not clicked, or clicked but not converted) and these activities correspond with phases that relate to a user’s state of mind. We agree with the Examiner that the state of mind of a user is an implicit attribute of the user and by grouping users up so that the groups correspond with states of mind, Demir teaches grouping users based on implicit attributes.

Accordingly, we sustain the Examiner’s rejection of independent claim 42 and of independent claims 51 and 61, which Appellants do not argue separately. We also sustain the Examiner’s rejection of claims 43, 44, 48, 49, 52, 53, 58, 62, 63, and 66–68, which depend from one of the aforementioned claims and were not argued separately.

#### *Claim 45*

Claim 45 depends indirectly from claim 42 and recites “wherein the interactions are tracked based on determining that the advertisees are in a group having a propensity for purchasing the product or service.” The

Examiner finds Demir teaches this limitation by disclosing that users are grouped based on whether they have searched but not clicked, clicked but not converted, clicked and converted. Ans. 13. Thus, Demir teaches tracking interactions based on determining that the advertisees are in a group having a “propensity for purchasing the product or service.” Ans. 13.

Appellants argue:

Although [Demir’s] disclosure generally refers to serving advertisements at a time “most appropriate for the phase of the user,” nothing in this paragraph discloses that *the tracking of visits to website depends on or has any relationship* to a customer’s propensity to respond to these advertisements. The mere disclosure of *identifying an optimal time window to serve advertisements* does not teach or suggest *tracking a customer’s behavior* based on the customer’s *propensity to purchase a product or service*, as required by the claims.

App. Br. 27.

We disagree with Appellants’ argument. Demir explains that an advertisee’s actions relate to the advertisee’s state of mind and phases of the conversion funnel. Demir ¶¶ 15, 50. We therefore agree with the Examiner that by tracking whether a user has searched but not clicked, or clicked but not converted, Demir teaches tracking interactions based on determining that the advertisees are in a group having a propensity for purchasing the product or service. Ans. 13.

Accordingly, we sustain the Examiner’s rejection of claim 45 and of claim 54 which was argued together with claim 45.

#### *Claim 69*

Claim 69 depends from claim 42 and recites “wherein grouping subsets of the advertisees into the clusters based on the implicit attributes comprises: for each cluster, generating the cluster such that the cluster

represents a respective subset of the advertisees having a respective set of values for the implicit attributes.”

The Examiner finds both Lin and Demir teach or suggest the limitations recited in claim 69. In particular, the Examiner finds Lin teaches grouping users based in hidden events which are derived from interaction data such as common event streams, common user demographics, common geographic locations, or common web site visits. Final Act. 27. Additionally, the Examiner finds Demir teaches that “a user may be categorized according to an associated present user conversion state, such as searched but not clicked, clicked but not converted, clicked and converted, etc.” Final Act. 27 (quoting Demir ¶ 29).

Appellants put forth the same argument for claim 69 as they do for claim 42, namely that Lin does not group users based on the hidden events and Demir groups users based on interactions (searched but not clicked, clicked but not converted etc.), not implicit attributes. App. Br. 27–29.

We are unpersuaded by Appellants’ arguments for the same reasons explained above with respect to claim 42. Thus, we sustain the Examiner’s rejection of claim 69. We also sustain the Examiner’s rejection of claim 70, which was argued together with claim 69.

*Claim 46*

Claim 46 depends from claim 42 and recites, in pertinent part, “identifying the implicit attributes based on the implicit attributes corresponding to respective dimensions of the intent matrix having respective eigenvalues exceeding a threshold eigenvalue.”

The Examiner finds Liberty teaches or suggests this limitation by disclosing “inferring missing data by factorizing a matrix so that the matrix is represented by eigenvalues.” Ans. 16.

Appellants argue

The cited Liberty disclosure merely teaches the broad concept of eigenvalues, not factorizing an intent matrix so that the intent matrix is “represented by eigenvalues of the intent matrix” or identifying the implicit attributes based that correspond to dimensions of the intent matrix having “respective eigenvalues *exceeding a threshold eigenvalue*.” The mere fact that eigenvalues exist does not teach their particular use within the context of claims 46, 55, and 65.

App. Br. 30.

We are persuaded by Appellants’ argument. Although Liberty appears to disclose an input matrix with optional threshold parameters and that a sequence of eigenvalues is set to the largest k eigenvalues of the input matrix, we do not discern from Liberty that implicit attributes are identified based on eigenvalues exceeding a threshold value. In particular, we do not find that Liberty discloses comparing eigenvalues to a threshold value nor does the Examiner particularly identify where in Liberty this is done (*see* Final Act. 30; Ans. 16).

Accordingly, we do not sustain the Examiner’s rejection of claim 46 or of claims 47, 55, and 65 which either depend from claim 46 or include similar limitations and were rejected on the same basis. *See* Final Act. 28–31.

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DECISION

The Examiner's rejection of claims 42–55, 58, 59, 61–63, and 65–70 under 35 U.S.C. § 101 is affirmed.

The Examiner's rejection of claims 42–45, 48, 49, 51–54, 58, 61–63, and 66–70 under 35 U.S.C. § 103(a) is affirmed.

The Examiner's rejection of claims 46, 47, 55, and 65 under 35 U.S.C. § 103(a) is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended. *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED