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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------|------------------|
| 14/279,131 | 05/15/2014 | Xinyi Cui | 26295-24609/US | 1076 |
| 87851 | 7590 | 09/11/2019 | EXAMINER | |
| Facebook/Fenwick Silicon Valley Center 801 California Street Mountain View, CA 94041 | | | SYROWIK, MATHEW RICHARD | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3622 | |
| | | | NOTIFICATION DATE | DELIVERY MODE |
| | | | 09/11/2019 | ELECTRONIC |

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte XINYI CUI, WENJIE FU, HAOMIN YU, OU JIN, EITAN SHAY,
RICHARD BILL SIM, and JUN YANG

Appeal 2018-004449
Application 14/279,131¹
Technology Center 3600

Before BRUCE T. WIEDER, KENNETH G. SCHOPFER, and
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

WIEDER, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1, 3, 4, and 6–22. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ According to Appellants, the real party in interest is Facebook, Inc. (Appeal Br. 2.)

CLAIMED SUBJECT MATTER

Appellants' invention "relates generally to social networking systems, and more specifically to advertising via a social networking system." (Spec. ¶ 1.) More particularly, Appellants' invention relates to "predict[ing] advertisement reach for a received advertisement request based on an advertiser-specified bid amount and a specification of a target audience." (Spec., Abstract.)

Claims 1, 18, and 19 are the independent claims on appeal. Claim 1 is illustrative. It recites:

1. A method comprising:

receiving at a social networking system from an advertiser an advertisement request, the advertisement request comprising advertisement content, a bid amount for presenting the advertisement content to users of the social networking system, and a specification of a target audience for the advertisement content;

to make a prediction regarding expected reach of the advertisement content based on the bid amount and the specification of the target audience, sampling by the social networking system a subset of users from the target audience to determine a reach count for each sampled user in the subset, a particular reach count for a particular sampled user in the subset indicating whether the advertisement content would have reached the particular sampled user, wherein determining the reach count for each sampled user in the subset of users comprises:

reviewing an advertisement impression history for the sampled user based on a recency criterion to retrieve costs associated correspondingly with a plurality of impressions in the reviewed impression history;

computing normalized measures of the retrieved costs associated with each of the plurality of impressions in the reviewed impression history;

comparing the bid amount in the advertisement request to each of the computed normalized measures of the retrieved costs, in order to determine a reach count for the sampled user; and

recording a positive reach count for the sampled user if the bid amount in the advertisement request is greater than at least one of the computed normalized measures of the retrieved costs, and a zero reach count for the sampled user if the bid amount in the advertisement request is lower than each of the computed normalized measures of the retrieved costs;

based on the sampling, estimating an aggregate reach of the advertisement content for the subset of users as an aggregation of the reach counts for the sampled users in the subset;

estimating a total reach of the advertisement content for the target audience by extrapolating the aggregate reach for the subset of users to the target audience; and

applying the estimated total reach for the advertiser in an adjustment or determination by the social networking system for the advertisement request.

REJECTIONS

Claims 1, 3, 4, and 6–22 are rejected under 35 U.S.C. § 112(b) as indefinite for failing to particularly point out and distinctly claim the subject matter which the joint inventors regard as the invention.

Claims 1, 3, 4, and 6–22 are rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

Claims 1, 3, 4, and 6–22 are rejected under 35 U.S.C. § 103 as unpatentable over Hegeman (US 2013/0124297 A1, pub. May 16, 2013) and Jordan (US 2014/0089106 A1, pub. Mar. 27, 2014).

The § 112(b) rejection

The given impression

Dependent claim 6 is rejected under § 112(b) because “it is unclear as to what the phrase ‘**the** given impression’ (bolding emphasis added) makes reference to in Claim 6.” (Final Action 4.)

Appellants argue that this is a typographical error and that they “will address this typographical error following a decision on appeal.” (Appeal Br. 8.)

In view of the above, we summarily affirm this rejection. For the same reason, we also summarily affirm the rejection of claims 7–15, which depend from claim 6.

The plurality of impressions

Dependent claim 6 is also rejected under § 112(b) because “it is unclear as to whether the phrase ‘the plurality of impressions’ references [the] recited ‘a plurality of impressions’ that is now first recited in independent Claim 1 . . . , or references both recitations of ‘a plurality of impressions’ as recited in both Claims 1 and 6.” (Final Action 5; *see also* Answer 5.)

Appellants argue that “[i]t is clear when reading the language in the context of the claim as a whole that ‘the plurality of impression’ [sic] is simply referring to the prior step in claim 6.” (Appeal Br. 9; *see also* Reply Br. 2–3.)

Claim 1 recites “a plurality of impressions in the reviewed impression history” and “the plurality of impressions in the reviewed impression history.” Claim 6, which depends from claim 1, also recites “a plurality of

impressions in the reviewed impression history” and “the plurality of impressions in the reviewed impression history.”

We agree with the Examiner that it is unclear, in claim 6, if the reference to “a plurality of impressions in the reviewed impression history” refers to the same plurality of impressions recited in claim 1 or to a different plurality of impressions.

The Federal Circuit has stated that

when the USPTO has initially issued a well-grounded rejection that identifies ways in which language in a claim is ambiguous, vague, incoherent, opaque, or otherwise unclear in describing and defining the claimed invention, and thereafter the applicant fails to provide a satisfactory response, the USPTO can properly reject the claim as failing to meet the statutory requirements of § 112(b).

In re Packard, 751 F.3d 1307, 1311 (Fed. Cir. 2014). In this case, the Examiner presents a well-grounded rejection identifying why this claim language is unclear in this context. Appellants have not persuaded us that the Examiner erred in this rejection. For the same reasons, we also affirm the rejection of claims 7–15, which depend from claim 6.

The processor

Independent claims 18 and 19 are rejected under § 112(b) because each claim “at least twice introduces the phrase ‘a processor’ and then subsequently introduces a recitation of ‘the processor’; therefore, it is unclear as to what later-recited phrases of ‘the processor’ refer[.]” (Final Action 5.)

Appellants argue that these are typographical errors and that they “will address these typographical errors following a decision on appeal.” (Appeal Br. 8.)

In view of the above, we summarily affirm this rejection. For the same reason, we also summarily affirm the rejection of claims 20–22, which depend from claim 19.

The instructions for determining the reach count

Independent claims 18 and 19 are also rejected under § 112(b) because

it is unclear as to whether the phrase “the instructions for determining the reach count” serves to limit the recited instructions that are encoded on the recited memory (Claim 18) or storage medium (Claim 19), or refers to determination instructions that may not part [sic] of the claimed subject matter, such as determination instructions stored on a third party computer system, which is not specifically/positively recited in any claim.

(Final Action 6.)

Appellants argue that “[i]t is clear when reading the language in the context of the claim as a whole (including the first portion that introduces that there are instructions encoded on memory[]) that ‘the instructions’ is referring to the instructions to determine a reach count that are encoded on memory.” (Appeal Br. 10.)

In relevant part, claim 18 recites (emphasis added):

18. A computer system comprising:
a processor;
memory coupled to the processor, *the memory having encoded thereon instructions that, when executed by the processor, cause the processor to:*

...

to [sic] make a prediction regarding expected reach of the advertisement content based on the bid amount and the specification of the target audience, sample by the social networking system a subset of users from the target audience to determine a reach count for each sampled user in the subset, a particular reach count for a particular sampled user in the subset indicating whether the advertisement content would have reached the particular sampled user, wherein the instructions for determining the reach count for each sampled user in the subset of users comprise instructions that, when executed by a processor, cause the processor to

Applying a broadest reasonable interpretation, the instructions encoded in the memory coupled to the processor, when executed by the processor, cause the processor “to make a prediction regarding expected reach of the advertisement content.” However, claim 18 can reasonably be construed as including separate “instructions for determining the reach count for each sampled user in the subset of users.” Alternatively, claim 18 could be construed, as Appellants argue, as not having separate instructions for determining the reach count, but having those instructions as a part of the instructions encoded in the memory coupled to the processor. In relevant part, the claim recites that there are instructions in the recited memory to sample, and that the sampling is for the purpose of determining a reach count. But the claim does not recite that there are additional instructions in that memory to take the next step, i.e., to determine the reach count. Thus, the Examiner presents a well-grounded rejection identifying why this claim language is unclear in this context. Claim 19 contains similar language.

In view of the above, Appellants have not persuaded us that the Examiner erred in this rejection, and we affirm this rejection. For the same

reasons, we also affirm the rejection of claims 20–22, which depend from claim 19.

The historical bid amount

Independent claims 18 and 19 are also rejected under § 112(b) because

it is unclear as to whether the phrase “the historical bid amount” (singular) refers to a historical bid amount not specifically/positively recited in any of Claims 18-19, refers to one of the recited “historical bid amounts” (plural), refers to the “plurality of historical bid amounts”, or refers to some combination thereof.

(Final Action 6–7.)

Appellants argue that

[i]t is clear when reading the language in the context of the claim as a whole that there is a (1) comparison of “each of the historical bid amounts,” and then (2) “for each comparison,” there is a determination of whether the bid amount (received from the advertiser) would have won ... against that (the) historical bid amount.

(Appeal Br. 10.)

In relevant part, claim 18 recites (emphasis added):

review a bid history including *a plurality of historical bid amounts, each of the historical bid amounts* provided for an impression in which a prior advertisement was displayed to the sampled user,

compare *each of the historical bid amounts* provided for each of the impressions with the sampled user to the bid amount in the advertisement request,

for each comparison, determine whether the bid amount would have won an advertisement auction against *the historical bid amount* to present the advertisement content to the sampled user

Applying a broadest reasonable interpretation, claim 18 recites a bid history that, as discussed below, may include a plurality of historical bid amounts provided for an impression, or may include a single historical bid amount provided for an impression. Regardless, claim 18 further recites comparing each of these historical bid amounts for each of the impressions to the bid amount in the advertisement request. Claim 18 further recites that for each such comparison, i.e., for each historical bid amount compared, determine whether the bid amount in the advertisement request would have won an auction against that historical bid amount. Claim 19 contains similar language. Thus, we agree with Appellants that the language of the claim is clear, i.e., “the historical bid amount” refers to the specific historical bid amount used for each comparison.

In view of the above, we are persuaded that the Examiner erred in this rejection. For the same reasons, we are persuaded of error with regard to claims 20–22, which depend from claim 19.

The impressions with the sampled user

Independent claims 18 and 19 are also rejected under § 112(b) because

it is unclear as to whether the phrase “the impressions with the sampled user” references multiple impressions with the sampled user that is not specifically/positively recited in any of Claims 18-19, or references recited “an impression” (singular) regarding a prior advertisement display to the sampled user, which may or may not include multiple impressions.

(Final Action 7.)

Appellants disagree and argue that

[i]t is clear when reading the language in the context of the claim as a whole that there is a (1) review of bid history where each of the historical bid amounts was provided for an impression, and then there is a (2) comparison of each historical bid amount provided for each of those (the) impressions.

(Appeal Br. 11.)

Claim 18 recites (a) “a plurality of historical bid amounts, each of the historical bid amounts provided for an impression in which a prior advertisement was displayed to the sampled user,” and (b) “compare each of the historical bid amounts provided for each of the impressions with the sampled user to the bid amount in the advertisement request.” Thus, (a) may reasonably be read to recite either a single bid amount for each impression, there potentially being multiple impressions, or (a) may reasonably be read to recite a plurality of bid amounts for each impression, some bid amounts presumably having been unsuccessful; (b) recites the existence of multiple impressions but does not clarify if there are multiple bid amounts associated with each impression. Claim 19 contains similar language.

In view of the above, Appellants have not persuaded us that the Examiner erred in this rejection. For the same reasons, we also affirm the rejection of claims 20–22, which depend from claim 19.

The reach count

Independent claims 1, 18, and 19 are also rejected under § 112(b) because

[e]ach of Claims 1, 18 and 19 at least thrice introduces the phrase “reach count” and then subsequently recites “the reach counts”; therefore, it is unclear as to what the later-recited phrase of “the

reach counts” refers to in each independent claim — there is insufficient antecedent basis for the phrase “the reach counts” recited in each of the independent claims.

(Final Action 7; *see also* Answer 8.)

Appellants argue that “[i]t is clear when reading the language in the context of the claim as a whole that there is a (1) determination of reach count for each sampled user and then (2) an aggregation of those (the) reach counts.” (Appeal Br. 11; *see also* Reply Br. 2.)

Claim 1 recites, in relevant part,

sampling by the social networking system a subset of users from the target audience to determine a reach count for each sampled user in the subset, a particular reach count for a particular sampled user in the subset indicating whether the advertisement content would have reached the particular sampled user, wherein determining the reach count for each sampled user in the subset of users comprises

Claim 1 further recites, in relevant part, “comparing . . . to determine a reach count for the sampled user,” and “estimating an aggregate reach of the advertisement content for the subset of users as an aggregation of the reach counts for the sampled users in the subset.”

Applying a broadest reasonable interpretation, claim 1 distinguishes (a) a reach count for each sampled user in the subset from (b) a particular reach count for a particular sampled user in the subset. In other words, the claim distinguishes “each sampled user” from “a particular sampled user,” and similarly distinguishes the associated reach counts. Thus, it is unclear if the “aggregation of reach counts” includes both reach count (a) and particular reach count (b). Therefore, we agree with the Examiner that it is unclear what reach counts are included in the aggregation of reach counts. Claims 18 and 19 contain similar language.

In view of the above, Appellants have not persuaded us that the Examiner erred in this rejection. For the same reasons, we also affirm the rejection of claims 3, 4, and 6–17, which depend from claim 1, and claims 20–22, which depend from claim 19.

The estimated total reach

Independent claims 1, 18, and 19 are also rejected under § 112(b) because “it is unclear as to what the phrase ‘the estimated total reach’ makes antecedent reference to in each independent claim.” (Final Action 8.)

Appellants disagree and argue that

[e]ach of the independent claims 1, 18, and 19 recites “estimating a total reach of the advertisement content ... and applying the estimated total reach.” The phrase “the estimated total reach” makes antecedent reference to the estimating step that states “estimating a total reach.” A skilled artisan would understand what is claimed in light of the specification in this case.

(Appeal Br. 11–12.)

In relevant part, claim 1 recites “estimating a total reach of the advertisement content,” and “applying the estimated total reach for the advertiser.” Appellants’ argument is that “total reach of the advertisement content” provides antecedent bases for “total reach for the advertiser.” We are not persuaded. At best, it is unclear if these two terms refer to different types of “total reach.” Claims 18 and 19 contain similar language.

In view of the above, Appellants have not persuaded us that the Examiner erred in this rejection. For the same reasons, we also affirm the rejection of claims 3, 4, and 6–17, which depend from claim 1, and claims 20–22, which depend from claim 19.

The § 101 rejection

Appellants do not separately argue the claims. We select claim 1 as representative. Claims 3, 4, and 6–22 will stand or fall with claim 1. See 37 C.F.R. § 41.37(c)(1)(iv).

“Whoever 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. Section 101, however, “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*, 573 U.S. 208, 216 (2014) (quoting *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)).

Alice applies a two-step framework, earlier set out 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*, 573 U.S. at 217.

Under the two-step framework, it must first be determined if “the claims at issue are directed to a patent-ineligible concept.” *Id.* at 218. If the claims are determined to be directed to a patent-ineligible concept, e.g., an abstract idea, then the second step of the framework is applied to determine if “the elements of the claim . . . contain[] an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Id.* at 221 (citing *Mayo*, 566 U.S. at 72–73, 79).

With regard to step one of the *Alice* framework, we apply a “directed to” two prong test to: 1) evaluate whether the claim recites a judicial

exception, and 2) if the claim recites a judicial exception, evaluate whether the claim “appl[ies], rel[ies] on, or use[s] the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception.” *See* USPTO, 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 54 (Jan. 7, 2019) (hereinafter “2019 Guidance”).

Here, the Examiner determines that claim 1 is “directed toward the concept of utilizing characteristics of an advertisement and potential recipients of the advertisement to predict effectiveness/effect (e.g., reach, reach count) that the advertisement may have with users.” (Final Action 10.) Based on this, the Examiner determines that claim 1 recites “a fundamental economic practice and/or a method of organizing human activities and, therefore, the claimed subject matter is drawn to an abstract idea.” (*Id.*)

Appellants argue that claim 1 is not directed to an abstract idea and, in particular, that “claim 1 is not directed to ‘fundamental economic practices.’” (Appeal Br. 15.) Rather, Appellants argue, “claim 1 recites a method for estimating reach of an advertisement in a social networking system based on advertiser-specified bid amount and impressions histories of sampled users of the social networking system.” (*Id.*)

Under step one of the *Alice* framework, we “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. DIRECTV, 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)).

The ‘directed to’ inquiry . . . cannot simply ask whether the claims *involve* a patent-ineligible concept, because essentially every routinely patent-eligible claim involving physical products and actions *involves* a law of nature and/or natural phenomenon Rather, the ‘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.’ *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015).

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1335 (Fed. Cir. 2016). In other words, the first step of the *Alice* framework “asks whether the focus of the claims is on the specific asserted improvement in [the relevant technology] or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Id.* at 1335–36; *see also* 2019 Guidance at 54–55.

The Specification provides evidence as to what the claimed invention is directed. In this case, the Specification discloses that the invention “relates generally to social networking systems, and more specifically to advertising via a social networking system.” (Spec. ¶ 1.) Claim 1 provides further evidence. Claim 1 recites “receiving at a social networking system . . . an advertisement request,” “to make a prediction regarding expected reach of the advertisement content . . . wherein determining the reach count for each sampled user in the subset of users comprises: reviewing an advertisement impression history,” “computing normalized measures of the retrieved costs,” “comparing the bid amount . . . to each of the computed normalized measures,” “recording a . . . reach count,” “estimating an aggregate reach of the advertisement content,” “estimating a total reach of the advertisement content,” “and applying the estimated total reach . . . in an adjustment or determination . . . for the advertisement request.”

In short, claim 1 recites advertising, marketing or sales activities or behaviors. These steps are accomplished by receiving information and determining a reach count by reviewing an advertising impression history, calculating values, comparing values, recording/storing values, estimating values, and applying values for an adjustment or determination. *See, e.g., Content Extraction and Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (“[T]he claims of the asserted patents are drawn to the abstract idea of 1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory.”); *see also Bridge and Post, Inc. v. Verizon Commc’ns, Inc.*, No. 2018-1697, slip op. at 6–9 (Fed. Cir. July 5, 2019) (nonprecedential) (deciding media content to provide to a user by retrieving usage patterns for the user’s device, generating a user profile based on the usage patterns, and analyzing the data, including the user profile, determined to be directed to an abstract idea).

None of the limitations recite technological implementation details for any of the steps. Instead, they describe functional results to be achieved by any means. Moreover, beyond the recitation of a generic “social networking system,” claim 1 does not recite any computer-related components. Claim 1 merely recites the functional results to be achieved. It does not recite “a particular way of programming or designing the software . . . , but instead merely claim[s] the resulting [method].” *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1241 (Fed. Cir. 2016). Additionally, Appellants’ Specification makes clear that social networking systems were well known. (*See, e.g., Spec.* ¶¶ 2, 3, 26.)

We do not see how the recitation of a “social networking system,” even in conjunction with the recited functions, “ensure[s] ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Alice*, 573 U.S. at 221 (brackets in original) (quoting *Mayo*, 566 U.S. at 77.)

In view of the above, we determine that claim 1 is directed to advertising, marketing or sales activities or behaviors. (See Guidance at 52.) And further in view of the above, we agree with the Examiner that claim 1 is directed to the abstract idea of certain methods of organizing human activity. (See Final Action 10; see also Guidance at 52.)

Although we and the Examiner describe, at different levels of abstraction, to what the claim is directed, it is recognized that “[a]n abstract idea can generally be described at different levels of abstraction.” *Apple, Inc.*, 842 F.3d at 1240. That need not and, in this case, does not “impact the patentability analysis.” See *id.* at 1241.

Nonetheless, Appellants seek to analogize claim 1 to the claims in *Enfish*. (Appeal Br. 20–21.) Appellants argue that, as in *Enfish*, “[t]he claimed invention provides a unique way of estimating reach of an advertisement specified in an advertisement request from an advertiser and applying the estimated reach to adjust/determine an advertisement request of the advertisement.” (*Id.* at 20.)

We do not find this argument persuasive. The claims in *Enfish* were “specifically directed to a *self-referential* table for a computer database.” *Enfish*, 822 F.3d at 1337. That is, “the plain focus of the claims [was] on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity.” *Id.* at 1336.

Appellants do not persuasively argue how claim 1 improves computer functionality.

Appellants also seek to analogize claim 1 to the claims in *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016). (See Appeal Br. 21–22.) Appellants argue that “similar to *McRO*, claim 1 includes specific limitations that prevent preemption of all techniques for providing advertising messages, or even for providing social endorsements.” (*Id.* at 21.)

We do not find this argument persuasive. “The claimed improvement [in *McRO*] was to how the physical display operated (to produce better quality images), unlike (what is present here) a claimed improvement in a mathematical technique with no improved display mechanism.” *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018). In other words, in *McRO*, data was used to improve the technology, i.e., the display mechanism. Here, “the innovative aspect of the claimed invention is an entrepreneurial rather than a technological one.” See *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 722 (Fed. Cir. 2014).

Nor do we find persuasive Appellants’ preemption argument. Preemption is not a separate test. “Where 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.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). In other words, “preemption may signal patent ineligible subject matter, [but] the absence of complete preemption does not demonstrate patent eligibility.” *Id.*

Step two of the *Alice* framework has been described “as a 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.’” *Alice*, 573 U.S. at 217–18 (quoting *Mayo*, 566 U.S. at 72–73).

Appellants seek to analogize claim 1 to the claims in *BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016). (Appeal Br. 23–24.) Specifically, Appellants argue that claim 1 “passes muster under the second step [of *Alice*] and supplies ‘an unconventional and non-generic’ application of estimating reach of an advertisement.” (*Id.* at 24.)

Appellants also argue that

[a]s a whole, these claims recite a “specific, discrete implementation” of sampling of a subset of users of a target audience, reviewing impression histories of the sampled users, computing normalized measures of retrieved costs associated with impressions in the reviewed impression histories, comparing a bid amount with the normalized measures of retrieved costs, recording positive reach count and zero reach count, estimating an aggregate reach for the subset, estimating a total reach for the target audience, and applying the estimated total reach.

(Appeal Br. 24.) Appellants also argue that “claim 1 also is novel and non-obvious over the references cited.” (*Id.*)

We do not find this argument persuasive. In *BASCOM*, the court determined that “an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces.” *BASCOM*, 827 F.3d at 1350. Specifically, “[t]he inventive concept described and claimed in the ’606 patent is the installation of a filtering tool at a specific

location, remote from the end-users, with customizable filtering features specific to each end user.” *Id.* at 1350. The Federal Circuit determined that this “particular arrangement of elements is a technical improvement over prior art ways of filtering.” *Id.* Here, Appellants do not contend, and claim 1 does not specify, that the recited social networking system must be arranged in a non-conventional manner. Nor do Appellants explain how the claimed method allegedly improves the function of the social networking system. *See, e.g., BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1288 (Fed. Cir. 2018) (“[A]n improvement to the information stored by a database is not equivalent to an improvement in the database’s functionality.”).

Moreover, “[n]o matter how much of an advance in the . . . field the claims recite, the advance lies entirely in the realm of abstract ideas, with no plausibly alleged innovation in the non-abstract application realm. An advance of that nature is ineligible for patenting.” *SAP Am., Inc.*, 898 F.3d at 1163. Additionally, “[t]he ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.” *Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981).

Taking the claim elements separately, the functions performed by the generic “social networking system” are purely conventional. Receiving information and determining a value by reviewing information, calculating other values, comparing values, recording/storing values, estimating values, and applying the results are well-understood, routine, and conventional functions previously known to the industry. *See Elec. Power Grp.*, 830 F.3d at 1356 (The claims “do not include any requirement for performing the

claimed functions of gathering, analyzing, and displaying in real time by use of anything but entirely conventional, generic technology. The claims therefore do not state an arguably inventive concept”); *see also In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) (“Absent a possible narrower construction of the terms ‘processing,’ ‘receiving,’ and ‘storing,’ . . . those functions can be achieved by any general purpose computer without special programming.”).

Considered as an ordered combination, the generic social networking system of Appellants’ claimed invention adds nothing that is not already present when the limitations are considered separately. For example, claim 1 does not, as discussed above, purport to improve the functioning of the social networking system itself. Nor does it effect an improvement in any other technology or technical field. Instead, claim 1 amounts to nothing significantly more than an instruction to apply the abstract idea using a generic computer system performing routine computer functions. That is not enough to transform an abstract idea into a patent-eligible invention. *See Alice*, 573 U.S. at 225–26.

In view of the above, we are not persuaded that the Examiner erred in rejecting claim 1. Claims 3, 4, and 6–22 fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

The § 103 rejection

The Examiner finds that

Jordan teaches a system and method wherein historical impression data pertaining to the advertising campaign is sampled to derive forecast data that predicts future state of the market (e.g., Abstract of *Jordan*), sampling a subset of users

from a target audience by a social networking system (e.g., Abstract of *Jordan*).

(Final Action 17.)

Appellants argue that the cited references do not disclose “sampling a subset of users from the target audience specified in an advertisement request.” (Appeal Br. 26.) Specifically, Appellants argue that *Jordan* discloses sampling impression data, but “does not teach or suggest sampling users.” (*Id.*)

The Examiner answers that

Jordan teaches an Internet ad campaign that targets advertisements to online users where those users that have been shown an advertisement (note: ad “impression” is a term that refers to a display of an advertisement to a user, or as *Jordan* at ¶ [0025] explains, “[a]n impression is a single instance of an advertisement being displayed before an Internet user”). After showing advertisements to the users (i.e., presenting ad impressions to users), the online user data of *Jordan* is sampled to extract historical impression data associated with the online users.

(Answer 17.)

Jordan discloses “[a] system and method for formulating a bid on an impression for an Internet advertising campaign using market forecast data.” (*Jordan*, Abstract.) *Jordan* further discloses that “[h]istorical impression data pertaining to the advertising campaign is sampled using any applicable sampling technique.” (*Id.*) More specifically, *Jordan* discloses that “[a]n impression is a single instance of an advertisement being displayed before an Internet user. In the context of an advertising exchange, an impression is an opportunity to transmit an advertisement to a user. . . . An advertiser or other entity can place a bid on the impression.” (*Id.* ¶ 25.)

Jordan further discloses that “sampled impression data is generated from historical impression data. The sampled impression data comprises a subset of all of the impressions purchased throughout the history of an advertising campaign. This data serves as the basis for forecasting the future state of the market.” (*Id.* ¶ 27.)

Claim 1 recites “sampling . . . a subset of users from the target audience to determine a reach count for each sampled user in the subset.” The portions of Jordan relied on by the Examiner disclose sampling historical impression data “using an applicable sampling technique,” and, as noted above, sampled impression data is a subset of all of the impressions purchased throughout the ad campaign. It is unclear where Jordan discloses sampling users, as opposed to sampling “an advertisement being displayed.” (*See id.* ¶ 25.) Albeit, advertisements are presented to users, but the cited portions of Jordan disclose that the sampling is of a subset of the impressions purchased, rather than a subset of users. (*See id.*) The Examiner does not rely on the other cited art to cure this deficiency.

Therefore, we are persuaded that the Examiner erred in rejecting claim 1. Independent claims 18 and 19 contain similar language.

DECISION

The Examiner’s rejection of claims 1, 3, 4, and 6–22 under 35 U.S.C. § 112(b) is affirmed.

The Examiner’s rejection of claims 1, 3, 4, and 6–22 under 35 U.S.C. § 101 is affirmed.

The Examiner’s rejection of claims 1, 3, 4, and 6–22 under 35 U.S.C. § 103 is reversed.

Appeal 2018-004449
Application 14/279,131

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

AFFIRMED