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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte VIRAJ MODY, ROBERT KAJIC, PRANAV PIYUSH, and
LILIAN WENG

Appeal 2020-000247
Application 14/632,289
Technology Center 3600

Before ERIC S. FRAHM, JOHNNY A. KUMAR, and
CATHERINE SHIANG, *Administrative Patent Judges*.

SHIANG, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ appeals under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1–4, 6, 7, 10–16, 18, 19, and 22–24, which are all the claims pending and rejected in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ We use “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Dropbox, Inc. as the real party in interest. Appeal Br. 1.

STATEMENT OF THE CASE

Introduction

The present invention relates to “[t]echniques for efficiently selecting upsell content to serve to users of an online service based on complex user archetypes.” Spec. ¶ 1. In particular,

a computer-implemented method for efficiently serving upsell content to a user of an online service based on complex user archetypes executes at one or more server computers of the online service The method determines, for each of a plurality of predefined complex user archetypes, whether a user is or is not the predefined complex user archetype, based on user events reflecting the user’s interaction with primary application content of the online service over a period of time. The method stores a set of a plurality of user upsell attributes for the user in a database. Each of the plurality of user upsell attributes corresponds to one of the plurality of predefined complex user archetypes and has a value that indicates whether the user is or is not the corresponding predefined complex user archetype.

Spec. ¶ 6. Claim 1 is exemplary:

1. A method for efficiently serving upsell content to a user of an online service based on complex user archetypes, the online service comprising one or more server computers with memory and one or more processors, the method comprising:

based on a set of user events reflecting a user’s interaction with primary application content of the online service over a period of time, for each of a plurality of predefined complex user archetypes, determining, by at least one of the processors, whether a user is or is not the predefined complex user archetype;

wherein for each predefined complex user archetype, of the plurality of predefined complex user archetypes, the each

predefined complex user archetype represents a respective pattern of user interaction with the online service over time;

based on the determining, storing, by at least one of the processors, a set of a plurality of user upsell attributes for the user in a database;

wherein each user upsell attribute of the plurality of user upsell attributes corresponds to one respective predefined complex user archetype of the plurality of predefined complex user archetypes;

wherein each user upsell attribute of the plurality of user upsell attributes has a Boolean value that indicates whether the user is or is not the respective predefined complex user archetype to which the each user upsell attribute corresponds;

in response to receiving a request from a computing device used by the user, the request for particular primary application content of the online service:

identifying, by at least one of the processors, a plurality of upsell campaigns associated with the particular primary application content of the online service, each of the plurality of upsell campaigns associated with a respective upsell content and associated with a respective user archetype rule, the respective user archetype rule having a respective Boolean express;

determining, by at least one of the processors, whether the respective user archetype rule associated with a particular upsell campaign of the plurality of upsell campaigns is satisfied by the set of the plurality of user upsell attributes for the user including evaluating the respective Boolean expression of the respective user archetype rule against one or more Boolean values of the set of the plurality of user upsell attributes for the user to determine whether the respective user archetype rule associated with the particular upsell campaign is satisfied by the set of the plurality of user upsell attributes;

based on the respective user archetype rule associated with the particular upsell campaign being satisfied by the set of the plurality of user upsell attributes, serving, by at least one of

the processors, the respective upsell content associated with the particular upsell campaign to the computing device used by the user; and

wherein the serving the respective upsell content associated with the particular upsell campaign to the computing device used by the user causes the respective upsell content to be displayed in a graphical user interface to the user at the computing device concurrently with display of the particular primary application content.

References and Rejections²

The Examiner rejects claims 1–4, 6, 7, 10–16, 18, 19, and 22–24 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 3–7.

The Examiner rejects claims 1, 2, 4, 6, 7, 11–14, 16, 18, 19, 23, and 24 under 35 U.S.C. § 103 as being obvious over the collective teachings of Jones (US 2006/0136344 A1; June 22, 2006), Dupret (US 2010/0082605 A1; Apr. 1, 2010), and Fontoura (US 2011/0225038 A1; Sept. 15, 2011). Final Act. 8–17.

The Examiner rejects claims 3 and 15 under 35 U.S.C. § 103 as being obvious over the collective teachings of Jones, Dupret, Fontoura, and Chen (US 2011/0029377 A1; Feb. 3, 2011). Final Act. 17–18.

The Examiner rejects claims 10 and 22 under 35 U.S.C. § 103 as being obvious over the collective teachings of Jones, Dupret, Fontoura, and Wright (US 2003/0200135 A1; Oct. 23, 2003). Final Act. 18–19.

² Throughout this opinion, we refer to the (1) Final Office Action dated September 21, 2018 (“Final Act.”); (2) Appeal Brief dated April 8, 2019 (“Appeal Br.”); (3) Examiner’s Answer dated August 8, 2019 (“Ans.”); and (4) Reply Brief dated October 7, 2019 (“Reply Br.”).

ANALYSIS

We have reviewed and considered Appellant’s arguments, but such arguments are unpersuasive. To the extent consistent with our analysis below, we adopt the Examiner’s findings and conclusions in (i) the action from which this appeal is taken and (ii) the Answer.

In reaching the decision, we only considered the arguments that Appellant actually raised in the briefs. Arguments that Appellant could have made, but did not make, are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). Further, to the extent Appellant advances new arguments in the Reply Brief without showing good cause, Appellant has waived such arguments. *See* 37 C.F.R. § 41.41(b)(2).

35 U.S.C. § 101

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. However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *E.g., Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (internal quotation marks and citation omitted).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Alice*, 573 U.S. at 217–18 (citing *Mayo Collaborative Servs. v.*

Prometheus Labs., Inc., 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is “directed to.” See *Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk.”); see also *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4 in petitioners’ application explain the basic concept of hedging, or protecting against risk.”).

Concepts determined to be abstract ideas, and, thus, patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); “tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1853))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that “a claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 187; see also *id.* at 191 (“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula.”). Having said that, the Supreme Court also indicated that a claim “seeking patent protection for that formula in the abstract . . . is not accorded the protection

of our patent laws, and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Id.* (citing *Benson* and *Flook*); *see, e.g., id.* at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”).

If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where “we must examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 573 U.S. at 221 (citation omitted). “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Id.* (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

In 2019, the PTO published revised guidance on the application of § 101. USPTO, 2019 REVISED PATENT SUBJECT MATTER ELIGIBILITY GUIDANCE, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Guidance”).³ Under the guidance set forth in the Guidance, we first look to whether the claim recites:

- (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes) (Step 2A, Prong 1); and
- (2) additional elements that integrate the judicial exception into a practical application (*see* MANUAL OF PATENT EXAMINING

³ The Guidance was updated in October 2019.

PROCEDURE (“MPEP”) § 2106.05(a)–(c), (e)–(h)) (9th Ed., Rev. 08.2017, 2018) (Step 2A, Prong 2).

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look to whether the claim:

(3) adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); or

(4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception. (Step 2B.)

See Guidance, 84 Fed. Reg. at 54–56.

The Guidance “extracts and synthesizes key concepts identified by the courts as abstract ideas to explain that the abstract idea exception includes the following” three groupings:

- (a) Mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations;
- (b) Certain methods of organizing human activity—fundamental economic principles or practices (including hedging, insurance, mitigating risk); commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations); managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions); and
- (c) Mental processes—concepts performed in the human mind (including an observation, evaluation, judgment, opinion).

See Guidance, 84 Fed. Reg. at 52.

According to the Guidance, “[c]laims that do not recite matter that falls within these enumerated groupings of abstract ideas should not be treated as reciting abstract ideas,” except in rare circumstances. Guidance,

84 Fed. Reg. at 53. If a claim recites any of the three groupings of abstract ideas, but “the claim as a whole integrates the recited judicial exception into a practical application of that exception,” the claim is not “directed to” a judicial exception (abstract idea), and thus is patent eligible. Guidance, 84 Fed. Reg. at 53.

For example, additional limitations that indicate integration into a practical application include:

1. An improvement in the functioning of a computer, or an improvement to any other technology or technical field (MPEP § 2106.05(a));
2. Implementing a judicial exception with, or using a judicial exception in conjunction with a particular machine or manufacture that is integral to the claims (MPEP § 2106.05(b));
3. Effecting a transformation or reduction of a particular article to a different state or thing (MPEP § 2106.05(c)); and
4. Applying or using the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception (MPEP § 2106.05(e)).

In contrast, additional limitations that do not indicate integration into a practical application include:

1. Reciting the words “apply it” (or an equivalent) with the judicial exception, or merely including instructions to implement an abstract idea on a computer, or merely uses a computer as a tool to perform an abstract idea (MPEP § 2106.05(f));
2. Adding insignificant extra-solution activity to the judicial exception (MPEP § 2106.05(g)); and
3. Generally linking the use of the judicial exception to a particular technological environment or field of use (MPEP § 2106.05(h)).

See Guidance, 84 Fed. Reg. at 55.

Step 2A, Prong 1

We select claim 1 as the representative claim, and group the remaining claims accordingly under 37 C.F.R. § 41.37(c)(1)(iv) (“[T]he failure of appellant to separately argue claims which appellant has grouped together shall constitute a waiver of any argument that the Board must consider the patentability of any grouped claim separately.”).

Turning to Step 2A, Prong 1 of the Guidance (*Alice* step one), claim 1 (with emphases added) recites:

1. A method for *efficiently serving upsell content to a user of an online service based on complex user archetypes, the online service comprising one or more server computers with memory and one or more processors, the method comprising:*

based on a set of user events reflecting a user’s interaction with primary application content of the online service over a period of time, for each of a plurality of predefined complex user archetypes, determining, by at least one of the processors, whether a user is or is not the predefined complex user archetype;

wherein for each predefined complex user archetype, of the plurality of predefined complex user archetypes, the each predefined complex user archetype represents a respective pattern of user interaction with the online service over time;

based on the determining, storing, by at least one of the processors, a set of a plurality of user upsell attributes for the user in a database;

wherein each user upsell attribute of the plurality of user upsell attributes corresponds to one respective predefined complex user archetype of the plurality of predefined complex user archetypes;

wherein each user upsell attribute of the plurality of user upsell attributes has a Boolean value that indicates whether the

user is or is not the respective predefined complex user archetype to which the each user upsell attribute corresponds;

in response to receiving a request from a computing device used by the user, the request for particular primary application content of the online service:

identifying, by at least one of the processors, a plurality of upsell campaigns associated with the particular primary application content of the online service, each of the plurality of upsell campaigns associated with a respective upsell content and associated with a respective user archetype rule, the respective user archetype rule having a respective Boolean express;

determining, by at least one of the processors, whether the respective user archetype rule associated with a particular upsell campaign of the plurality of upsell campaigns is satisfied by the set of the plurality of user upsell attributes for the user including evaluating the respective Boolean expression of the respective user archetype rule against one or more Boolean values of the set of the plurality of user upsell attributes for the user to determine whether the respective user archetype rule associated with the particular upsell campaign is satisfied by the set of the plurality of user upsell attributes;

based on the respective user archetype rule associated with the particular upsell campaign being satisfied by the set of the plurality of user upsell attributes, serving, by at least one of the processors, the respective upsell content associated with the particular upsell campaign to the computing device used by the user; and

wherein the serving the respective upsell content associated with the particular upsell campaign to the computing device used by the user causes the respective upsell content to be displayed in a graphical user interface to the user at the computing device concurrently with display of the particular primary application content.

All of the italicized limitations are associated with marketing. For example,

based on a set of user events reflecting a user's interaction with primary . . . content of the . . . service over a period of time, for each of a plurality of predefined complex user archetypes, determining, . . . whether a user is or is not the predefined complex user archetype;

wherein for each predefined complex user archetype, of the plurality of predefined complex user archetypes, the each predefined complex user archetype represents a respective pattern of user interaction with the . . . service over time;

facilitate marketing by determining whether a user is a predefined complex user archetype based on user events. Further,

based on the determining, storing, . . . a set of a plurality of user upsell attributes for the user in . . . ;

wherein each user upsell attribute of the plurality of user upsell attributes corresponds to one respective predefined complex user archetype of the plurality of predefined complex user archetypes;

wherein each user upsell attribute of the plurality of user upsell attributes has a Boolean value that indicates whether the user is or is not the respective predefined complex user archetype to which the each user upsell attribute corresponds

facilitate marketing by storing user upsell attributes that correspond to predefined complex user archetypes and indicate whether the user is the respective predefined complex user archetype. In addition,

in response to receiving a request from . . . the user, the request for particular primary . . . content of the . . . service:

identifying, . . . a plurality of upsell campaigns associated with the particular primary . . . content of the . . . service, each of the plurality of upsell campaigns associated with a respective upsell content and associated with a respective user archetype

rule, the respective user archetype rule having a respective Boolean express;

determining, . . . whether the respective user archetype rule associated with a particular upsell campaign of the plurality of upsell campaigns is satisfied by the set of the plurality of user upsell attributes for the user including evaluating the respective Boolean expression of the respective user archetype rule against one or more Boolean values of the set of the plurality of user upsell attributes for the user to determine whether the respective user archetype rule associated with the particular upsell campaign is satisfied by the set of the plurality of user upsell attributes;

based on the respective user archetype rule associated with the particular upsell campaign being satisfied by the set of the plurality of user upsell attributes, serving, . . . the respective upsell content associated with the particular upsell campaign to . . . the user; and

wherein the serving the respective upsell content associated with the particular upsell campaign to . . . the user causes the respective upsell content to be displayed in a graphical . . . to the user . . . concurrently with display of the particular primary . . . content

facilitate marketing by displaying upsell content along with content requested by the user.

Our determination is supported by the Specification, which describes the existing idea of upsell content, and the need to provide more efficient techniques for “selecting up sell content to serve to users . . . and that facilitates targeting the users with upsell content in very specific ways” (Spec ¶ 4):

Many online service providers (e.g., web site operators) wish to promote to a user a feature of their service other than the feature the user is currently using. For example, an online service provider may want to promote a new feature of the service while the user is using a regularly used feature. Such promotions, when

presented to a user in a computer graphical user interface, may be referred to as “upsell content” as the promotions typically have the goal of persuading the user to use the service in a way that increases the user’s level of engagement with the service. Upsell content is often presented in the graphical user interface with primary application content provided by the service. . . .

When a user requests primary application content from an online service (e.g., by using a web browser application), the online service may select upsell content to serve to the user in addition to serving the requested primary application content. One way for the online service to select the upsell content to serve is to simply serve the same upsell content to all users. However, online service providers may wish to target different users with different upsell content in very specific ways that are designed to maximize the probability that the users will increase their level of engagement with the online service.

Overall, online service providers would appreciate techniques that enable them to efficiently select up sell content to serve to users of the online service and that facilitates targeting the users with upsell content in very specific ways.

Spec. ¶¶ 2–4 (emphases added).

Because marketing is a type of commercial interaction, we conclude claim 1 recites commercial interactions, which is one of certain methods of organizing human activity identified in the Guidance, and thus an abstract idea. *See* Guidance, Step 2A, Prong 1 (Groupings of Abstract Ideas).

Step 2A, Prong 2

Turning to Step 2A, Prong 2 of the Guidance, contrary to Appellant’s assertions (Appeal Br. 15–19; Reply Br. 4–10), Appellant has not shown claim 1 recites additional elements that integrate the judicial exception into a practical application. In particular, Appellant has not shown the additional elements (such as “online,” “server computers with memory,” “processors,”

“application,” and “database”) integrate the judicial exception into a practical application. Appellant’s attorney argument that

the specific application to complex user archetypes in the Boolean values and Boolean expression context claimed, in order to efficiently determine whether a user should be served particular upsell content in the context of a request for content, was unknown

(Appeal Br. 15; *see also* Reply Br. 4) is unpersuasive, as Appellant does not provide sufficient objective evidence to support the assertion. *See In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997) (“attorney argument [is] not the kind of factual evidence that is required to rebut a prima facie case of obviousness”); *Meitzner v. Mindick*, 549 F.2d 775, 782 (CCPA 1977) (“Argument of counsel cannot take the place of evidence lacking in the record.”).

In any event, regardless of whether

the specific application to complex user archetypes in the Boolean values and Boolean expression context claimed, in order to efficiently determine whether a user should be served particular upsell content in the context of a request for content

(Appeal Br. 15; *see also* Reply Br. 4) was indeed unknown and Appellant’s invention indeed qualifies as an “upsell content serving improvement” (Appeal Br. 15; *see also* Reply Br. 4), “a claim for a *new* abstract idea is still an abstract idea.” *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016). “[U]nder the *Mayo/Alice* framework, a claim directed to a newly discovered law of nature (or natural phenomenon or abstract idea) cannot rely on the novelty of that discovery for the inventive concept necessary for patent eligibility” *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1376 (Fed. Cir. 2016) (citations omitted).

Contrary to Appellant’s arguments of “improv[ing] the computer functionality” and “technological improvement” (Appeal Br. 15–16; *see also* Reply Br. 4–5), claim 1 is “not directed to an improvement in the way computers operate” and “the focus of the claims is not on . . . an improvement in computers as tools, but on certain independently abstract ideas that use computers as tools.” *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1095 (Fed. Cir. 2016).

Further, Appellant’s assertion regarding pre-emption (Appeal Br. 16; Reply Br. 5) is unpersuasive, because “[w]hile preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility. . . . 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); *see also OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015) (“that 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”).

Contrary to Appellant’s assertions (Appeal Br. 16–17; Reply Br. 6), the rejected claims are unlike the claims in *Enfish*. In *Enfish*, the court determined:

The . . . patents are directed to *an innovative logical model for a computer database*. . . . A logical model generally results in the creation of particular tables of data, but it does not describe how the bits and bytes of those tables are arranged in physical memory devices. *Contrary to conventional logical models, the patented logical model includes all data entities in a single table, with column definitions provided by rows in that same*

table. The patents describe this as the “self-referential” property of the database.

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1330 (Fed. Cir. 2016) (emphases added).

[T]he plain focus of the claims is on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity.

[T]he claims . . . are directed to a specific improvement to the way computers operate, embodied in the self-referential table.

Id. at 1336.

Unlike the claims of *Enfish*, claim 1 is not “directed to an innovative logical model for a computer database [that] . . . includes all data entities in a single table, with column definitions provided by rows in that same table” or similar improvements. *Id.* at 1330. Instead, claim 1 focuses on an abstract idea that merely uses computers as tools.

Appellant also cites *BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016) (Appeal Br. 17; Reply Br. 6–7), but does not persuasively explain why that case is similar to the present case. In *BASCOM*, the court determined that at the pleading stage and construed in favor of the nonmovant,

The inventive concept described and claimed . . . *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. This design gives the filtering tool both the benefits of a filter on a local computer and the benefits of a filter on the ISP server.* BASCOM explains that the inventive concept rests on taking advantage of the ability of at least some ISPs to identify individual accounts that communicate with the ISP server, and to associate a request for Internet content with a specific individual account.

BASCOM Global Internet Services, 827 F.3d at 1350 (emphasis

added).

Unlike the claims of *BASCOM*, claim 1 is not directed to an “installation of a filtering tool at a specific location, remote from the end-users, with customizable filtering features specific to each end user” or similar improvements. *Id.* at 1350. Nor does claim 1 “give[] the filtering tool both the benefits of a filter on a local computer and the benefits of a filter on the ISP server” or provide similar benefits. *Id.* Therefore, *BASCOM* is inapplicable here.

In addition, Appellant cites *Visual Memory LLC v. NVIDIA Corporation*, 867 F.3d 1253 (Fed. Cir. 2017) (Appeal Br. 16; Reply Br. 5–6), but fails to show that case is applicable here. In *Visual Memory*, the court determined:

Our review of the ‘740 patent claims demonstrates that they are directed to an improved computer memory system, not to the abstract idea of categorical data storage. Claim 1 requires a memory system “having one or more programmable operational characteristics, said characteristics being defined through configuration by said computer based on the type of said processor,” and “determin[ing] a type of data stored by said cache.”

The specification explains that multiple benefits flow from the ‘740 patent’s improved memory system. As an initial matter, the specification discloses that a memory system with programmable operational characteristics defined by the processor connected to the memory system permits “different types of processors to be installed with the subject memory system without significantly compromising their individual performance.” Although prior art memory systems possessed the flexibility to operate with multiple different processors, this one-size-fits-all approach frequently caused a tradeoff in processor performance. The ‘740 patent’s teachings obviate the need to design a separate memory system for each type of processor, which proved to be costly and inefficient, and, at the same time,

avoid the performance problems of prior art memory systems. . . .
. . . Finally, in addition to enabling interoperability with multiple different processors, the ‘740 patent specification explains that the selective definition of the functions of the cache memory based on processor type results in a memory system that can outperform a prior art memory system that is armed with “a cache many times larger than the cumulative size of the subject caches.”

. . . the claims here are directed to a technological improvement: an enhanced computer memory system. The ‘740 patent’s claims focus on a “specific asserted improvement in computer capabilities”—the use of programmable operational characteristics that are configurable based on the type of processor—instead of “on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.”

Visual Memory, 867 F.3d at 1259–61 (emphases added) (citations omitted).

Unlike the claims of *Visual Memory*, claim 1 is not directed to “an improved computer memory system” or any computer improvements. *Id.* at 1259. Indeed, Appellant acknowledges “the pending claims are not directed to an enhanced computer memory system like the claims in *Visual Memory*.” (Appeal Br. 16; Reply Br. 5). Nor does claim 1 provide “benefits flow from the . . . improved memory system” or benefits from any improved computer system. *Visual Memory*, 867 F.3d at 1259. To the contrary and as discussed above, to the extent claim 1 is new, it is directed to a “new” abstract idea. *See Synopsys*, 839 F.3d at 1151; *Genetic Techs.*, 818 F.3d at 1376.

As a result, we conclude claim 1 does not recite additional elements that integrate the judicial exception into a practical application. *See* Guidance, Step 2A, Prong 2. Instead, claim 1 is directed to the abstract idea

of marketing (effectively marketing upsell content to users by targeting users), using computers as tools.

Appellant also argues:

The Examiner makes a new ground of rejection in the Examiner's Answer by changing the abstract idea to which the claims are alleged to be directed. The change was not necessitated by the 2019 PEG as both the 2019 PEG and the guidance before the 2019 PEG ask whether the claim is directed to an abstract idea pursuant to Part I of *Mayo I Alice*. This change in alleged abstract idea by the Examiner constitutes a new ground of rejection. Prosecution should be reopened so that the Applicant has opportunity to respond to the merits of the new ground of rejection with the possibility of a claim amendment under 37 C.F.R. § 1.111.

In the Final Office Action, the Examiner states that the pending claims are “directed to an abstract idea of serving upsell content to a user of an online service, which falls under the category of **an idea of itself.**” (*Final Office Action* at p. 5) (emphasis added.) Then, in the Examiner's Answer, the Examiner asserts that the pending claims are “fall within the **Certain Methods of Organizing Human Activities** groupings of abstract ideas.” (*Examiner's Answer* at p. 6) (emphasis added.) These are different grouping of abstract ideas that the Examiner has swapped from the Final Office Action to the Examiner's Answer.

Reply Br. 3; *see also* Reply Br. 1–2, 4.

Appellant's request is a petitionable—not appealable—matter and is, therefore, not before us. *See* MPEP § 1002.02(c) (Petitions and Requests Decided by the Technology Center Directors) (“Petitions . . . to request review of the primary examiner's failure to designate a rejection in the examiner's answer as a new ground of rejection”); *see also* MPEP § 1201

(“The Board will not ordinarily hear a question that should be decided by the Director on petition . . .”).

Step 2B

Turning to Step 2B of the Guidance (*Alice* step two), Appellant does not persuasively argue any specific limitation was not well-understood, routine, or conventional in the field. Nor does Appellant persuasively argue the Examiner erred in that aspect. In particular, Appellant argues the inventive concept is “the efficient selection and serving of up sell content to users of [a] . . . service based on complex user archetypes that represents patterns of user interaction with the . . . service over time.” Appeal Br. 17; *see also* Reply Br. 9–10. That argument is unpersuasive because as discussed above, the argued concept is a part of the abstract idea. *See Synopsys*, 839 F.3d at 1151; *Genetic Techs.*, 818 F.3d at 1376; *see also BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018) (explaining the *Alice* “Court only assessed whether the claim limitations *other than the invention’s use of the ineligible concept* to which it was directed were well-understood, routine and conventional” and “did not consider whether it was well-understood, routine, and conventional to execute the claimed intermediated settlement method on a generic computer”) (emphasis added).

Appellant also argues the Examiner erred by citing paragraph 6 of the Specification. *See* Appeal Br. 18–19. Specifically, Appellant argues because “that paragraph under the section titled ‘Summary of the Invention’ describes the Applicant’s own invention,” “[n]othing about that paragraph, or the balance of the disclosure of the invention in the Applicant’s

Specification, admits that the claimed invention is well-understood, routine, or conventional” and “the Examiner’s citation to paragraph [0006] of the Applicant’s Specification does not meet the evidentiary burden on the Examiner to show with supporting evidence that *the claimed invention* was well-understood, routine, or conventional.” Appeal Br. 18 (emphasis added). The arguments are unpersuasive because the Examiner does not need to show *the claimed invention* was well-understood, routine, or conventional. *See BSG Tech*, 899 F.3d at 1290. As discussed above, all of the italicized limitations are part of the abstract idea, and the Examiner does not need to show such limitations were well-understood, routine, or conventional. *See id.* In any event, although paragraph 6 of the Specification describes the invention, it indicates the server computers were well-understood, routine, and conventional. *See Spec.* ¶ 6 (“The server computers collectively have one or more processors and memory. The memory stores one or more programs for execution by the one or more processors.”). That description is consistent with Appellant’s own acknowledgment that “the claimed invention can be implemented using general-purpose computing components.” Reply Br. 7.

Further, the Examiner cites cases to fulfill the requirements under *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1367 (Fed. Cir. 2018) (Final Act. 8; Ans. 8–9), and Appellant does not persuasively argue why such citations are insufficient. In fact, Appellant does not persuasively argue any of the additional elements was not well-understood, routine, and conventional. Therefore, claim 1 does not “contain[] an ““inventive concept”” sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 573 U.S. at 221. As a result, Appellant has not persuaded us the

Examiner erred with respect to the Guidance's Step 2B analysis. *See* Guidance, Step 2B.

Because Appellant has not persuaded us the Examiner erred, we sustain the Examiner's rejection of independent claim 1 under 35 U.S.C. § 101.

For similar reasons discussed above, we sustain the Examiner's rejection of dependent claims 2–4, 6–7, 10–16, 18–19, and 22–24 under 35 U.S.C. § 101, as Appellant does not advance separate substantive arguments about those claims. *See* 37 C.F.R. § 41.37(c)(1)(iv).

35 U.S.C. § 103

On this record, the Examiner did not err in rejecting claims 1.

I

Appellant argues Jones, Dupret, and Fontoura do not collectively teach

based on a set of user events reflecting a user's interaction with . . . content of the online service over a period of time, . . . determining . . . whether a user is or is not the predefined complex user archetype;

wherein . . . the each predefined complex user archetype represents a respective pattern of user interaction with the online service over time;

as recited in claim 1. *See* Appeal Br. 20–23; *see also* Reply Br. 10–12. In particular, Appellant argues:

what is determined in Jones based on the customer's purchase history is a list of items purchased by the customer and a list of items

correlated with those items, not whether the customer is or is not a predefined complex user archetype that represents a pattern of user interaction with an online service over time.

....

Jones does not describe determining whether a customer's purchase history conforms to an archetypal online purchase history pattern. Furthermore, determining what items a user purchases online during a period of time, of by the mere fact that a purchase history of a user is recorded, is not determining any sort of purchasing pattern, in the same way that determining that a particular shopper purchased milk in the past month is not determining any sort of reliable purchasing sample that reflects the traits, tendencies or other characteristics of the shopper over that time period.

Appeal Br. 20–21 (emphases omitted).

[T]here is no notion in *Jones* of a complex user archetype as defined by a respective pattern of user interaction with an online service over time. To the extent a user's purchase history in *Jones* is "complex," there is no determination in *Jones* based on the customer's purchase history whether the user's purchase history conforms to a predefined customer archetype defined by a respective purchase history *pattern* over time.

Appeal Br. 21.

One skilled in the art would not understand determining correlations between items purchased by a customer and items purchased by other customers that also purchased the items the customer purchased to be determining a *pattern* of user interaction with an online service over time. For example, *Jones* does not describe determining different types of shoppers that reflect different shopping patterns from users' purchase history. There is no description in *Jones* of examining a user's purchase history and determining what type of shopper they are where the type reflects a shopping pattern over time. As such, *Jones* does not teach or suggest to one skilled in the art determining whether a user is or is not a predefined complex user archetype based on a set of user events

reflecting the user's interaction with content of an online service over a period of time and where the predefined complex user archetype represents a respective pattern of user interaction with the online server over time, as recited in Claim 1.

Appeal Br. 21.

Appellant also argues Dupret does not “overcome the deficiencies of Jones.” Appeal Br. 21. Specifically, Appellant argues:

A user-interaction pattern as described in *Dupret* is not a predefined complex user archetype, as claimed. In fact, *Dupret* does not appear to expressly define what a “user interaction pattern” is except to say it is “related to a search engine.” Whatever it is, it certainly is not in any way “predefined.” Instead, *Dupret* appears to describe uncovering a user-interaction pattern from a user's query chains using a “tree-based layered Bayesian Network (BN) framework.” (*Dupret* at ¶ [0028].) If a pattern is uncovered or discovered from a user's query chain using a Bayesian network then the pattern is probabilistic, not “predefined,” as claimed.

Appeal Br. 21–22; *See also* Reply Br. 10–11.

Appellant has not persuaded us of error. The Examiner finds Jones teaches “based on a set of user events reflecting a user's interaction with . . . content of the online service over a period of time, . . . determining . . . whether a user is or is not the predefined complex user archetype.” *See* Final Act. 8; Ans. 9–10. According to Jones,

FIG. 3 illustrates generating and providing an upsell item listing according to a preferred embodiment, and can be further understood in relation to FIGS. 4 and 5. At step 302, a sales history is maintained for all customers and items of the enterprise. This can be over a predetermined data retention period (e.g., a rolling 2-year calendar) . . . correlation metrics are computed between items on a customerwise basis. The correlation metrics can be associated with a predetermined time period (e.g., the preceding 12-month period), or can be

based on all available transaction history in the upsell database
204. *By customerwise basis, it is meant that correlations are drawn between two items if they were purchased by the same customer within the predetermined time period*

In a web-based business application, one particularly convenient statistical reliability measure comprises, for a correlation metric AB, a direct count of the number of customers who actually did buy both A and B in the predetermined[.]

FIG. 4 illustrates a browser window 402 in which a user accesses the web-based business application 102, the browser window 402 including a customer information record 404. Included among a variety of useful information in the customer information record 404 is an opportunities tab 406 for causing a display of an opportunities list, a transactions tab 408 for causing a display of a transactions list, and an upsell tab 410 for causing a display of the upsell item list for that customer. Upon a single click of the upsell tab 410, the customer is shown an upsell item list for that customer (see FIG. 5, 502), preferably as a continuation of the same customer information record 404 within the browser window 402.

Jones ¶¶ 41–42, 44 (emphases added). Contrary to Appellant’s arguments (Appeal Br. 20–23; Reply Br. 10–12), Jones teaches determining whether a user has purchased two items over the preceding 12-month period, based on the user’s interaction with the online purchasing services. *See* Jones ¶¶ 41–42; 44. Therefore, Jones teaches “based on a set of user events reflecting a user’s interaction with . . . content of the online service over a period of time, . . . determining . . . whether a user is or is not the predefined complex user archetype,” as recited in claim 1. Our findings are supported by the Specification, which describes the following exemplary “predefined complex user archetype”:

Predefined Complex User Archetype Value	Description
MAU	A user who used the online service in the past 28 days.

Spec. ¶ 51.

Further, because the Examiner relies on the combination of Jones and Dupret to teach the disputed claim limitations, Appellant cannot establish nonobviousness by attacking the references individually. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). As discussed above, Jones teaches “the predefined complex user archetype.” The Examiner also finds—and Appellant does not persuasively dispute—Dupret teaches “the each . . . represents a respective pattern of user interaction with the online service over time.” *See* Final Act. 10 (citing Dupret ¶¶ 26–27).

In the method of FIG. 2, a next step, step **126**, is *determining user-interaction patterns relating to the search engine using the at least one smaller chain*. Similar to the steps above, the step may be performed by the processing device **108** in response to the executable instructions **112**. *As described in further detail below, the determination of user interaction patterns is performed by computational analysis of the smaller chains and the information stored therein. Through the analysis and subsequent determination for user interaction patterns, search engine technology can be vastly improved through the utilization of the feedback relating to these search sessions that fall within the long tail of search session groups and under previous analytical systems, would be ignored as deemed too granular to provide any beneficial feedback.*

Query chains are sequences of queries related to a single query intent or information need (for example, finding

information about camping sites in Paris), and are different from more high level goals (like planning holidays in Paris). *The technique starts by grouping simple user actions (inspecting a new search result list, clicking on a link, etc.) which are equal string queries issued by a single user within a determined time span. For each user, the technique then groups these so-called atomic sessions into query chains using two thresholds, a time threshold and a query similarity threshold.).*

Dupret ¶¶ 26–27 (emphases added). Because Appellant does not persuasively dispute the Examiner’s rationale for the proposed combination, Appellant has not shown the Examiner erred in determining Jones and Dupret collectively teach “wherein . . . the each predefined complex user archetype represents a respective pattern of user interaction with the online service over time,” as recited in claim 1.

II

Appellant argues:

Fontoura describes a technique for efficiently evaluating a collection of attribute-value pairs against a complex Boolean expression. For example, an online advertising campaign may target online user visits represented as attribute-value sets by matching the sets to a Boolean expression associated with the campaign. (*Fontoura* at ¶ [0033].) However, *Fontoura* does not appear to contemplate a Boolean expression for matching against the claimed set of “user upsell attributes” for a user where each such attribute corresponds to a respective “predefined complex user archetype” that the user is or is not and has a “Boolean value that indicates whether the user is or is not the respective predefined complex user archetype.”

In other words, to the extent *Fontoura*’s technique could be used to efficiently evaluate the claimed Boolean expression against

the claimed set of user up sell attributes for a user, *Fontoura* still does not teach the claimed set of user upsell attributes for a user.

Appeal Br. 22; *see also* Reply Br. 11.

Appellant’s arguments are not directed to the Examiner’s specific findings. The Examiner relies on Jones—not Fontura—for teaching “a set of a plurality of user upsell attributes for the user.” *See* Final Act. 8 (citing Jones ¶ 40). Further, as discussed above, Jones explicitly teaches “the predefined complex user archetype.” Therefore, Fontoura does not need to separately teach those limitations.

In addition, the Examiner cites Fontoura’s paragraphs 4 and 27 for teaching the disputed limitations. *See* Final Act. 10; Ans. 10. Appellant does not critique the cited paragraphs, and does not show why the Examiner’s findings based on such paragraphs are incorrect. *See In re Baxter Travenol Labs.*, 952 F.2d 388, 391 (Fed. Cir. 1991) (“It is not the function of this court [or this Board] to examine the claims in greater detail than argued by an appellant, looking for [patentable] distinctions over the prior art.”).

III

Appellant argues:

One skilled in the art would not understand a combination of Jones, Dupret and Fontoura to provide exactly what is claimed including the claimed solution The only way one skilled in the art arrives at that part of the solution is to be informed by the applicant’s own disclosure which, of course, is impermissible hindsight in an obviousness analysis.

Appeal Br. 22–23; *See also* Reply Br. 11–12.

We disagree. As discussed above, Appellant’s arguments about the missing elements from the combination are unpersuasive. As a result, Appellant’s conclusion of “impermissible hindsight” (Appeal Br. 23; Reply Br. 12)—based on the missing elements argument—is also unpersuasive. As to the legal analysis of hindsight, our reviewing courts have not established a bright-line test for hindsight. The U.S. Supreme Court guides that “[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.” *KSR*, 550 U.S. at 421 (citing *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 36 (1966)). “Rigid preventative rules that deny factfinders recourse to common sense, however, are neither necessary under our case law nor consistent with it.” *KSR*, 550 U.S. at 421.

Appellant has not demonstrated the Examiner’s proffered combination of references would have been “uniquely challenging or difficult for one of ordinary skill in the art.” *Leapfrog Enters.*, 485 F.3d at 1162. Further, after reviewing the respective teachings and suggestions of Jones, Dupret and Fontoura, we find the weight of the evidence shows the proffered combination is merely a predictable use of prior art elements according to their established functions, because the combination uses prior art elements of (i) “wherein . . . the each predefined complex user archetype represents a respective pattern of user interaction with the online service over time”; (ii) the . . . having a respective Boolean express”; and (iii) “evaluating the respective Boolean expression of the . . . against one or more Boolean values of . . . for the user to determine whether the . . . associated with . . . is satisfied by the . . .” to improve content delivery to users. Therefore, on this

record, Appellant has not persuaded us the Examiner engaged in impermissible hindsight.

Because Appellant has not persuaded us the Examiner erred, we sustain the Examiner’s rejection of independent claim 1, and independent claims 12, 13, and 24 for similar reasons.

We also sustain the Examiner’s rejection of corresponding dependent claims 2, 4, 6, 7, 10, 11, 14, 16, 18, 19, 22, and 23, as Appellant does not advance separate substantive arguments about those claims. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Dependent Claims 3 and 15

Appellant argues:

Dependent Claim 3 . . . recites . . . “wherein processing, by at least one of the processors, the user events through a data pipeline to produce the plurality of user upsell attributes comprises processing, by at least one of the processors, the user events through a series of a plurality of MapReduce phases.”

. . . .

In contrast, in *Chen*, a MapReduce framework is used to forecast an inventory of online advertising impressions. This use of MapReduce includes collecting samples of “visitor profiles,” that include “visitor attributes,” from “ad logs” and matching collected samples to a targeting profile. (*Chen* at ¶ [0030].) A targeting profile inventory of available advertisement impressions may then be forecast from the samples matched to the targeting profile. (*Id.*) As stated in *Chen*, the ad logs may include “recorded information of advertisement impressions served.” The attributes of the visitor profiles of *Chen* are attributes of advertisement impressions served, not the claimed “user upsell attributes” produced by a MapReduce pipeline

Appeal Br. 24.

First, Appellant’s arguments are unpersuasive because they are not directed to the Examiner’s specific findings. The Examiner finds—and Appellant does not dispute—“Jones, in view of Dupret and Fontoura, discloses wherein processing, by at least one of the processors, the set of user events through a data pipeline to produce the plurality of user upsell attributes (Paragraph [0040]).” Final Act. 17. Therefore, the combination of Jones, Dupret, and Fontoura teaches the claimed “user upsell attributes.”

The Examiner further finds—and Appellant does not dispute—Chen teaches “through a series of a plurality of MapReduce phases.” *See* Final Act. 17–18. Because Appellant does not dispute the Examiner’s rationale for the proposed combination, Appellant has not shown the Examiner erred in determining Jones, Dupret, Fontoura, and Chen collectively teach “wherein processing, by at least one of the processors, the set of user events through a data pipeline to produce the plurality of user upsell attributes comprises processing, by at least one of the processors, the set of user events through a series of a plurality of MapReduce phases,” as required by claim 3. *See* Final Act. 17.

Second, in response to Appellant’s arguments (Appeal Br. 24), the Examiner further explains:

The MapReduce system of Chen processes marketing attributes to target users. Generally, MapReduce is a technique for processing big data sets. There is no indication from Chen that upsell attributes would be processed differently than other marketing attributes.

Ans. 11.

Appellant fails to persuasively respond to such explanation and, therefore, fails to show Examiner error. *See Baxter Travenol Labs.*, 952 F.2d at 391 (Fed. Cir. 1991).

Because Appellant has not persuaded us the Examiner erred, and for similar reasons discussed above, we sustain the Examiner’s rejection of dependent claim 3, and dependent claim 15 for similar reasons.

CONCLUSION

We affirm the Examiner’s decision rejecting claims 1–4, 6, 7, 10–16, 18, 19, and 22–24 under 35 U.S.C. § 101.

We affirm the Examiner’s decision rejecting claims 1–4, 6, 7, 10–16, 18, 19, and 22–24 under 35 U.S.C. § 103.

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–4, 6–7, 10–16, 18–19, 22–24	101	Eligibility	1–4, 6–7, 10–16, 18–19, 22–24	
1, 2, 4, 6, 7, 11–14, 16, 18, 19, 23, 24	103	Jones, Dupret, Fontoura	1, 2, 4, 6, 7, 11–14, 16, 18, 19, 23, 24	
3, 15	103	Jones, Dupret, Fontoura, Chen	3, 15	
10, 22	103	Jones, Dupret, Fontoura, Wright	10, 22	
Overall Outcome			1–4, 6–7, 10–16, 18–19, 22–24	

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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). *See* 37 C.F.R. § 41.50(f).

AFFIRMED