

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

X CORP.

Petitioner,

v.

STERLING COMPUTERS CORPORATION

Patent Owner.

Case IPR2025-00299

U.S. Patent No. 7,716,217

PATENT OWNER'S RESPONSE

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EXHIBIT LIST

Patent Owner's Exhibit No.	Exhibit Description
2001	Declaration of Latifur Khan (March 12, 2025)
2002	Curriculum vitae of Latifur Khan
2003	Declaration of Justin Marston (March 12, 2025)
2004	"BlueSpace Mail Search" Document, Sept. 2, 2004
2005	"The Development of the Mathematical Algorithms," May 12, 2005
2006	"BlueSpace Mail Relevance," June 7, 2005
2007	"BlueSpace Mail Relevance," Aug. 16, 2005
2008	"BlueSpace Mail Relevance," Aug. 17, 2005
2009	"Importance," Sept. 18, 2005
2010	"BlueSpace Mail Relevance," Oct. 6, 2005
2011	"BlueSpace Mail Relevance," Oct. 7, 2005
2012	"BlueSpace Mail Relevance," Oct. 7, 2005
2013	"There are many cognate relevance values that must be calculated," Nov. 9, 2004
2014	Claim Chart for BlueSpace Mail Documents
2015	Supplemental Declaration of Justin Marston (July 8, 2025)
2016	<i>listing of NATURE article:</i> Marston, Justin, "Chaos in the Classroom," Jan. 25, 1996, NATURE, <i>available at</i> https://www.nature.com/articles/379306b0

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2017	<i>excerpt from:</i> 32nd European Union Contest for Young Scientists (2020-2021) (“Winners 1989-2019”)
2018	LinkedIn profile: Justin Marston
2019	Metadata extracted from native of EX2004
2020	Metadata extracted from native of EX2005
2021	Metadata extracted from native of EX2006
2022	Metadata extracted from native of EX2007
2023	Metadata extracted from native of EX2008
2024	Metadata extracted from native of EX2009
2025	Metadata extracted from native of EX2010
2026	Metadata extracted from native of EX2011
2027	Metadata extracted from native of EX2012
2028	Metadata extracted from native of EX2013
2029	Declaration of Latifur Khan (September 10, 2025)
2030	Declaration of Justin Marston (September 9, 2025)
2031	Declaration of Paul Marston (September 9, 2025)
2032	“BlueSpace Mail Relevance,” September 21, 2005
2033	“BlueSpace Mail Relevance,” October 2, 2005
2034	“BlueSpace Mail Relevance,” November 8, 2005
2035	“BlueSpace Mail Relevance,” November 12, 2005
2036	“BlueSpace Mail Relevance,” November 13, 2005

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2038	"Relevance typology 2.bmp," November 13, 2005
2039	"Relevance process flow 2.bmp," November 13, 2005
2040	<i>intentionally omitted (duplicate)</i>
2041	Log of BlueSpace documents showing BlueSpace work from June 28, 2005, until January 13, 2006
2042	Log of J. Marston privileged communications with BlueSpace counsel regarding BlueSpace work from June 28, 2005, until January 13, 2006
2043	Version of EX2010/EX1044 showing tracked changes and comments by Justin Marston
2044	Version of EX2010/EX1044 showing tracked changes and comments by Paul Marston
2045	Version of EX2010/EX1044 showing tracked changes and comments by Jon Fernyhough
2046	Redacted (for privilege) correspondence from J. Marston to B. Hoffman, January 12, 2006
2047	"Transmail Relevance Formulae," September 9, 2004
2048	"Notes on Search Document," September 13, 2004
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2072	"BlueSpaceMailRelevanceJM06,11,05.doc," November 10, 2005
2073	"BlueSpace Mail Relevance," August 21, 2005
2074	"BlueSpace Mail Relevance," November 12, 2005
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2076	Paul Marston employment history (1968-2024) (from teachers' pensions employment history)
2077	Article: "Farewell after almost 50 years: Paul Marston, Senior Lecturer in Mathematics."
2078	Letter appointing P. Marston as lecturer at Nazarene Theological College, July 25, 2005
2079	"Twitter's Recommendation Algorithm," X Blog, March 31, 2023
2080	"Twitter Revenue and Usage Statistics (2025)," Business of Apps, Sept. 2, 2025
2081	"Twitter Is Changing Your Timeline: What You Need to Know," ABC News, Feb. 10, 2016
2082	"News Feeds, Old Content: A Brief History of Algorithmically Curated Feeds on Facebook and Twitter," Medium, April 29, 2019

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2084	Complaint, <i>Sterling v. X Corp.</i> , Case No. 1:24-cv-00552 (W.D. Texas)
2085	Complaint, <i>Sterling v. Meta</i> , Case No. 1:24-cv-00551 (W.D. Texas)

I. INTRODUCTION

Sterling Computers Corporation (“Patent Owner”) submits this Response to the Petition of X Corp. (“Petitioner”) seeking *inter partes* review (“IPR”) of U.S. Patent No. 7,716,217 (“the ‘217 Patent”). As set forth herein, Petitioner has failed to meet its burden to establish that any of the challenged claims are unpatentable.

Every claim of the ‘217 Patent requires “*identify[ing] at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”¹ **EX1001**, at Claims. There are several important aspects of this claim limitation. **First**, it requires an association between two different users: (1) the first user (the user that has received the piece of content that needs to be scored) and (2) “*one other of the plurality of users*” (hereinafter “the second user”). **Second**, the claim limitation requires that the two users must be associated with each other in **two ways**: the second user must be “**cognate** to the [first] user,” and both users must have received the same piece of electronic content. In other words, “*identify[ing]*” another “*recipient*” is not enough, and “*identify[ing]*” another “*user*” that is “*cognate to the [first] user*” is not enough: the “*identifying*” step requires a second “*user*” that is **both**. **Finally**, the claim limitation requires an active step: “*identify[ing]*.” The ‘217 Patent teaches **why it is desirable** to “*identify*” a second user that shares these associations with the first user, and the ‘217 Patent teaches **the**

¹ Italics denote claim language.

mechanism required for the system to “*identify*” the second user and **the mathematical formulas** used to come up with a relevance score using the identified second user.

None of the prior art references that Petitioner relies upon teaches this “*identify ...*” limitation. With respect to the Kircher-Krug combination, neither reference teaches or suggests “*identify[ing] at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*” Acknowledging that Kircher does not teach or suggest this limitation, Petitioner relies upon Krug to supply this limitation. Krug, however, is an invention that relates to searching for content on the Internet. Krug is focused on retrieving more relevant results for a user conducting search queries on the Internet. Krug does not teach or suggest “*identify[ing]*” a second user that **both** received the same “*piece of electronic content*” as the first user and “*is cognate to the [first] user.*” Moreover, Krug does not teach or suggest the active step of “*identify[ing]*,” including that Krug does not teach the desirability of ““*identify[ing]*” a second user and that Krug does not teach any math to “*identify*” a second user with both of these features.

In the institution decision, the Board found that Krug teaches “*identify[ing]*” a second user that is “*a recipient*” because “Petitioner proposes combining Krug’s technique of grouping ‘all users who access a specific object’ with Kircher’s email system.” Decision at 24 (citing Pet. 66 & Ex. 1008 ¶¶27, 31). And, the Board found

that Krug teaches “*identify[ing]*” a second user “*that is cognate to the [first] user*” because assignment to Krug’s “user groups” and “group profiles” can be “based on the grouping of other users[’] similar past user actions and assessments.” Decision, at 25.

There are at least three problems with this analysis. **First**, the analysis fails to point to any disclosure in Krug that “*identiffies]*” a second user that is **both** “*a recipient of the piece of electronic content*” **and also** “*cognate to the user.*” Petitioner cites to Krug’s “user group” of all users that accessed an object for the “*recipient*” limitation (*id.* at 24-25), and Petitioner cites to Krug’s “user group” of users with “similar past user actions and assessments” for the “*cognate to the user*” limitation (*id.* at 25-26), but Petitioner never cites to any disclosure in Krug that “*identiffies]*” a “*user*” within **both** of those groups, let alone a “*user*” in both of those groups that (1) received the same piece of electronic content **as the first user** and (2) is “*cognate to the [first] user.*” **Second**, the analysis fails to point to any disclosure in Krug that discloses associating the second user with the first user. The ‘217 Patent claims require that the second user being “*identiffied]*” must be “*cognate to the [first] user.*” And, the ‘217 Patent claims require that the second user being “*identiffied]*” must be “*a recipient of the piece of electronic content*” – “*the piece*” referring to the same piece of content that the first user received (discussed earlier in the claim). But Krug contains no teaching or suggestion to make both of these

associations between a second user and the first user doing the searching (i.e., the user for which relevancy is being determined). **Finally**, Petitioner fails to cite to anything in Krug that discloses actively “identiflying” a second user with the required characteristics. The ‘217 Patent teaches why this step of “*identify[ing]*” a second user is desirable, and the ‘217 Patent discloses the math required to make that happen. In contrast, Krug does not teach or suggest “*identify[ing]*” a second user that is both “*a recipient*” and is “*cognate to the [first] user*” and, therefore, Krug also does not discuss the desirability of doing so or the math required to do so.

In sum, Krug never teaches or suggests that the system must “*identify*” another “*user*” that is **both** “*a recipient of the piece of electronic content*” **and also** “*is cognate to the [first] user.*” Therefore, Petitioner’s Kircher-Krug combination does not render obvious any claim.

A separate reason the Kircher-Krug combination does not render obvious any claim is because Petitioner’s proposed addition of “plugging” Krug into Kircher would render Kircher inoperable. Petitioner proposes dropping Krug into Kircher as a “plug-in.” However, Krug teaches only that its invention could be a “plug-in” for “a commercially available **Internet browser.**” Kircher is not an Internet browser; Kircher is an electronic mail system. Krug does not teach or suggest that its invention can be a “plug-in” for systems **other than** Internet browsers. Moreover, there is good reason why Krug **cannot** simply be a “plug-in” into an electronic mail system: as a

skilled artisan would recognize, the invention in Krug relies upon Internet search engine results to determine relevancy, but electronic mail systems, of course, do not use (and cannot use) Internet search engine results to determine relevancy. Petitioner and its expert do not acknowledge this problem – i.e., that Krug's math relies upon Internet search engine results that cannot be plugged into Kircher's electronic mail system – and, as a result, they do not explain how a skilled artisan would overcome this problem. In sum, Petitioner's proposed combination would render the system inoperable. This is another reason why Petitioner's Kircher-Krug combination does not render obvious any claim.

Turning to the Dumais reference, Dumais also does not render obvious the “*identify...*” limitation. For both this limitation, Petitioner relies upon Dumais' “collaborative filtering to group users based on similar ‘usage of items.’” Decision, at 34-36. Similar to the problem with Krug, however, in Dumais, nothing in Dumais “*identif[ies]*” whether other user(s) received the same e-mail that the user doing the searching received and, certainly, nothing in Dumais “*identif[ies]*” another user of the system that **both** received the same piece of electronic content as the person doing the searching **and also** “*is cognate to the user.*”

Even if Dumais did disclose the “*identify...*” limitation (which it does not), Dumais still would not render obvious any claim because Dumais is not prior art to the '217 Patent. As set forth in the declarations of inventors Justin and Paul Marston,

and the corroborating documents, the inventors had conceived of the inventions in the '217 Patent by at least as early as June 7, 2005, which is earlier than the priority date of Dumais. In its Institution Decision, the Board preliminarily agreed that Patent Owner had corroborated the inventor's testimony with documents demonstrating conception. Decision, at 30-33; *see also* **EX2004** & **EX2006**. The Board found, however, that there were "questions regarding gaps in Patent Owner's diligence" and that "additional relevant evidence" should be introduced to show diligence. Along with the previously submitted evidence (**EX2003** through **EX2014**), the (1) supplemental declaration of Justin Marston (**EX2030**), (2) declaration of Paul Marston (**EX2031**), and (3) additional documentation relating to diligence (**EX2032** through **EX2078**) corroborate the inventors' testimony regarding diligence and show reasonable diligence. Therefore, Patent Owner has established both that the inventors conceived of their invention prior to the priority date of Dumais and also have shown that they were reasonably diligent in reducing the invention to practice. Therefore, Dumais is not prior art to the '217 Patent and does not render obvious any claim of the '217 Patent.

II. BACKGROUND

A. The '217 Patent

The '217 Patent involves systems and methods relating to person-to-person communications. **EX1001**; *see also* **EX2029**, ¶¶ 55-75 (describing inventions in

'217 Patent). Every claim requires electronic communications, including “a sender,” a “sent” “piece of electronic content,” and “a recipient.” **EX1001**, Claims 1, 6, 7. “Electronic content” is defined broadly to include all electronic content that is sent from a sender to a recipient. **EX1001**, 3:43-51; **EX1003**, at 58.

The '217 Patent is designed to assist users to efficiently manage their electronic content. For example, the '217 Patent addresses the large volume of email that people may receive. **EX1001**, 1:27-34. In order to find the important emails prior to the invention of the '217 Patent, users were forced to mine through email using “unintelligent mechanisms (e.g., keyword, sender, recipient, and/or date range searches).” *Id.* 1:40-44.

To address this problem, the '217 Patent determines a “*relevance score*” for each “*piece of electronic content that is sent from a sender to a user.*” *Id.*, Claims 1, 6, 7. The invention determines relevance and importance values by monitoring users' actions (*id.*, 6:1-3) – i.e., “the ways users interact with the electronic mail system, e.g. reading mails, replying to mails, changing settings.”² *Id.* 8:32-35.

The system tracks and uses the first user's actions to determine a relevance score. *Id.* 11:10-23. The system also monitors and uses the actions of **other users**; every claim requires “*track[ing] actions by a plurality of users ...*” *Id.*, Claims.

² The '217 Patent provides a long, non-exclusive list of relevant “user actions.” See **EX1001**, at 11:10-23.

The focus of the '217 Patent is on how different users interact with the same piece of sent content. *Id.* 36:28-29; *id.*, 36:59-62 (“[I]t may be particularly useful to a given user to know what, for example, cognate users, have done with the electronic mail object soon after it arrives.”). In order to do so, every claim of the '217 Patent requires “*identify[ing]*” at least one other “*recipient*” of the same piece of electronic content and “*identify[ing]*” that the user is “*cognate to the [first] user.*” *Id.* 33:58-62 & Claims; *see also id.* 42:62-63 (a cognate group consists of “users most similar to a given user/recipient”).

The “*first measure of relevance*” is “*based at least in part on one or more actions of the user on the piece of electronic content.*” **EX1001**, Claims 1, 6, 7.

The “*second measure of relevance*” is “*based at least in part on one or more measures derived from the group consisting of*: [i] “*a local importance describing an importance of the sender to the user,*” [ii] “*a global importance describing an importance of the sender within an organization with which the plurality of users are associated,*” [iii] “*a content relevance determined responsive to content of the piece of electronic content,*” and [iv] “*one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a*

*recipient of the piece of electronic content and that is cognate to the user.”*³

EX1001, Claims 1, 6, 7.

B. The “*identify ...*” Limitation in the ‘217 Patent.

A requirement of every claim of the ‘217 Patent is the requirement to “*identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*” **EX1001**, at Claims.

In the ‘217 Patent, “*identify[ing]*” a second “*user*” that is both “*cognate*” and a “*recipient*” is one of the steps required for assessing “*determining a relevance score of a piece of electronic content.*” **EX1001**, at Claims. The ‘217 Patent discusses why it imposes this “*identify ...*” requirement in every claim. **EX2029**, ¶¶ 76-87.

The ‘217 Patent also explains that there are numerous reasons to “*identify*” another “*recipient*” of “*the piece of electronic content.*” First, the actions of other “*recipients*” can help determine “the relevance of content in a given user’s folders.” **EX1001**, 12:27-30. For example, if most users interact with the object (e.g., read it or forward it), it is more likely to be relevant to other recipients, but if most users delete the object, it is less likely that the object is relevant to other recipients. *Id.* 12:35-44; **EX2029**, ¶79. Second, when determining “the relevance value seen by the

³ The ‘217 Patent makes clear that users can provide active feedback to “improve [the] accuracy of the relevance analysis engine.” **EX1001**, at 7:64-67.

recipient,” the system considers “the actions of all the other recipients.” **EX1001**, 36:33-41; **EX2029**, ¶83. **Third**, the ‘217 Patent teaches that “[a]s to communal filtering, this mechanism may use the behavior of other recipients of a given piece of content to determine the content’s relevance to the user in question—communal relevance.” **EX1001**, 43:61-64 (emphasis added); **EX2029**, ¶86.

The ‘217 Patent also explains that there are numerous reasons to “*identify*” another “*user*” that is “*cognate to the [first] user*.” **First**, the ‘217 Patent explains why identifying “*cognate*” users is important:

In regard to recognizing “cognate” entities are referred to above, an electronic mail system in accordance with one or more embodiments may identify a “cognate group” for a user, based on historical actions. More particularly, for each user, over time, **the system may identify a cognate group of the n other users regarded as most similar.** Such a group may be defined by similar past user actions and assessments, and/or a direct input by a user. ...Accordingly, it may be assumed in certain instances that **the actions of this particular group on an electronic mail object will give more indication of its relevance to the user than would a global reaction to the electronic mail.**

Id. 14:59-15:11 (emphasis added); **EX2029**, ¶80. **Second**, the ‘217 Patent explains that its “relevance analysis engine” uses information about the users in the “*cognate*” group to calculate values, including cognate relevance value, cognate importance value, and local relevance, each of which is calculated based upon users in the cognate group for that recipient and/or cognate relevance scores. **EX1001**, 25:37-

26:52 (emphasis added); EX2029, ¶81. **Third**, the '217 Patent teaches that whether the “*cognate*” group finds a sender to be important is taken into consideration when determining “importance.” EX1001, 29:59-30:15; EX2029, ¶82. **Fourth**, when determining “the relevance value seen by the recipient,” the system considers “the actions ... of the group cognate to r.” EX1001, 36:33-41; EX2029, ¶83. **Fifth**, the '217 Patent teaches that “actions of those in [a user's] cognate group” is one of the factors used to calculate each user's local importance values. EX1001, 44:64-43:3; EX2029, ¶84. **Sixth**, the '217 Patent teaches that “a cognate relevance value is now input into the final figure for local relevance,” which “**is based on the actions of those in the group cognate** to the recipient on the particular electronic mail object.” EX1001, 43:4-7 EX2029, ¶85.

For all of these reasons, the specification explains that the purpose of “*identifying*” a second user that is both “*a recipient of the piece of electronic content*” and also “*is cognate to the user*” is for the purpose of tracking that second user's actions to assist in determining a relevancy score for a piece of electronic content.

C. '217 Patent Math.

The '217 Patent discloses complex math / algorithms used to make the relevancy determinations disclosed in the claims. EX2029, ¶¶88-96.

The patent defines a layered framework for computing importance and relevance of electronic mail. *Id.*, ¶90. User behavior drives two individual scores:

Individual Relevance Components (IRC), reflecting how a user interacts with a content, and Individual Importance Components (IIC), reflecting how important an entity is to that user, based on the actions of that user. *Id.*, ¶90 (citing **EX1001**, 20:50-54). The global Importance averages IICs across the system, and Global Relevance averages IRCs weighed by global importance. *Id.*, ¶90 (citing **EX1001**, 25:58-64).

To capture personalization, each user has a Cognate Group of similar users, leading to Cognate Relevance and Cognate Importance based on group averages. *Id.*, ¶91. The system identifies these cognate groups for each of the users individually based on the past actions of the user in question. *Id.*, ¶91 (citing **EX1001**, 25:65-26:10). This group contains *n* other users who are considered most similar based on their past action or historical data. *Id.*, ¶91).

These values feed into Local Importance, the user-specific importance of a sender, combining IIC, cognate, and global importance. *Id.*, ¶92 (citing **EX1001**, 26:24-30 & 29:64-30:15).

In order to compute the Individual Importance Component (IIC) for a sender, the system evaluates significant local user actions on past emails, applying a time-based weighting so that recent actions count more. *Id.*, ¶93 (citing **EX1001**, 31:30-35, 31:40-45 & 31:60); *see also id.*, ¶93 (discussing calculation of the IIC (*eq. 4*) (citing **EX1001**, 32:30-35)).

Using this value the system can begin computing global importance value (*eq. 5*). *Id.*, ¶94 (citing **EX1001**, 32:60-65). An additional element of the calculation is related to the receipt of mail objects from a more important sender, which increases the importance of the recipient. *Id.*, ¶94. This can also be used to identify shared importance based on who are the other recipient of the same mail object. *Id.*, ¶94 (discussing equations and citing **EX1001**, 33:11-18 & 33:40-50).

Additionally, using the individual IIC for each of the cognate groups, the cognate importance for a particular sender can be calculated. *Id.*, ¶95 (discussing equation and citing **EX1001**, 34:5-10). Thus, the Local Importance of a sender to a given recipient is computed as a function of three factors (**EX1001**, 34:18-24): (1) *the Individual Importance Component (IIC)*, reflecting the recipient's own actions toward that sender, (2) *the Cognate Importance (I^c)*, derived from the IICs of users in the recipient's cognate group, and (3) *the Global Importance (I)*, based on the organization-wide values determined in the latest system review. *Id.*, ¶95. **The local importance here depends on the cognate importance or other similar users, as well as the global importance in the system.** *Id.*, ¶95. This is different from frameworks which do not consider the effect of the group on a particular user. *Id.*, ¶95 (discussing equations and citing **EX1001**, 34:25).

Finally, the system also explains that global importance changes slowly, reflecting long-term organizational perception of an entity, with adjustments

typically made through periodic reviews or queued updates, while new entities may change more quickly. *Id.*, ¶96. Cognate importance evolves faster than global values, as it reflects averages across a user's cognate group, and local importance is the most responsive, adjusting at run-time to user actions but stabilizing once sufficient history exists. *Id.*, ¶96 (citing **EX1001**, 36:12-67). For relevance, global values also update moderately, more rapidly for newer content, whereas cognate relevance is recalculated more frequently and serves as the most immediate guide for prioritization. *Id.*, ¶96. Local relevance combines personal, cognate, and global signals, updating dynamically with user actions and through periodic refreshes. *Id.*, ¶96. Together, this hierarchy ensures that recent interactions and new content are reflected quickly, while established patterns change more gradually. *Id.*, ¶96.

D. Petitioner's Grounds

Petitioner challenges Claims 1-22 of the '217 Patent (the "Challenged Claims") pursuant to five grounds, including (1) Dumais, (2) Dumais in view of AAPA; (3) Dumais in view of Marston; (4) Kircher and Krug; and (5) Kircher and Krug with Marston. The statutory ground for each of the five challenges is obviousness under Section 103.

III. PERSON OF ORDINARY SKILL

The Board adopted Petitioner's description of a person having ordinary skill in the art: a POSITA "would have had a bachelor's degree in electrical or computer

engineering, or a related field, and two to three years of experience with web or email-based content management systems; a higher level of education or skill can make up for less experience, and vice versa.” Although Patent Owner’s expert had proposed a different definition (EX2001, ¶14), the Board’s definition does not affect their analysis (EX2029, ¶19), and Patent Owner and its expert adopt the Board’s definition for purposes of this Response.

IV. CLAIM CONSTRUCTION

A. Legal Standard

In this proceeding, the claim terms must be construed according to the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–15 (Fed. Cir. 2005).

B. The “computer program module” terms are not subject to Section 112(6).

The parties dispute whether the recitation in claims 1 and 6 of four “computer program modules comprising” (1) “*a monitoring module*,” (2) “*a first relevance measurement module*,” (3) “*a second relevance measurement module*,” and (4) “*a relevance analysis module*” (collectively, “module limitations”) should be treated as means-plus-function limitations. For the purposes of institution, the Board preliminarily agreed with Patent Owner that these limitations do not invoke § 112 ¶6. Decision, at 10. That preliminary determination is correct.

The “*module*” limitations are entitled to the presumption that they do not invoke § 112 ¶6. *See* Decision, at 10. In order to overcome that presumption, Petitioner must show by a preponderance of the evidence that a person of skill in the art would ***not*** have understood the “computer program modules”—including the recited modules at issue here – to connote structure in light of the claim as whole. *Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1365 (Fed. Cir. 2022) (internal citation omitted). Petitioner has not met that burden, because the recited modules at issue here clearly and expressly recite structure in light of the claim as whole. **EX2029**, ¶¶26-49.

The claims recite a computer program stored on a computer readable storage medium: “*a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules ...*” **EX1001**, Claim 1. Limitations such as these recite structure. *See Zeroclick, LLC v. Apple, Inc.*, 891 F.3d 1003, 1008 (Fed. Cir. 2018); *Dyfan*, 28 F.4th at 1367-68. Moreover, the ‘217 Patent states that “*computer program*” refers to software instructions. **EX1001**, Claims 1 & 6; **EX2029**, ¶29. The specification makes clear that when “*modules*”⁴ are contained on a “*computer-readable storage medium*” as

⁴ The ‘217 Patent defines the term “*module*” as “any program, circuitry, logic, and/or functionality implemented in either software and/or hardware.” **EX1001**, 6:36-38. “[C]omputer program modules” explicitly indicates that the recited “*modules*” are “programs,” and the fact that they are described as being stored on “*a computer-readable storage medium*” means that the recited modules are software instructions. The specification confirms that the recited “*modules*” are software instructions that “may run on any type of computer system” **EX1001**, 6:65-7:2.

claimed, “the functionality [of the modules] ... may be carried out in response to one or more processors executing software instructions stored on the computer-readable medium.” **EX1001**, 7:2-12. *See also e.g.*, **EX1003**, at 83; **EX1001**, 6:37-39. Thus, the written description describes the recited modules in the *very language* that was held dispositive in *Dyfan*—“software instructions”—confirming that the modules constitute structure. *Dyfan*, 28 F.4th at 1367-68; *see also* **EX2029**, ¶¶27-28; **EX2003**, ¶¶15-16.

For each “*module*,” the claims go on to explain what the structure is for each “*module*” and what each “*module*” does, confirming that these are software instructions that constitute structure. **EX1001**, at Claims 1 & 6; **EX2029**, ¶¶29-47.

The ‘217 Patent’s specification also explains what the structure is for each “*module*” and what each “*module*” does. **EX1001**, 6:39-42 (“*monitoring module*”); *id.* 6:4-11 (“*first relevance measurement module*”); *id.* 25:45-49 (same); *id.* 25:55-26:52 (same); *id.* 6:45-48 (same); *id.* 26:24-30 (“*second relevance measurement module*” and local importance); *id.* 25:55-59 (“*second relevance measurement module*” and global importance); *id.* 41:17-25 (“*second relevance measurement module*” and content relevance); *id.* 25:65-26:10 & 26:11-17 (“*second relevance measurement module*” and actions by cognate recipients); *id.* 25:37-26:52 (“*relevance analysis module*”); *id.* 26:53-61 & Figure 21 (same).

Petitioner's cases are distinguishable. In *Williamson v. Citrix Online LLC*, 792 F.3d 1339, 1344 (Fed. Cir. 2015), unlike the present case, nothing in the claim language “impart[ed] structure” to the distributed learning control module. *Id.* at 1351. Similarly, in *Grecia v. Samsung Electronics America, Inc.*, 780 Fed. App's 912, 915 (Fed. Cir. 2019), the term at issue was “customization module,” with no indication in the intrinsic evidence as to what it was or how it was tied to any structure; the limitation was “purely functional and fails to describe any structure.” In *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008), and *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1313-15 (Fed. Cir. 2011), unlike the present case, the limitations were written in means-plus-function form, so Section 112(6) applied.

For all these reasons, the Board's preliminary finding that the terms should be given their plain and ordinary meaning – and not treated as means-plus-function limitation under Section 112(6) – was correct.

C. Construction of “cognate to the user”

In the institution decision, the Board found that Patent Owner was seeking to impose two requirements on the claim term “cognate.” Decision at 15-16. Patent Owner's proposed constructions, however, did not impose either requirement.

First, the Board understood that Patent Owner required that the “cognate” limitation “requires that the other users' past user actions and assessments must be

tracked for the *same* electronic content the user received.” Decision at 15 (citing Prelim. Sur-Reply 7; Prelim. Resp. 34). That is not, however, a requirement that Patent Owner imposed for the “*cognate*” limitation. Instead, the requirement that the second user receive “the *same* electronic content” as the first user relates to the “*recipient*” limitation (not the “*cognate*” limitation). The point that Patent Owner made was simpler: the “*identify...*” step encompasses **both** the “*cognate*” limitation **and** the “*recipient*” limitation.

Second, the Board understood that Patent Owner required that the “*cognate to the user*” limitation “requires that ... the past users’ actions must be used to determine a relevance score for that same electronic content.” Decision at 15 (citing Prelim. Sur-Reply 7; Prelim. Resp. 34). That is not, however, a requirement that Patent Owner imposed for the “*cognate*” limitation. The point that Patent Owner was making with respect to “*tracking*” limitation is that **one** of the reasons the system “*identif[ies]*” a second user that is “*cognate to the [first] user*” is so the system can proceed to track that second user’s actions on the piece of electronic content. The specification explains this at length. *See supra* at 9-11 (citing **EX2029**, ¶¶76-87 & **EX1001**). Although this step of tracking the actions of the second, cognate user is optional in the claims (i.e., part of a Markush group), the ‘217 Patent explains **why** the system imposes requirement of “*identify[ing]*” this second user. *Supra* at 9-11 (citing **EX2029**, ¶¶76-87).

In its Preliminary Response, Patent Owner's position was that the "*cognate to the user*" limitation need not be construed. *See* Prelim. Resp. at 12-21. Based upon the institution decision, however, Patent Owner understands Petitioner's proposed construction and the Board's interpretation of it, and it is apparent that the parties may dispute the construction of the "*cognate to the user*" limitation. Therefore, the "*cognate to the user*" limitation does require construction.

For institution purposes, the Board adopted Petitioner's interpretation of "*cognate to the user*" "to 'mean[] identifying at least one user in a group of other users who share similar past user actions and assessments, and/or are defined by direct input by the user.'" Decision, at 15 (citing Pet. 18 & Ex. 1004 ¶169). Patent Owner objects to this proposed construction because it ignores that the claim requires that the second user must "share similar past user actions and assessments" (or the same direct input) **with a particular other user** – i.e., the first user for which relevancy is being determined. In particular, the claim states that the second user must be "*cognate to the [first] user.*" Petitioner's proposed construction ignores this requirement, which is improper. *See, e.g., Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1288 (Fed. Cir. 2017) ("It is highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous." (internal citation omitted)). To give meaning to the words "*to the user*," the limitation should be interpreted to mean that the "*at least one other of the plurality of users*" being

“*identified*” must “share similar past user actions and assessments as the first user, and/or share similar direct input as the first user.”⁵

D. Construction of “a recipient”

Applying *Phillips*, the proper construction of “a recipient” is a specific type of user – i.e., a user that has received a piece of electronic content sent from a sender. **EX2029**, ¶¶133 & 170. Petitioner and its expert construe “a recipient” to be any “user” that “access[ed],” “interact[ed]” with, or “used,” a piece of electronic content. **EX1004**, ¶¶245, 247, 505 (citing **EX1006**, [0022], **EX1008**, [0031]); *see also* Petition, at 33 & 65-66. The claims and specification, however, make clear that – in conformity with plain and ordinary language – “a recipient” is not just a “user” that interacted with, used, or looked at content, but, instead, must be a user that actually received the piece of electronic content sent from a sender. *E.g.*, **EX1001**, Claim 1 (system is for “*determining a relevance score of a piece of electronic content sent from a sender,*” and system “*identif[ies] ... a recipient*” for the purpose of tracking “*actions on the piece of electronic of the at least one other of the plurality of users that is a recipient of the piece of electronic content*” (emphasis added)); *id.* 2:26-28 (“FIG. 4 shows different techniques as to how an electronic mail object may be sent to external recipients” (emphasis added)); *see also* **EX2029**, ¶¶133

⁵ The Petition acknowledges that the claims require the system to “identify a second user that is ‘cognate’ to the first user” (Pet. at 1 (emphasis added)). Therefore, Petitioner may not object to Patent Owner’s construction of “*cognate to the user*.”

(collecting citations from specification confirming that “a recipient” must have received sent content). Petitioner’s attempt to read “*a recipient*” to mean any user that simply “views” or “accesses” any content (e.g., a webpage on the Internet) ignores both the claim language and the specification. **EX2029**, ¶¶133 & 170. Construing “*a recipient*” to require that the user actually received a piece of electronic content sent by a sender conforms with the plain and ordinary definition of “*a recipient*.” *Id.*

For these reasons, “*a recipient*” of a piece of electronic content should be construed to mean a “*user*” that has received electronic content “*sent from a sender*.”

V. THE BOARD SHOULD NOT INSTITUTE ON ANY OF PETITIONER’S GROUNDS 1-5

A. Legal Standards

1. Petitioner’s Burden

“In an inter partes review, the burden of persuasion is on the petitioner to prove ‘unpatentability by a preponderance of the evidence,’ and that burden never shifts to the patentee.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1375 (Fed. Cir. 2016) (citing 35 U.S.C. § 316(e); *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015)).

2. Obviousness

To prevail on its obviousness challenges, Petitioner must prove by a preponderance of the evidence that “the differences between the subject matter

sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 316(e) & 35 U.S.C. § 103.

“[E]ven when all claim limitations are found in prior art references, the factfinder must ... determine ... whether there is a motivation to combine teachings from separate references.” *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 655 F.3d 1364, 1374–75 (Fed. Cir. 2011) (citations omitted). There must be some reason to combine the prior art in the way embodied by the patent; some motivation or incentive is needed. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007). “A reason for combining disparate prior art references is a critical component of an obviousness analysis; ‘this analysis should be made explicit.’” *InTouch Technologies, Inc. v. VGO Communications, Inc.*, 751 F.3d 1327, 1351 (Fed. Cir. 2014) (quoting *KSR*, 550 U.S. at 418). Put another way, “there ... must be evidence that ‘a skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.’” *Ecolchem, Inc. v. S. California Edison Co.*, 227 F.3d 1361, 1375 (Fed. Cir. 2000) (internal citation omitted).

“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

The Federal Circuit has held that, “[i]f references taken in combination would produce a ‘seemingly inoperative device,’” “such references teach away from the combination and thus cannot serve as predicates for a prima facie case of obviousness.” *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354 (Fed. Cir. 2001) (internal citations omitted).

In order to render obvious some claim, the piece being combined must have existed in the prior art to begin with. *E.g.*, MPEP, § 2141 (discussing *KSR* and stating that obviousness involves “a combination of **known** elements” (emphasis added); *accord* MPEP, § 2143 (listing “examples of rationales that may support a conclusion of obviousness,” which require “**known**” methods, elements, or techniques or solutions that are “obvious to try” (emphasis added)).

B. The Board Should Reject Grounds 4 and 5 Because the Combination of Kircher and Krug Does Not Render Obvious Any Claim of the ‘217 Patent.

Every claim of the ‘217 Patent recites “*identify[ing] at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*” **EX1001**, Claims. Neither Kircher nor Krug discloses this

limitation. Although Kircher relates to electronic messages, Kircher does not seek to track the actions of other recipients of the same piece of electronic content and, therefore, does not teach, disclose, or render obvious this limitation. Krug does not remedy this deficiency; Krug also does not “*identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*” In particular, Krug certainly does not “*identify*” a second user that is **both** “*a recipient*” of the same piece of content that the first user received **and also** is “*cognate to the [first] user.*” Therefore, the combination of Kircher and Krug does not render obvious this limitation or any claim. **EX2029**, ¶¶150-228.

1. The Kircher and Krug References

a) Kircher.

Kircher discloses a computer program for managing and prioritizing electronic messages. **EX1007**, [Abstract]; **EX2029**, ¶¶105-108 (describing Kircher). Kircher introduces a method for ranking electronic messages based on what action the recipient took. *E.g., id.* [0053], [0092]. This ranking is determined using fuzzy logic. *E.g., id.* [0015], [0092]. The evaluation of each message with respect to the recipient is determined by (1) sender importance, degree of personalization, and content importance. **EX1007**, [0014], [0016-0018]. Kircher generates a single numerical value representing the overall ranking of the message's importance based on all evaluated factors. **EX1007**, [0015].

In many ways, Kircher is different from the inventions set forth in the '217 Patent. **EX2029**, ¶¶151-155. In determining relevance of a piece of electronic content, Kircher does **not** consider the actions of other users on the same electronic content or identify a second user that both receives the same electronic content and is cognate to the first user that received the electronic content.

b) Krug.

Krug focuses on identifying relevant objects for users on the Internet. **EX1008**, [0002]; **EX2029**, ¶¶109-121 (discussing Krug reference). Relevance is determined by calculating the Euclidean distance between object profiles (a model of the typical user of an object) and user profiles (describing the user's characteristic properties (e.g., gender)). *Id.* [0011], [0016], [0022].

In Krug, a "group profile" is "an average user profile of the group." **EX1008**, [0056]. A group could be "all women," or "auto mechanics." *Id.*, [0031]. A user can be automatically assigned to a group "based on the presence of certain properties of the user" (e.g., if a user's profile indicates the user is a woman). *Id.*, [0031]. Or, a user can assign himself to a group. *Id.*, [0031]. For example, an individual user in Krug can "select[] a group profile" (e.g., for auto mechanics) when running a search query (e.g., related to automobiles). *Id.*, [0031]. By selecting the auto mechanics "group profile" for searching relating to automobiles (instead of the individual's

“user profile”), the search results may include “objects with a more pronounced technical aspect.” *Id.*, [0031].

In many ways, Krug is different from the inventions set forth in the ‘217 Patent. **EX2029**, ¶¶156-159. Krug does not identify a second user that both (1) has received the same electronic content as the first user doing the searching (i.e., the user for which relevancy is being determined); and (2) has a cognate relationship to the first user. This aspect of the claimed invention is not recognized or used as part of the analysis for the relevance determination in Krug.

A critical component of Krug's formula is the calculation of the **initial priority** of objects. E.g., **EX1008**, [0107]; **EX2029**, ¶¶118-121. This priority is determined by **search engine** results, which are external to the system and specific to a given search query, **EX1008**, [0115] (“An initial priority of the object is determined based on the search engine results for the search query.”). The initial priority (GR) is a function of two parameters: the weight assigned to the search engine and the rating of the object as calculated by that engine. *Id.*, [0115]. Each search engine is assigned its own weight — $Sg^{(1)}$, $Sg^{(2)}$, ... $Sg^{(S)}$ — which may be set manually or dynamically. *Id.* [0116].

For each object, a priority rating $Rz(i)$ is generated. **EX1008**, [0119]. Based on this rating, the objects are ordered, and their initial priorities are established.

The initial priority rating of an object is defined as follows: $GR_z^{(i)} = \text{pr}(R_z^{(i)}, Sg^{(i)})$. **EX1008**, [0121].

Here, the function increases with both parameters. **EX1008**, [0121]. If the same object appears in the hit lists of multiple search engines, its initial priority may be determined either by taking the highest priority value from those lists or by averaging all of them. **EX1008**, [0122].

In summary, the calculation of the initial priority — which is then used in calculating the final comparison between an object's profile and a user's profile — relies on external search engines. **EX2029**, ¶¶118-121. The score an object receives in a search engine's hit list, along with the weight assigned to that search engine, directly influence the outcome. *Id.* Thus, a strong initial priority depends both on the object achieving a high rating from the search engine and on the engine itself being assigned a higher weight. *Id.*

2. Petitioner's Combination Requires Borrowing from Krug – and Inserting into Kircher – Numerous Claim Limitations.

Petitioner implicitly admits that Kircher fails to teach or suggest numerous limitations required by the claims of the '217 Patent, including:

- 1) “a monitoring module configured to track actions by a plurality of users.”
- 2) “a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic

content **based at least in part on one or more actions of the user on the piece of electronic content**”;

- 3) “a second relevance measurement module coupled to the monitoring module”;
- 4) “identify[ing] at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user”;
- 5) “determin[ing] a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group consisting of: [a] a local importance ... [or] [b] a global importance ...”;
- 6) “determin[ing] a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group consisting of: [d] one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user”;
- 7) “determin[ing] the relevance score of the piece of electronic content sent from the sender to the user”; or
- 8) “the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.”

EX2029, ¶¶191-198. Kircher also does not disclose the limitations in Claims 3, 8, 9, 14, 19, or 22. *Id.*, ¶¶199-201. For each of these limitations, Petitioner relies entirely upon Krug to fill in those gaps. *Id.*, ¶¶191-201 (citing **EX1004**, ¶¶471-473, 476, 485-487, 493-497, 503-509, 518-519, 529-531, 536-538, 550-553, 559, 562, 565, 576, 589, 592-593, 625, 655, 661).

3. Krug Does Not Teach, Disclose, or Render Obvious the “*identify...*” Limitation.

Every claim of the ‘217 Patent requires “*identify[ing] at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*” **EX1001**, Claims. Petitioner relies exclusively upon Krug to supply this limitation. Petition, at 65-67; **EX1004**, ¶¶500-511. Krug, however, does not teach or suggest this limitation. **EX2029**, ¶¶168-190.

With respect to the “*identify ... a recipient*” limitation, Petitioner and its expert assert that a “user group” in Krug that is made up of “all users who access a specific object” is a group of users “*that [are] recipient[s] of the piece of electronic content.*” **EX1004**, ¶505; *see also* Decision at 24 (citing Pet. 66 & Ex. 1008 ¶¶27, 31)). This analysis fails to establish, however, that Krug renders obvious the “*identify ... a recipient*” limitation.

First, the “evidence” that Petitioner relies upon for this limitation is the testimony of Petitioner’s expert, but his declaration **does not address** the requirement to “*identify...a recipient.*” His analysis does not even acknowledge that

the verb “*identify*” is part of the limitation. See **EX1004**, ¶505 (ignoring the “*identify*” requirement and opining only that “a POSA would understand that in the [Kircher-Krug] combination [Krug’s] ‘user groups’ are a “*plurality of users that is a recipient*” of the piece of electronic content.” (emphasis added)). Petitioner’s expert does not cite to any prior art reference to supply the “*identify* ... *a recipient*” limitation, and there is no reference that does. As set forth above, a fundamental requirement for an obviousness combination is that the solution is “known” in the art to begin with. *Supra* at 24 (citing MPEP §§ 2141 & 2143). Here, it is not. Petitioner’s expert’s failure to even address the requirement to “*identify* ... *a recipient*” shows that the Kircher-Krug combination does not render obvious any claim of the ‘217 Patent.

Second, even if Petitioner’s experts were correct that Krug’s “user groups” can be made up of “*recipients*” of the same content (which – because Krug’s users do not “receive” any “sent” content – he is not (see **EX2029**, ¶170 & *supra* at 21-22)), nothing in Krug teaches or suggests the desirability of “*identifying*” a second user that received the same piece of content as the first user. Instead, in Krug, the purpose of creating “user groups” is to allow a user to search the Internet for content using the “user group” profile instead of the user’s own profile. E.g., **EX1008**, [0123]. Therefore, there is no teaching in Krug that would motivate a PHOSITA to add that feature to Kircher.

Petitioner also relies on Krug to satisfy the requirement to “*identify*” another user “*that is cognate to the [first] user*,” again arguing that Krug’s “user groups” consist of other users “*that [are] cognate to the user*.” E.g., **EX1004**, ¶505 (equating Krug’s “user group” to “a cognate group”); *see also* Decision, at 25 (finding, preliminarily, that Krug teaches “*identify[ing]*” a second user “*that is cognate to the [first] user*” because assignment to Krug’s “user groups” and “group profiles” can be “based on the grouping of other users[’] similar past user actions and assessments”).

There are numerous problems with this analysis. As an initial matter, nothing in Krug teaches or suggests **the desirability** of “*identify[ing] at least one other of the plurality of users ... that is cognate to the user*” – i.e., the desirability of “*identify[ing]*” a second “*user*” that is “*cognate to the user*” that is doing the searching. Therefore, there is no teaching in Krug that would **motivate** a PHOSITA to add that feature to Kircher.

More importantly, Petitioner’s analysis of the “*identify...*” limitation fails to point to any disclosure in Krug that “*identiff[ies]*” a second user that is **both** “*a recipient of the piece of electronic content*” **and also** “*cognate to the user*.” The “*identify*” limitation requires “*identiff[ication]*” of another “*user*” **that is both “a recipient” and also “cognate to the [first] user**.” Petitioner cites to Krug’s “user group” of all users that accessed an object for the “*recipient*” limitation (*id.* at 24-

25), and Petitioner cites to Krug's "user group" of users with "similar past user actions and assessments" for the "*cognate to the user*" limitation (*id.* at 25-26), but Petitioner never cites to any disclosure in Krug that "identifies" a "*user*" within **both** of those groups.

For example, Krug might form a "user group" of "all women" (based upon their direct input in profiles), and Krug might form a "user group" of all users that "accessed" a particular object, but Krug never undertakes to "identify" another "*user*" that **both** "*a recipient of the piece of electronic content*" **and also** is "*cognate to the user*" doing the searching. *E.g.*, **EX1008**, [0049] ("[A] plurality of virtual communities are available, for example, the group of all women **or** the users of a specific document."). For example, assume that, using the invention in Krug, a "user group" of "all women" is formed. Krug never "identifies" another user (or users) in that "user group" of "all women" that is **also** is "*a recipient*" – i.e., that received the same piece of content as the first user doing the searching. Conversely, assume that, using the invention in Krug, a "user group" of people who accessed a specific article on the Internet is created; Krug never attempts to "*identify*" another user (or users) in that "user group" that **also** is "*cognate to the user*" – i.e., that shares any similarity with the primary user doing the searching.

In sum, Krug's "user groups" are not used to "*identify*" users that are **both** are similar to the user doing the searching (i.e., another "*user*" that is "*cognate to the*

user”) **and also** received the same content as the first user doing the searching (i.e., another “*user*” that is “*a recipient*”). Instead, Krug uses “user groups” to allow a user to conduct searches under the “user group” profile instead of under the user’s own profile. Because Krug never teaches or suggests “*identify[ing]*” another “*user*” that is **both** “*a recipient of the piece of electronic content*” **and also** “*is cognate to the [first] user,*” Petitioner’s Kircher-Krug combination does not render obvious the “*identify...*” limitation. Therefore, Krug does not render obvious any claim.

4. Inserting Krug as a “Plug-in” into Kircher, as Petitioner Proposes, Would Render Kircher Inoperable.

A separate reason the Kircher-Krug combination does not render obvious any claim of the ‘217 Patent is because Petitioner’s proposed addition of Krug into Kircher would render Kircher inoperable.

Petitioner and its expert rely upon a combination of Kircher and Krug that involves “includ[ing] the plug-in that embodies the invention of Krug” “into the ‘computer program’” of Kircher. **EX1004**, ¶¶423 & 427 (citing **EX1008**, [0099, 0130]); *see also* **EX1004**, ¶516 (same). For numerous reasons, however, “plugging” Krug into Kircher is not as straightforward as Petitioner suggests and, most importantly, doing so would render Kircher inoperable. **EX2029**, ¶¶212-223.

The statement in Krug that it can be used as a “plug-in” refers to using its invention as “a plug-in 10 **for a commercially available Internet browser** 11.” **EX1008**, [0099] (emphasis added). Krug explains that its plug-in “logs the user’s

access to and interactions with objects 4 on the Internet using the Internet browser." *Id.*, [0099] (emphasis added); *see also* EX1004, ¶424. The system in Kircher (into which Petitioner proposes adding Krug), of course, is not an "Internet browser"; Kircher is an electronic message system. EX1007. Petitioner and its expert provide no analysis of how a skilled artisan would "plug-in" to Kircher's non-Internet-browser environment. Certainly, Krug does not teach or suggest that its invention can be a "plug-in" for systems other than Internet browsers, including that Krug does not teach or suggest that its invention can be a "plug-in" into an electronic mail system like Kircher. EX2029, ¶214.

Moreover, Krug's invention could not be "plugged into" Kircher's non-Internet browser environment, at least not without rendering Kircher inoperable. EX2029, ¶¶215-220. Krug uses the results from search engines to calculate priority ranking. EX2029, ¶¶118-121 & 215-223. Kircher, however, does not. *Id.* ¶215. Instead, Kircher ranks all electronic messages within its system. *Id.* As a result, if Krug's math were put into Kircher "as is," the "plug in" would render Kircher's system inoperable. *Id.* Petitioner and its expert do not explain how a skilled artisan would adjust the formula in Kircher's non-search-engine system. *Id.*

The "search engine" in Krug is fundamental to the equation used in Krug – i.e., Krug's formula for calculating the initial priority of objects. EX2029, ¶¶118-121 & 216-217. In Krug's formula, the initial priority (GR) is a function of two

parameters: the weight assigned to the search engine and the rating of the object as calculated by that engine, with each search engine being assigned its own weight — $Sg^{(1)}, Sg^{(2)}, \dots Sg^{(S)}$. **EX2029**, ¶ 216. For each object, a priority rating $Rz(i)$ is generated. *Id.* Based on this rating, the objects are ordered, and their initial priorities are established. *Id.* The initial priority rating of an object is defined as follows: $GR_z^{(i)} = \text{pr}(R_z^{(i)}, Sg^{(i)})$. *Id.* It is important to note that **GRm(k), the initial priority weight, does not exist in Kircher's method.** *Id.* ¶217. In the Eq 1, the two terms ($GRm(k), OCm(k)$) in Krug's equation are entirely foreign to Kircher's approach. *Id.* Therefore, a POSITA would face significant challenges in attempting to combine the two systems. *Id.* Ignoring or discarding $GRm(k)$ would likely result in unsatisfactory outcomes. *Id.*

If a skilled artisan attempted to add Krug's invention to Kircher, the skilled artisan would need to discard the search engine portion of Krug's formula. *Id.* ¶ 218. This is because search engines do not have access to, nor do they index, private email content. *Id.* Therefore, search engines cannot be used to rank email messages. *Id.* If the search engine function in Krug's invention were discarded (as it would need to be in Kircher's system), Krug's formula for calculating the initial priority of objects would no longer work. *Id.* ¶ 219. Moreover, in Krug, the evaluation of the initial priority is also used in calculating the final comparison between an object's profile

and a user's profile. *Id.* ¶ 220. Therefore, the final comparison also would not work. *Id.*

Petitioner and its expert do not acknowledge this problem – i.e., that Krug's formula relies upon search engines. *Id.* ¶ 221. Instead, Petitioner's expert opines that "it would have been obvious to include the numerical rankings of Krug into the system of Kircher." **EX1004**, ¶432. That is incorrect. Krug's "numerical rankings" are based upon the results of search engines and are, therefore, incompatible with Kircher's system. **EX2029**, ¶221. Because Petitioner and its expert do not acknowledge the problem that Krug's "numerical rankings" are incompatible with Kircher's system, they also do not suggest any way to overcome the problem. *Id.* ¶222.

In sum, Krug's formulas rely on results from external "search engines" that are not present in – and could not be added to – Kircher's e-mail system. **EX2029**, ¶223. Krug, therefore, cannot simply be "plugged into" Kircher. *Id.* If Krug were to be simply "plugged into" Kircher, doing so would render Kircher's system inoperable. *Id.* This is another reason Petitioner has failed to establish obviousness with its Kircher-Krug combination. *McGinley v. Franklin Sports*, 262 F.3d at 1354 ("If references taken in combination would produce a 'seemingly inoperative device,'" "such references teach away from the combination and thus cannot serve as predicates for a prima facie case of obviousness.")).

5. Kircher and Krug Are Not Analogous Art

Another reason the Kircher-Krug combination does not render obvious any claim is because Krug is not analogous art to the '217 Patent, and Krug is not analogous art to Kircher. **EX2029**, ¶¶207-210. On the one hand, Krug relates to searching objects on the Internet and, in particular, searching electronic catalogs of mail order companies. *Id.* Krug is, therefore, an invention relating to retrieving objects on the Internet in response to search queries. *Id.* In contrast to the search/retrieval system in Krug, Kircher relates to email messages. *Id.* Similarly, the '217 Patent relates to “content sent from the sender to the user.” A POSA would not look to Krug (which does not relate to “sent” content or emails) at all to solve the problems solved in the '217 Patent, let alone combine Kircher with Krug to do so. *Id.*

Petitioner and its expert state that there are two reasons why Krug is “analogous” to Kircher and the '217 Patent. Both of the reasons, however, is premised upon inaccurate statements.

First, Petitioner and its expert assert that Krug is “in the same field of endeavor—*i.e.*, email and content management systems.” **EX1004**, ¶436. To the extent that they are suggesting that Krug is an email management system, that is incorrect. **EX2029**, ¶209. Krug relates to searching for content on an Internet browser. *Id.* Krug does not relate to managing email. *Id.*

Second, Petitioner and its expert state that Krug is “reasonably pertinent” to the problem of “counteracting the proliferation of spam.” **EX1004**, ¶43; *id.* ¶441 (“Krug ... seek[s] to eliminate or reduce the amount of spam...”). That is also incorrect. **EX2029**, ¶211. Krug relates to searching for content on an Internet browser. *Id.* A skilled artisan would not understand Internet search results to include “spam.” *Id.* Instead, a skilled artisan would understand “spam” to relate to unwanted messages in a mail system. *Id.* Krug does not address, or relate to, the proliferation of spam. *Id.*

In sum, Kircher and Krug do not pertain to the same field. The reasons that Petitioner and its expert cite for asserting that the two references are “analogous” are based upon inaccurate statements. The fact that Kircher and Krug are not analogous art is another reason a skilled artisan would not combine them as Petitioner advances.

6. Petitioner's Kircher-Krug Relies upon Hindsight Reasoning.

As Petitioner and its expert acknowledge, Kircher does not teach or disclose many of the limitations in the '217 Patent claims. **EX2029**, ¶¶191-201 (citing **EX1007** & **EX1004**). Because so many limitations are missing from Kircher, Petitioner's combination must necessarily pull those limitations from Krug. Petitioner's combination, however, fails to articulate why a skilled artisan would pick those parts of Krug to add to Kircher, and Petitioner's combination fails to articulate how a skilled artisan would so combine the references. *Id.* ¶¶214-225. The

only basis for so combining the references appears to be using hindsight reasoning, using the claims as a roadmap, which is prohibited. *Id.* ¶¶211 & 228.

Petitioner's expert does not explain why a POSA would select each of the "missing" features from Krug and insert them into Kircher. Petitioner's expert also does not explain exactly how a POSA would combine the references, and it is not obvious how a POSA would combine the references. **EX2029**, ¶¶205-228. For example, Kircher and Krug use two different ranking mechanisms/functions. *Id.* ¶¶225-28. On one hand, Kircher's scoring function is based on three factors (sender importance, degree of personalization, and content importance). *Id.* On the other hand, Krug's scoring function is based on a number of factors such as intrinsic value of an object, distance between user profile and object profile. *Id.* These two score functions are incompatible with each other. *Id.* Therefore, simple merging/substitution will not work. *Id.* Hence, a POSA would expect that combining Kircher and Krug may not be feasible. *Id.* Determining how the references could be combined into a single system or method would require an undue amount of additional work and research. *Id.*

In sum, the only reason a POSA would look to combine Kircher and Krug would be to try to recreate, using hindsight, the claims of the '217 Patent. **EX2029**, ¶¶205-28. This is prohibited. *See, e.g., TQ Delta, LLC v. CISCO Sys., Inc.*, 942 F.3d 1352, 1361 (Fed. Cir. 2019) (discussing "the impermissible *ex post* reasoning and

hindsight bias that *KSR* warned against.” (internal citations omitted)); *InTouch Techs., Inc. v. VGO Commc'ns, Inc.*, 751 F.3d 1327, 1347 (Fed. Cir. 2014) (stressing the need to guard against hindsight reasoning in the obviousness analysis); *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1378 (Fed. Cir. 2012) (noting the need to “guard against slipping into use of hindsight”).

C. Petitioner's Alleged Obviousness Combination of Kircher, Krug, and Marston Does Not Render Obvious Any Claim.

Petitioner asserts that Claims 4, 10-12, 16-17, and 20-21 are obvious based on the combination of Kircher, Krug, and Marston. Petition, at 76-77. However, for this obviousness combination, Petitioner relies upon the same arguments made previously with respect to the Dumais/Marston combination. Petition, at 77 (citing Petition, at 43-47). As set forth above, however, for Claims 1, 6, and 7, Petitioner relied upon the primary reference (Dumais) to supply nearly every limitation; Petitioner relied upon Marston to supply only Elements-1[c]/6[a]. Petition, at 45. In Ground 5, therefore, Petitioner is also relying upon Marston for Elements-1[c]/6[a]. Therefore, Petitioner is relying upon Kircher and Krug to supply every other limitation of Claims 1, 6, and 7. As set forth above, however, Kircher and Krug do not teach or disclose the “*identify...*” limitation and, therefore, the combination of Kircher, Krug, and Marston does not render obvious any independent claim of the ‘217 Patent. **EX2029**, ¶¶229-31.

D. The Board Should Reject Grounds 1-3 Because Dumais Is Not Prior Art to the '217 Patent.

Dumais is the only reference or primary reference for Grounds 1-3 advanced by Petitioner. The Board should decline to institute based on Grounds 1-3 because Dumais is not prior art to the '217 Patent. As set forth in the first Declaration of Justin Marston, the inventors of the '217 Patent conceived of their invention at least as early as June 7, 2005, and, therefore, the '217 Patent has a priority date that is earlier than the Dumais priority date. *See generally* **EX2003** (Declaration of Justin Marston, Mar. 12, 2025); *see also* **EX2014**.

The priority date of Dumais is June 29, 2005. **EX1006**. The conception of the '217 Patent predates this. *See* **EX2003, EX2004, EX2008, EX2014**. In particular, as set forth in the declaration of Justin Marston, **EX2004** and **EX2006** are draft documents prepared by the inventors on September 2, 2004, and June 7, 2005, respectively (hereinafter, collectively, the "Conception Documents"). **EX2004, EX2006**. The Conception Documents disclose each limitation of the Challenged Claims. **EX2014**. Additional Exhibits cited in the first declaration of Justin Marston show continued work on the mathematics for the relevance model between September 2, 2004, and the filing of the provisional patent application on January 13, 2006. **EX2005-EX2013**. Accordingly, the inventors of the '217 Patent conceived of their invention prior to June 7, 2005.

In the Board's institution decision, the Board found that the Conception Documents (e.g., **EX2004** & **EX2006**) "*themselves* are evidence of conception, which do not require further corroboration," and that, even if they were not, Patent Owner's argument that the metadata is additional corroboration was an argument "reasonably based on the manner in which metadata is created." Decision, at 31-32 (citing *Price v. Symsek*, 988 F.2d 1187, 1195 (Fed. Cir. 1993)). The only claim limitation that Petitioner contends is missing from the Conception Documents is the "*cognate*" limitation, but the Board found that "the Conception Documents appear to disclose at least one manner of identifying cognate users." Decision, at 32-33 (citing **EX2006**, at 22). The Board was correct in these findings that the Conception Documents corroborate conception by at least June 7, 2005.

The Board's Institution Decision also preliminarily found, however, that there were "questions regarding gaps in Patent Owner's diligence," and the Board invited Patent Owner "to introduce additional relevant evidence and to explain why the evidence corroborates Mr. Marston's testimony [that the time periods reflect ongoing refinement of formulas to implement the BlueSpace relevance model] or otherwise shows reasonable diligence." Decision, at 33.

Pre-AIA section 102(g) allows a patent owner to antedate a reference by proving earlier conception and reasonable diligence in reducing to practice. *Monsanto Co. v. Mycogen Plant Sci., Inc.*, 261 F.3d 1356, 1362 (Fed. Cir. 2001).

The critical period begins just prior to the competing reference's effective date and ends on the date of the invention's reduction to practice. *Id.* at 1363. The issue of reasonable diligence "turns on the factual record, and [the Federal Circuit] review[s] Board determinations as to diligence for support by substantial evidence in the record." *In re Steed*, 802 F.3d 1311, 1317 (Fed. Cir. 2015). An inventor's testimony regarding his reasonable diligence must be corroborated by evidence. *Brown v. Barbacid*, 436 F.3d 1376, 1380 (Fed. Cir. 2006). A "variety of activities" may corroborate an inventor's testimony of reasonable diligence and such corroborating evidence is considered "as a whole" under a rule of reason. *Id.*

Under a rule of reason analysis, "[a]n evaluation of all pertinent evidence must be made so that a sound determination of the credibility of the inventor's story may be reached." *See Price v. Symsek*, 988 F.2d 1187, 1195 (Fed. Cir. 1993). A patent owner need not prove the inventor continuously exercised reasonable diligence throughout the critical period; it must show there was reasonably continuous diligence. *See, e.g., Tyco Healthcare Grp. v. Ethicon Endo-Surgery, Inc.*, 774 F.3d 968, 975 (Fed. Cir. 2014); *Monsanto*, 261 F.3d at 1370. Under this standard, an inventor is not required to work on reducing his invention to practice every day during the critical period. *See Monsanto*, 261 F.3d at 1369. And periods of inactivity within the critical period do not automatically vanquish a patent owner's claim of reasonable diligence. For example, in *Monsanto*, the Federal Circuit held that

substantial evidence supported the jury's presumed finding that an inventor was reasonably diligent where there was no corroborating evidence of any activity for a series of months. *Id.* at 1370. The Federal Circuit explained that, notwithstanding the absence of daily notebook entries and the resulting gaps during the critical period, "the work involved in the experiments was continuous in nature" and therefore the reduction to practice was "reasonably continuous." *Id.*

"In determining whether an invention antedates another, the point of the diligence analysis is not to scour the patent owner's corroborating evidence in search of intervals of time where the patent owner has failed to substantiate some sort of activity." *Perfect Surgical Techniques, Inc. v. Olympus America, Inc.*, 841 F.3d 1004, 1011 (Fed. Cir. 2016). Instead, the purpose is "to assure that, in light of the evidence as a whole, 'the invention was not abandoned or unreasonably delayed.'" *Id.* (quoting *Brown v. Barbacid*, 436 F.3d 1376, 1379 (Fed. Cir. 2006)). "That an inventor overseeing a study did not record its progress on a daily, weekly, or even monthly basis does not mean the inventor necessarily abandoned his invention or unreasonably delayed it." *Id.* Under a rule of reason analysis, inventors are not required to corroborate every day the application was worked on, every activity the inventors performed in their daily occupations, or specify precisely what work was done. *See Perfect Surgical*, 841 F.3d at 1011 (citing *In re Jolley*, 308 F.3d 1317, 1328 (Fed. Cir. 2002)).

In this case, Patent Owner has antedated the Dumais reference by proving earlier conception (by June 7, 2005), and reasonable diligence in reducing to practice between June 28, 2005 (just prior to the competing reference's effective date), and January 13, 2006 (the date of constructive reduction to practice (when the provisional patent application was filed)). In response to the Board's preliminary finding that there were "questions regarding gaps in Patent Owner's diligence" and that Patent Owner may "introduce additional relevant evidence" to show reasonable diligence, Patent Owner has done precisely that: Patent Owner has provided additional evidence that both corroborates Justin Marston's testimony and shows reasonable diligence, including testimony from both Justin Marston and Paul Marston (the two inventors of the '217 Patent) and numerous documents corroborating their testimony that, during the critical period, they were refining the formulas to implement the BlueSpace relevance model.⁶ **EX2030** (J. Marston declaration); **EX2031** (P. Marston declaration); **EX2032** through **EX2078** (corroborating documentation). In addition, Patent Owner submitted evidence –

⁶ Petitioner argues that the documentary evidence of the inventors' conception and reduction to practice contain hearsay. Pet. Obj. to Evid., at 5 & 7. However, the corroborating documents discussed in the Marstons declarations are not being offered to prove the truth of the matter asserted in any out-of-court statement (i.e., they are not being offered to prove, for example, that the inventive system performs as described in the documents). Instead, the documents are being offered to show that the inventors were working on the invention during the critical period. Therefore, the documents are not hearsay. Fed. R. Evid. 801(c)(2). Moreover, the documents were created and maintained in the ordinary course of a regularly conducted activity of a business (i.e., BlueSpace) and, therefore, also are not hearsay because they are subject to the business records exception. Fed. R. Evid. 803(6).

including testimonial evidence and corroborating documents – to show that, during the critical period, Justin Marston had numerous other obligations running the company BlueSpace, and Paul Marston was working a full-time position as a lecturer on statistics. **EX2030** (J. Marston declaration); **EX2031** (P. Marston declaration); **EX2042** (log of privilege communications); **EX2041** (log of BlueSpace work); **EX2076-EX2078** (P. Marston background). These concurrent occupational obligations may be taken into consideration when assessing whether the work was sufficiently reasonably continuous to establish diligence. *Perfect Surgical*, 841 F.3d at 1011 (vacating and remanding Board's decision that patent owner failed to antedate reference and holding that, "[o]n remand, the question before the Board is whether all of [patent owner's] evidence, considered as a whole and under a rule of reason, collectively corroborates [the inventor's] testimony that he worked reasonably continuously **within the confines of his and [his patent prosecution attorney's] occupations** to diligently finalize the patent application during the ... critical period" (emphasis added)).

All of Patent Owner's evidence, considered as a whole and under a rule of reason, collectively corroborates the inventors' testimony that they worked reasonably continuously within the confines of their occupations, to diligently finalize the patent application during the critical period. Therefore, Patent Owner

has antedated the Dumais reference by proving earlier conception (by June 7, 2005), and reasonable diligence in reducing to practice during the critical period.

Because Dumais is not prior art to the '217 Patent, Dumais does not render obvious any claim of the '217 Patent.

E. The Board Should Reject Grounds 1-3 Because Dumais, Alone or in Combination With Petitioner's Other References, Does Not Render Obvious Any Claim of the '217 Patent.

Even if Dumais were prior art to the '217 Patent, Dumais still would not provide a basis for institution, because Petitioner has failed to show that Dumais, alone or in combination with Petitioner's other cited references, renders obvious any claim of the '217 Patent. *See* **EX2029**, ¶¶124-147.

1. Dumais

Dumais, which is entitled "Sensing, Storing, Indexing, and Retrieving Data Leveraging Measures of User Activity, Attention, and Interest" (**EX1006**), focuses on the retrieval of data *in response to a search*, not on the receipt of emails, messages, or other electronic content. *See, e.g.,* **EX1006**, at Abstract (discussing "items returned in a search"); **EX2029**, ¶¶97-104 (describing Dumais reference). Unlike the '217 Patent, which focuses on determining a relevance score of a piece of content sent from a sender to a recipient, the focus of Dumais is query modification, i.e., modifying the list of results returned in response to a search query. *E.g.,* **EX2029**, ¶¶125-126. The "query modification" in Dumais is focused on a

single user, including a single user's interest, via tags. **EX1006**, [0040]; **EX2029**, ¶125-126.

The inventions in the '217 Patent are very different from the invention in Dumais, in many ways. **EX2029**, ¶¶124-130. In contrast to the '217 Patent, Dumais does not teach or disclose identifying other recipients that received the same message as the first user, let alone identifying other recipients that received the same message as the first user and are "*cognate to the [first] user.*" See generally **EX1006**.

2. Grounds 1-3: Dumais Does Not Teach or Suggest the "*identify...*" limitation.

Each of the independent claims of the '217 Patent requires a second relevance measurement configured to "***identify** at least one other of the plurality of users that is **a recipient** of the piece of electronic content and that is cognate to the user.*" Ex. 1001, at Claims (emphasis added). In Grounds 1-3, Petitioner relies exclusively upon Dumais to supply this limitation. *E.g.*, Petition, at 1. Dumais, however, does not teach or disclose this limitation, including both because (1) Dumais does not teach or disclose the "***identify** at least one of the other plurality of users that is **a recipient of the piece of electronic content***" limitation; and (2) Dumais also does not disclose "*identify[ing]*" a user that is **both** "*a recipient*" and also "*cognate to the user.*"

Although Dumais discloses that emails are among the data items that can be ranked, Dumais never "***identifies***" another "*recipient*" of a data item – i.e., a

second user that received the same piece of electronic content as the first user. *See generally* **EX1004**; **EX2029**, ¶¶131-147.

As an initial matter, Petitioner's position that Dumais discloses the "*identify...a recipient*" limitation is based upon an incorrect construction of "*recipient*" – i.e., one that does not require that the user actually received content sent from a sender. Instead, Petitioner and its expert and its expert define "*a recipient*" to be any user that "interact[ed]" with, or "used," a data item. Petition, at 33 (citing **EX1006**, [0022], [0040]); *see also* **EX1004**, ¶¶245, 247. That definition, however, is incorrect. *See supra* at 20-22; **EX2029**, ¶¶133 & 170. A POSA would understand that, in the '217 Patent, "*a recipient*" is another user that received a piece of sent electronic content from a sender. *E.g.*, **EX1001**, 2:26-28 ("an electronic mail object may be sent to external recipients"); *see also supra* at 21-22; **EX2029**, ¶¶133 & 170. Dumais' disclosure of monitoring "users" interactions does not disclose "*identify[ing] ... a recipient.*" **EX2029**, ¶¶131-147.

Another reason Petitioner has failed to establish that Dumais discloses "*identify[ing] ... a recipient*" is because Petitioner and its expert do not address the requirement to actually "identify" another "*recipient*" at all. Petitioner's "evidence" on this point is its expert's testimony, but Petitioner's expert does not discuss whether Dumais teaches or discloses the requirement to "identify ... *a recipient*." He addresses the limitation of "*a recipient*" (**EX1004**, ¶¶245, 247), but he simply

ignores the verb – i.e., the specific requirement to “***identify*** ... *a recipient*.” See **EX1004**, 245 & 247. Like Petitioner's expert, Petitioner also does not address the requirement to “***identify*** ... *a recipient*.” Instead, Petitioner describes the “*identify*...” limitation as requiring ***only*** the “identif[ication] [of] a second user that is ‘cognate’ to the first user.” Petition, at 1; *id.* at 10 (describing the “*identify*...” limitation as requiring only the identification of a cognate user, not also “*a recipient*”); *id.* at 11 (same); *id.* at 13 (same). However, as set forth above, the “*user*” being “*identif[ied]*” in this limitation is a “*user*” that is not only “*cognate*” to the first user, but also must be “*a recipient*” of the same piece of electronic content that the first user received. Yet, Petitioner simply chooses to ignore this “*recipient*” requirement. Dumais does not teach or disclose “*identify[ing]* ... *a recipient*.” **EX2029**, ¶¶131-147. Because Dumais does not teach or disclose the “*identify* ... *a recipient*” limitation, and because Petitioner does not rely upon any other reference to supply this missing limitation, the Board should reject Grounds 1-3.

The '217 Patent's “*identify*” limitation requires not only that the second “*user*” be a “*recipient*,” ***but also*** that the “*user*” be “*cognate to the [first] user*.” **EX2029**, ¶138. Dumais, however, does not teach or suggest a need to “*identify*” another user that is “*cognate to the [first] user*” and “*a recipient*.” **EX2029**, ¶¶138-147. Petitioner relies upon collaborative filtering in Dumais to satisfy the “*identify* ...” limitation, but Dumais does not “*identify*” a second, “*cognate*” “*user*” ***that is also*** “*a recipient*

of the piece of electronic content.” EX1005, Claim 1; EX2001, ¶ 100; EX2029, ¶¶143-144.

The ‘217 Patent explains why the system needs to “*identify*” this “*cognate*”/“*recipient*” user. EX2029, ¶¶76-87 & 143. Collaborative filtering in Dumais does not do any of this. *Id.* ¶143. Instead, Dumais uses collaborative filtering to “predict likely or possible profiles for new users.” *Id.* ¶143 (citing EX1006, [0055]). Collaborative filtering in Dumais is not used to “*identify*” users both that are similar to the user doing the searching (i.e., another “*user*” that is “*cognate to the user*”) and also received the same content as the first user doing the searching (i.e., another “*user*” that is “*a recipient*”). *Id.* ¶145.

In the ‘217 Patent, the purpose of identifying other “*cognate*” users is so that the actions of those “*cognate*” users can be monitored and considered in determining a relevance score. EX2029, ¶¶76-87 & 144. In contrast, nothing in Dumais shows an appreciation of the desirability of, or mechanisms or mathematics required to, “*identify*” another user that is “*cognate to the [first] user*.” *Id.* ¶¶140-141. Dumais does not appreciate – or lay out the mechanisms or math that would be required to take into account – the relationship between the primary user and another user, including that Dumais does not attempt to “*identify*” another “*user*” that is both “a recipient” and also “cognate” to the first user. *Id.* ¶146.

In sum, the '217 Patent requires "*identify[ing]*" a second "*user*" that is both (1) "*a recipient*" of the same "*piece of electronic content*" that the first user received and also (2) "*is cognate to the user.*" **EX1001**, at Claims. Dumais does not disclose identifying another "*user*" that is both "*a recipient*" of the same content the first user received and also "*cognate to the [first] user.*" **EX2029**, ¶147. Therefore, Dumais does not disclose "*identify[ing] at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*" **EX1001**, at Claims. Because every claim of the '217 Patent requires this limitation, Dumais does not render obvious any claim of the '217 Patent.

3. Petitioner Does Not Assert that AAPA or Marston Disclose the Missing Limitations Discussed Above.

Although the Petition cites two secondary references in Grounds 2 and 3 (AAPA or Marston), Petitioner does not assert that either of the references disclose the "*identify ...*" limitation discussed above. Petition, at 32-34 & 43-44. Accordingly, Petitioner's prior art combinations do not render the claims obvious, and the Board should reject Grounds 1-3. **EX2029**, ¶¶148-149.

VI. SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

Secondary considerations of non-obviousness further support a finding that none of the prior art references that Petitioner relies upon render obvious any claim of the '217 Patent. *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966); MPEP § 2143.

First, the invention's commercial success demonstrates non-obviousness. X Corp. uses the invention in its product known as "X" (formerly known as, and hereinafter, "Twitter"). For example, Twitter uses the '217 Patent of "cognate" relevancy in its algorithm:

Social Graph

Our first approach is to estimate what you would find relevant by analyzing the engagements of people you follow or those with similar interests.

We traverse the graph of engagements and follows to answer the following questions:

What Tweets did the people I follow recently engage with?

Who likes similar Tweets to me, and what else have they recently liked?

We generate candidate Tweets based on the answers to these questions and rank the resulting Tweets using a logistic regression model.

EX2079. Twitter has realized commercial success using this model, with an an estimated 388 million monthly active users in 2024, and generating over \$2 billion in revenue every year from 2016-2024. **EX2080.**

Second, the long felt but unresolved needs demonstrates non-obviousness. The '217 Patent recognized the long felt, but unresolved, need for a system that better determines the relevance of electronic content. The patent discusses, for example, the voluminous amount of electronic content that users receive each day, and the problem that so much of the content "is irrelevant" and, even where ea set of the content is "somewhat relevant," it is still incredibly time consuming for the

recipient “to determine which ones are more important than others.” **EX1001**, at 1:26-34. It explains that “typical” applications are resigned to providing “unintelligent mechanisms” for mining through the content. **EX1001**, at 35:-44. The need for a more intelligent mechanism for recipients to mine through voluminous electronic content they received was, therefore, identified as a long felt, but unresolved, need.

Third, the failure by others demonstrates non-obviousness. For example, X Corp. praises its current algorithm – which controls which posts appear at the top of a user’s feed – as a better experience than, for example, the prior algorithm, which served users with a reverse-chronological feed. *See, e.g.*, **EX2081**. However, X Corp. did not implement the algorithm until 2016; prior to that time, Twitter showed tweets to users in a reverse-chronological order. *Id.*

Fourth, praise by others demonstrates non-obviousness. For example, when Twitter moved from a reverse-chronological order timeline to a timeline based on showing tweets based upon how relevant they were to the user, Mike Jahr, a senior engineering manager at Twitter, “said the change [in its algorithm] would serve users who follow hundreds or thousands of people with a better experience.” **EX2081**.

Fifth, the recognition of the problem being solved demonstrates non-obviousness. As discussed above, the ‘217 Patent recognizes the problem that typical applications for managing voluminous electronic content were resigned to providing

unintelligent mechanisms (e.g., keyword, sender, recipient, and/or date range searches) for mining through electronic content like email. **EX1001**, at 35:-44.

Finally, the copying of the invention by competitors demonstrates non-obviousness. X Corp. copied the invention when it implemented relevancy-based timelines in 2016. **EX2081**; *see also* **EX2084**. Meta copied the invention when Facebook introduced its “algorithmically curated News Feed” in 2011, behaving “more like your own personal newspaper” and featuring “what matters most” (**EX2082**) and when Instagram introduced its “engagement-based feed” in 2016. **EX2083**; *see also* **EX2085**. This copying of the invention by competitors demonstrates non-obviousness.

VII. CONCLUSION

For the reasons set forth herein, Patent Owner respectfully submits that Petitioner has not met its burden of proving that either the Kircher-Krug combination or the Dumais obviousness combinations render obvious any claim of the ‘217 Patent.

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. 42.6(e), I certify that on this 10th day of September, 2025, a true and correct copy of the foregoing **Patent Owner's Response** was served by electronic mail on Petitioner's lead and backup counsel at the following addresses:

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