

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

META PLATFORMS, INC.,
Petitioner,

v.

STERLING COMPUTERS CORPORATION,
Patent Owner.

IPR2025-00430
Patent 7,716,217 B2

Before KARL D. EASTHOM, AMBER L. HAGY, and BACH V. HOANG,
Administrative Patent Judges.

HOANG, *Administrative Patent Judge.*

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
Dismissing Patent Owner's Motion to Exclude
Dismissing Petitioner's Motion to Exclude
35 U.S.C. § 318(a)

I. INTRODUCTION

On August 13, 2025, we instituted an *inter partes* review of claims 1–3, 5–9, 13–15, 18, 19, and 22 (“the challenged claims”) of U.S. Patent No. 7,716,217 B2 (Ex. 1001, “the ’217 Patent”). Paper 14 (“Inst. Dec.”). Having considered the full record at trial, and for the reasons explained below, we determine that Petitioner has shown by a preponderance of the evidence that all challenged claims are unpatentable. In addition, we dismiss Patent Owner’s Motion to Exclude (Paper 35) and dismiss Petitioner’s Motion to Exclude (Paper 36).

A. History of this Proceeding

On January 31, 2025, Meta Platforms, Inc. (“Petitioner”) filed a Petition requesting an *inter partes* review of the challenged claims of the ’217 Patent. Paper 2 (“Pet.”). Sterling Computers Corporation (“Patent Owner”) timely filed a Preliminary Response. Paper 10. Petitioner filed an authorized pre-institution reply (Paper 12), and Patent Owner filed an authorized pre-institution sur-reply (Paper 13). Based on the preliminary record, we determined that Petitioner demonstrated a reasonable likelihood that it would prevail in establishing the unpatentability of at least one challenged claim, and we instituted an *inter partes* review of all challenged claims on all asserted grounds. Inst. Dec. 38.

After institution, Patent Owner filed a Response (Paper 18, “Response” or “PO Resp.”), Petitioner filed a Reply (Paper 30, “Reply” or “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 31, “Sur-reply” or “PO Sur-reply”). An oral hearing in this proceeding was held on May 14, 2026, and a transcript of the hearing is included in the record. Paper 49 (“Tr.”).

During trial, the parties each filed respective motions to exclude. Patent Owner filed a Motion to Exclude various exhibits (Paper 35), Petitioner opposed (Paper 37), and Patent Owner filed a reply (Paper 40). For the reasons explained below in § III, we dismiss Patent Owner’s Motion to Exclude as moot. Petitioner also filed a Motion to Exclude various exhibits (Paper 36), Patent Owner opposed (Paper 38), and Petitioner filed a reply (Paper 41). For the reasons explained below in § IV, we dismiss Petitioner’s Motion to Exclude as moot.

B. Related Matters

The parties indicate that the ’217 Patent has been asserted in two district court lawsuits:

- *Sterling Computers Corporation v. X Corp.*, No. 1:24-cv-00552 (W.D. Tex. May 22, 2024); and
- *Sterling Computers Corporation v. Meta Platforms, Inc.*, No. 1-24-cv-00551 (W.D. Tex. May 22, 2024).

Pet. 78; Paper 5, 2.

The ’217 Patent is the subject of one other petition for *inter partes* review: IPR2025-00299 (filed by X Corp.) (*inter partes* review instituted June 10, 2025). Paper 5, 2.

C. Asserted References

Petitioner’s unpatentability challenges rely on three references:

- Dumais et al., US 2007/0016553 A1, published January 18, 2007. Ex. 1005 (“Dumais”).

- Rose et al., US 6,202,058 B1, filed April 25, 1994, issued on March 13, 2001. Ex. 1006 (“Rose”).
- Bieganski et al., US 6,334,127 B1, filed July 17, 1998, issued December 25, 2001. Ex. 1007 (“Bieganski”).

D. Testimonial Evidence

Petitioner, prior to institution, submitted a declaration from Edward A. Fox, Ph.D. Ex. 1003. Following institution, Petitioner submitted a reply declaration from Dr. Fox. Ex. 1045.

Patent Owner, prior to institution, submitted declarations from Dr. Latifur Khan (Ex. 2001) and Justin Marston (Ex. 2003). Following institution, Patent Owner submitted a second declaration from Dr. Khan (Ex. 2029), a July 8, 2025 supplemental declaration from Justin Marston (Ex. 2015), a September 9, 2025 supplemental declaration from Justin Marston (Ex. 2030), and a declaration from Paul Marston (Ex. 2031). Petitioner submitted deposition transcripts of Dr. Khan (Ex. 1040), Justin Marston (Ex. 1041), and Paul Marston (Ex. 1042). Petitioner further submitted deposition transcripts in the related proceeding IPR2025-00299 of Dr. Khan (Ex. 1044) and Justin Marston (Ex. 1043).

E. The Petition’s Asserted Grounds

Petitioner asserts the following grounds of unpatentability (Pet. 2):

Claims Challenged	35 U.S.C.¹ §	Reference(s)/Basis
1–3, 5–9, 13–15, 18, 19, 22	103(a)	Dumais

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. §§ 102 and 103 effective March 16, 2013. Because the application for the challenged patent was filed before March 16, 2013, the pre-AIA version of § 103 applies. Neither party argues

Claims Challenged	35 U.S.C. ¹ §	Reference(s)/Basis
1–3, 5–9, 13–15, 18, 19, 22	103(a)	Rose
1–3, 5–9, 13–15, 18, 19, 22	103(a)	Rose, Bieganski

F. The '217 Patent (Ex. 1001)

The '217 Patent relates to techniques for determining the relevance of electronic content, e.g., an email, received by a user. Ex. 1001, 3:34–51, code (57). That relevance determination may be used, for example, in an email application so that a user may browse through received emails that are sorted or ranked according to their relevance. *Id.* at 7:35–42. Or, if the user searches their emails, the search results display a relevance score for the resulting emails. *Id.* at 7:42–50.

In the '217 Patent, the relevance of electronic content with respect to a particular user is determined based on a number of factors including the importance of the sender of the electronic content, the user's actions on the electronic content (e.g., the user replies to the email), or certain *other users'* actions on the electronic content (e.g., other users delete the email). *Id.* at 3:36–42, 8:34–52, *see also id.* at 11:4–13:20. The other users considered in the relevance determination may be identified as part of a “cognate group” of other users who are “similar” to the user. *Id.* at 25:37–39, 35:65–36:6; *see also id.* at 43:20–30. The '217 Patent discloses various approaches to identify a cognate group, including “role or group based; collaborative filtering; fingerprinting; cluster models; search based methods; frequency analysis; and importance value correlation.” *Id.* at 43:30–35; *see also id.* at 43:28–46:60.

that the outcome of this case would differ based on applying the pre-AIA or post-AIA versions of these laws.

G. Challenged Claims

Petitioner challenges claims 1–3, 5–9, 13–15, 18, 19, and 22 of the '217 Patent. Pet. 1. Of these, claims 1, 6, and 7 are independent, and for purposes of this Decision, claim 1 is representative. Claim 1 is reproduced below with Petitioner's limitation identifiers for discussion purposes:

1[pre] A computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented system comprising:

1[a] a computer processor; and

1[b] a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules comprising:

1[c] a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;

1[d] 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;

1[e] a second relevance measurement module coupled to the monitoring module and configured to:

1[f] 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, and

1[g] determine 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 local importance describing an importance of the sender to the user,

a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

a content relevance determined responsive to content of the piece of electronic content, and

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; and

1 [h] a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, 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.

Ex. 1001, 47:25–67; Pet. ix–x.

II. ANALYSIS

A. Legal Standards

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to the patent owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

The legal question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). One seeking to establish obviousness based on more than one reference also must articulate sufficient reasoning with rational underpinnings to combine teachings. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

B. Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art (“POSITA”) “would have had a bachelor’s degree in electrical engineering, computer engineering, computer science, or a similar field, and two to three years of experience with systems estimating relevance for various types of content” and further that, “[m]ore work experience could substitute for education and vice versa.” Pet. 10 (citing Ex. 1003 ¶¶ 20–23).

Our Institution Decision adopted Petitioner’s definition of a person of ordinary skill in the art. Inst. Dec. 7–8. In its Response, Patent Owner adopts Petitioner’s proposed level of ordinary skill. *See* PO Resp. 13–14 (“Patent Owner and its expert adopt the Board’s definition for purposes of this Response”).

Having considered the record, we continue to adopt Petitioner’s proposed level of skill, as articulated above. We are satisfied that Petitioner’s proposal comports with the level of skill necessary to understand and implement the teachings of the ’217 Patent. *Accord* Inst. Dec. 7–8.

C. Claim Construction

We interpret claim terms using “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b). Under the principles set forth by our reviewing court, the “words of a claim ‘are generally given their ordinary and customary meaning,’” as would be understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

Petitioner offers claim constructions for all limitations reciting the term “module.” Pet. 10–16. Patent Owner disputes Petitioner’s construction of those limitations. PO Resp. 14–17. The parties do not argue that the construction of the term “module” affects the analysis of Petitioner’s challenges. *See* PO Resp.; Pet. Reply; PO Sur-reply. Moreover, our determination in this case does not turn on resolving any dispute between the parties regarding the meaning of “module” and, so, we need not resolve this dispute.

Further, Patent Owner offers a construction of the term “recipient” which requires “a user that has received a piece of electronic content sent from a sender.” *Id.* at 18–19. Petitioner disputes Patent Owner’s requirement that a “recipient” requires content “sent from a sender.” Pet. Reply 2–3. Even if Patent Owner’s narrower construction of “a recipient” applies, Petitioner prevails according to our analysis of this limitation below in § II.D.3.g and § II.E.3.g, and we need not resolve this dispute.

Additionally, Patent Owner discusses the construction of “cognate to the user,” but does not offer any particular construction of the term.

See PO Resp. 17–18. Rather, Patent Owner’s discussion of the term is to assert that it “did not impose either requirement,” as discussed in our Decision to Institution. *Id.* (citing Inst. Dec. 14). As such, there is no controversy regarding this term to resolve.

Accordingly, we need not address any asserted claim construction to reach our decision on patentability. See *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Obviousness over Dumais

Petitioner asserts claims 1–3, 5–9, 13–15, 18, 19, and 22 would have been obvious over Dumais. Pet. 2. Patent Owner opposes, arguing that Dumais is not prior art to the ’217 Patent. PO Resp. 45–50; PO Sur-reply 10–18. Patent Owner also contends that Petitioner fails to show that Dumais teaches limitation 1[f]. PO Resp. 51–56; PO Sur-reply 18–25.

We find that Dumais constitutes prior art to the ’217 Patent. Further, we conclude that the respectively challenged claims would have been obvious over Dumais. We provide our analysis below.

1. Summary of Asserted Prior Art Reference Dumais (Ex. 1005)

Dumais describes a technique for personalizing the ranking of search results of electronic data items, e.g., documents, files, email messages, or web pages. Ex. 1005 ¶¶ 31, 40, code (57). Dumais provides personalized search results for a specific user based on a “user model.” *Id.* ¶ 40. Such

models can be derived using “collaborative filtering techniques that develop profiles by the analysis of similarities among individuals or groups of individuals.” *Id.* ¶ 52. Similarities can be based on the content or usage of items. *Id.* That is, collaborative filtering considers previous user activities from a group of users that may indicate preferences for a given user. *Id.* ¶ 55.

2. *Prior Art Status of Dumais*

Patent Owner contends Dumais is not prior art to the ’217 Patent and offers evidence and argument seeking to antedate the invention of the ’217 Patent prior to the filing date of Dumais. PO Resp. 45–50; PO Sur-reply 10–18. Dumais was filed June 29, 2005. Ex. 1005, code (22). The ’217 Patent on its face shows an earliest priority date of January 13, 2006 (Ex. 1001, code (60)), but Patent Owner asserts the ’217 Patent is entitled to a priority date earlier than June 29, 2005. PO Resp. 45.

Antedating Dumais requires that the inventors of the ’217 Patent, Justin Marston and Paul Marston (“the Marstons”), have (1) conceived of the inventions at issue before January 13, 2006 and (2) diligently reduced the conceptions to practice. *Arctic Cat Inc. v. GEP Power Prods., Inc.*, 919 F.3d 1320, 1331 (Fed. Cir. 2019) (citing *Perfect Surgical Techniques, Inc. v. Olympus America, Inc.*, 841 F.3d 1004, 1007 (Fed. Cir. 2016)). In an IPR, “when a patent owner attempts to antedate an asserted prior art reference, the patent owner assumes a temporary burden of production.” *Parus Holdings, Inc. v. Google LLC*, 70 F.4th 1365, 1371 (Fed. Cir. 2023) (citations omitted). Further, the “burden of production cannot be met simply by throwing mountains of evidence at the Board without explanation or identification of the relevant portions of that evidence. One cannot reasonably expect the

Board to sift through hundreds of documents, thousands of pages, to find the relevant facts.” *Id.*

We determine that Patent Owner has failed to carry its initial burden of production to show diligent reduction to practice and, as such, we find that Dumais is prior art to the ’217 Patent. Given that determination, and on the record before us, we need not resolve the parties’ dispute over conception. Our analysis on diligence follows.

Patent Owner contends that the inventors of the ’217 Patent were reasonably diligent throughout the critical period in the invention’s reduction to practice. PO Resp. 46–50. Here, Patent Owner and Petitioner identify that the critical period spans 198 days, beginning just before Dumais’s priority date, June 29, 2005, and ending on the filing date of the ’217 Patent’s provisional application, January 13, 2006. PO Resp. 49; Pet. Reply 19; *see Perfect Surgical*, 841 F.3d 1007 (“Reasonable diligence must be shown throughout the entire critical period, which begins just prior to the competing reference’s effective date and ends on the date of the invention’s reduction to practice.”). Patent Owner asserts its proffered evidence corroborates the inventors’ testimony and shows diligence throughout the critical period, specifically citing a declaration from Justin Marston, a declaration from Paul Marston, a privilege communication log, a BlueSpace work log, and additional “corroborating documentation.” PO Resp. 49–50 (citing Exs. 2030–2078). Patent Owner argues that its proffered evidence, considered as a whole and under a rule of reason, shows continuous diligence during the critical period. PO Resp. 50.

We determine that Patent Owner has not carried its temporary burden of production to support its contention that the inventors were reasonably diligent throughout the critical period. *See Parus Holdings*, 70 F.4th at

1371. The biggest shortcoming in Patent Owner's showing is a failure to specifically cite the relevant record evidence combined with an explanation of the significance of the produced material in briefs. *See id.* at 1372 (explaining that "[t]he burden of production cannot be met without some combination of citing the relevant record evidence with specificity and explaining the significance of the produced material in briefs"). Patent Owner states that it "submitted extensive evidence." PO Sur-reply 14. But simply submitting dozens of exhibits is not enough. As our reviewing court has admonished, the "burden of production cannot be met simply by throwing mountains of evidence at the Board without explanation or identification of the relevant portions of that evidence." *See Parus Holdings*, 70 F.4th at 1371. Instead of citing what specific portions of those exhibits are relevant and why, Patent Owner cites entire exhibits and asserts, without analysis or explanation, that they show diligence. *See* PO Resp. 49–50 (citing numerous exhibits without pinpoint citations).

Patent Owner's Sur-reply asserts that Patent Owner's Response was adequate (PO Sur-reply 17), but an examination of the Response shows that it was not. For example, in its Response, Patent Owner states "numerous documents corroborating [the inventors'] testimony that, during the critical period, they were refining the formulas to implement the BlueSpace relevance model" by citing the *entirety* of so-called "corroborating documentation" spanning Exhibits 2032 through 2074 as well as the entirety of Justin Marston's Second Supplemental Declaration (Ex. 2030) and Paul Marston's Declaration (Ex. 2031). *See* PO Resp. 49. However, there is not a single pinpoint citation to any particular paragraph, page, or entry for any of those exhibits (a number of which approach 100 pages in length) in Patent Owner's discussion. *See id.* Even less helpful, the Response does not

explain or point out any specific dates, activities, or amount of time that the inventors actually worked on the claimed invention. *See id.* That is, the Response does not state exactly what in the “corroborating documentation” actually corroborates the inventors’ testimony or itself shows diligence. If anything, the Response points out that the inventors were engaged in *other* activities: “Justin Marston had numerous other obligations running the company BlueSpace, and Paul Marston was working a full-time position as a lecturer on statistics.” PO Resp.49; PO Sur-reply 15–16. We do not fault the Marstons for engaging in other activities, but Patent Owner’s discussion of the Marstons’ other activities and mere conclusory assertions of diligence, without more, do not show that the Marstons were reasonably diligent as to the relevant activities during the critical time period. Simply put, Patent Owner’s Response does not adequately explain exactly how or why the evidence supports its argument that the inventors were reasonably diligent throughout the critical period. We decline the invitation to sift through the hundreds of pages spanning dozens of exhibits in search of evidence and reasons supporting Patent Owner’s assertion of diligence.

Patent Owner’s Sur-reply recognizes the omissions in its Response after Petitioner’s Reply highlighted that the Response failed to offer any explanation as to how its evidence showed diligence. *See* PO Sur-reply 14–18; Pet. Reply 19–23. However, Patent Owner’s Sur-reply raises new arguments and includes new citations, which are untimely and fail for that reason alone. Any arguments presented in a Sur-reply that are not fairly responsive to the arguments raised in the preceding merits brief are untimely and forfeited. *See id.* § 42.23(b) (“A sur-reply may only respond to

arguments raised in the corresponding reply.”); Trial Practice Guide² § II.I (explaining that “‘Respond,’ in the context of 37 C.F.R. § 42.23(b), does not mean proceed in a new direction with a new approach as compared to the positions taken in a prior filing . . . a reply or sur-reply that raises a new issue or belatedly presents evidence may not be considered.”). Patent Owner’s later attempt to cure its initial omissions by adding new arguments and citing previously uncited portions of evidence on diligence runs contrary to the prohibition against raising new issues.

But, even if we were to consider the untimely new arguments and citations in the Sur-reply, they would not show diligence. In particular, the Sur-reply relies heavily on uncorroborated inventor testimony, which is alone inadequate to show diligence. *Perfect Surgical*, 841 F.3d 1007 (“An inventor’s testimony regarding his reasonable diligence must be corroborated by evidence.”). Specifically, Patent Owner cites Justin Marston’s Second Supplemental Declaration (Exhibit 2030) and Paul Marston’s Declaration (Exhibit 2031) to argue that “Justin Marston and Paul Marston were revising the draft of the provisional patent application,” but Patent Owner does not cite any non-testimonial evidence corroborating that testimony. *See* PO Sur-reply 16–17. In fact, Patent Owner and its declarants admit that there is no corroborating evidence. *Id.* at 17 (referencing “emails exchanged . . . which no longer exist”); Ex. 2030 ¶ 8 (“Those e-mails are 20 years old and no longer exist due to the passage of time.”); Ex. 2031 ¶ 17 (noting “my e-mails from the 2004-2006 timeframe no longer exist”). As such, that uncorroborated testimony does not show reasonable diligence over the critical period.

² Available at www.uspto.gov/patents/ptab/trial-practice-guide.

Furthermore, much of the Sur-reply discusses “other work” unrelated to diligence, e.g., lecturing, managing operations, and securing financing. PO Sur-reply 15–16. As above, it is not that we suggest that the Marstons’ other activities show the Marstons were not diligent — it is simply that those other activities are not evidence of diligence.

Turning to the Sur-reply’s non-testimonial evidence having alleged dates within the critical period, Patent Owner states that:

drafts of the provisional and documents showing Paul Marston’s work on math from files last modified/saved in:

- August 2005. *See* EX2007–EX2008, EX2037, EX2056–EX2059, EX2073.
- September 2005. *See* EX2032, EX2060–EX2062.
- October 2005. *See* EX2010–EX2012, EX2033, EX2063–EX2071.
- November 2005. *See* EX2013, EX2034–EX2039, EX2072, EX2074.

PO Sur-reply 14 (Patent Owner’s citations reproduced). Even if the exhibits’ metadata show the last modified/saved date of those files throughout the critical period, Patent Owner does not cite what substantive work in those files, and done by the Marstons, show diligence. Out of the hundreds of pages contained in those exhibits, Patent Owner has not provided a single pincite and accompanying explanation discussing what specific work was done and by whom. *See id.* As previously discussed, diligence is Patent Owner’s burden and we cannot hunt for specific evidence and make arguments on behalf of Patent Owner. *See Parus Holdings*, 70 F.4th at 1371.

Patent Owner also argues Exhibit 2041 “provid[es] a log summarizing voluminous diligence documentation.” PO Sur-reply 17–18. That exhibit,

however, has no such summary. *See* Ex. 2041. Instead, Exhibit 2041 contains a listing of documents and corresponding document numbers, file names, dates, and custodians. *See id.* Furthermore, the exhibit does not indicate where the contents of its listed documents are in the record and Patent Owner does not explain where the content of those documents can be found in the record. *See id.*; PO Sur-reply 17–18. Without knowing any of the content of those documents, we cannot speculate and assume that any document on that log somehow shows diligence. For example, we decline to guess how seven documents named “BlueSpace home page 4 option 1.jpg” through “BlueSpace home page 4 option 7.jpg” show diligence. *See* Ex. 2041, 5.

Accordingly, after weighing the totality of evidence of record, in light of the respective positions of the parties with respect to diligence, we find Patent Owner does not carry its burden of production to show that the ’217 Patent is entitled to an earlier priority date than Dumais. Therefore, on this record, we determine Dumais qualifies as prior art and we analyze Petitioner’s obviousness challenge over Dumais next.

3. Independent Claim 1

a) Preamble

Petitioner contends that Dumais teaches the preamble, i.e., “[a] computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user.” Pet. 20–22 (citing Ex. 1005 ¶¶ 17, 20, 22–25, 31, 40–42, 43–50, 70, Figs. 1, 4, 8, code (51), claim 17; Ex. 1003 ¶¶ 97–100, 142, 149). Indeed, Dumais describes processing and assigning relevance rankings and scores to “data items” including emails that are

forwarded, replied to, and sent from a sender to a user. Ex. 1005 ¶¶ 22, 31. Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Dumais teaches the preamble.³

b) Limitation 1[a]

Petitioner contends that Dumais teaches “a computer processor.” Pet. 22–23 (citing Ex. 1005 ¶¶ 20, 70, Fig. 8; Ex. 1003 ¶¶ 101–102). Indeed, Dumais describes a computer with a processing unit. Ex. 1005 ¶ 70, Fig. 8. Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Dumais teaches this limitation.

c) Limitation 1[b]

Petitioner contends that Dumais teaches “a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules.” Pet. 23–24 (citing Ex. 1005 ¶¶ 20, 70, 72–74, Fig. 8; Ex. 1003 ¶¶ 103–104). Indeed, Dumais describes applications and program modules executed on its computing system. Ex. 1005 ¶¶ 20, 70, 74. Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Dumais teaches this limitation.

³ Accordingly, we need not determine whether the preamble is limiting. *See Vivid Techs.*, 200 F.3d at 803.

d) Limitation 1[c]

Petitioner contends that Dumais teaches “a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content.” Pet. 24–26 (citing Ex. 1005 ¶¶ 1, 8, 10–13, 19, 20, 22–23, 31, 38, 40, 46, 52, 54, 56, 58, 65, 78, Figs. 1, 9; Ex. 1003 ¶¶ 105–111). Indeed, Dumais describes a “monitor component,” which tracks user interactions with data items, e.g., for an email system, and further describes comparing data item interactions between users. Ex. 1005 ¶¶ 10–13, 19, 22, 31, 52. Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Dumais teaches this limitation.

e) Limitation 1[d]

Petitioner contends that Dumais teaches “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.” Pet. 26–29 (citing Ex. 1005 ¶¶ 7–8, 19, 20, 23–24, 31, 25, 39, Figs. 1, 2; Ex. 1003 ¶¶ 113–116). Indeed, Dumais assigns weights or scores to data items based on monitored activities. Ex. 1005 ¶¶ 19, 23, 35. Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Dumais teaches this limitation.

f) Limitation 1[e]

Petitioner contends that Dumais teaches “a second relevance measurement module coupled to the monitoring module.” Pet. 29–31 (citing

Ex. 1005 ¶¶ 20, 22, 40–41, 43, 53, 79, Figs. 1, 4, 5; Ex. 1003 ¶¶ 118–119). Indeed, Dumais creates a user model that reflects user interests based on user activity. Ex. 1005 ¶¶ 40, 43, 52–53. Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Dumais teaches this limitation.

g) Limitation 1[f]

Petitioner contends Dumais teaches “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.” Pet. 31–32 (citing Ex. 1005 ¶¶ 21–22, 31, 36, 52, 56, 65; Ex. 1003 ¶¶ 120–122).

Patent Owner contends Petitioner fails to show that Dumais meets this limitation for two reasons: (1) Dumais’s other user is not a recipient of the same piece of electronic content that the user was sent (PO Resp. 52–54; PO Sur-reply 18–22); and (2) Dumais’s other user is not both a recipient and cognate to the user (PO Resp. 54–56; PO Sur-reply 22–25).

Notwithstanding Patent Owner’s arguments, for the reasons discussed below, we determine that Petitioner has shown, by a preponderance of the evidence, that a person of ordinary skill in the art would have understood that Dumais teaches or suggests this limitation. We address Patent Owner’s contentions below.

(1) “a recipient of the piece of electronic content”

Petitioner shows that Dumais teaches or suggests “a recipient of the piece of electronic content” because a person of ordinary skill in the art “would have understood Dumais contemplates users receiving and interacting with the same email.” Pet. 31–32; Pet. Reply 23–24. Dumais

uses collaborative filtering to identify users having “similarities” in their “usage of items,” i.e., the “user activity or interaction data,” with that same item. Ex. 1005 ¶¶ 52, 55–56. The items Dumais considers include “email messages.” *Id.* ¶ 56; *see id.* ¶ 22 (“A monitor component 110 observes data interactions” such as “when files are . . . forwarded, replied to, sent to.”), 31 (“systems and methods described herein support a plurality of data processing applications. This includes processing data items such as . . . email messages”). As such, Dumais describes identifying similar users based on their similar interaction with the same email. Because those similar users interacted with the same email, it follows that those users are “recipient[s]” of the same email. As such, we agree with Petitioner that a person of ordinary skill in the art would have understood that, when Dumais performs collaborative filtering to identify similar users because of their similar interactions, Dumais identifies a recipient who receives the same piece of electronic content, e.g., an email, that the user was sent.

Patent Owner acknowledges that paragraph 52 of Dumais “discusses grouping together users based upon their similar ‘usage of items~~s~~’” but emphasizes that paragraph describes items, plural, and asserts, “[i]n other words, if two users consistently visited many of the same websites, they might be grouped together to create a group profile.” PO Resp. 53; PO Sur-reply 19–20. We disagree with Patent Owner’s attempt to limit that paragraph’s teachings to websites because that paragraph does not discuss websites. *See* Ex. 1005 ¶ 52. Instead, that paragraph discusses, more generally, “collaborative filtering techniques that develop profiles by the analysis of similarities among individuals or groups of individuals” based on the “usage of items.” *Id.* Those techniques are used to develop a user model which includes “a rich index of content previously encountered . . . e.g., . . .

email.” *Id.* ¶¶ 43, 45. As discussed above, Dumais states that its techniques are applicable to “data items,” which include email messages that are “forwarded, replied to, [or] sent to.” Ex. 1005 ¶ 22; *see id.* ¶ 31, 56. As such, Dumais’s teachings apply to emails and, so, identifies users who have similar interactions with the same received email. We also disagree with Patent Owner that Dumais’s discussion of items, plural, means that Dumais’s teachings cannot teach a commonly received “**singular email**” (PO Sur-reply 19–20). Even if Dumais’s collaborative filter considers multiple items, that does not preclude considering a commonly received email as one of those items.

Patent Owner also argues “it would not make sense to group together two (or more users) on the sole basis that they received the same, single email” because “users that received the same, single email would not help to develop a profile for new users in Dumais.” PO Resp. 53–54. However, Dumais’s users are not identified as similar simply because they received the same email, as discussed above (and immediately below). Rather, users in Dumais are identified as similar based on similar “usage of items,” e.g., emails — and in order to have the similar usage of emails, users have to have also received the same emails. *See* Ex. 1005 ¶¶ 52, 55–56.

Furthermore, Patent Owner’s argument that “Dumais uses collaborative filtering to develop models/profiles for new users, [and] that step is **not** part of the part of ‘*determining a relevance score*’” (PO Sur-reply 20) argues features recited in a different limitation, namely, limitation 1[h] (Ex. 1001, 47:62–67). Patent Owner’s argument that Dumais fails to teach features recited in limitation 1[h] was not made in its original Response (*see* PO Resp.) and fails as untimely. *See* 37 C.F.R. § 42.23(b); Trial

Practice Guide⁴ § II.I. But, even if we considered that untimely argument, Patent Owner’s assertion is incorrect. Dumais explains that it uses its user profiles to determine a relevance score because it describes “adapting search results based on the user model 420 . . . processes an initial input query and modifies or regenerates the query (via user model) to yield personalized results.” Ex. 1005 ¶ 41, code (57).

As such, we agree that Dumais teaches or at least would have suggested to a person of ordinary skill in the art that the other user identified “is a recipient of the piece of electronic content” that the user was sent. Pet. 34.

(2) *“one other of the plurality of users that is a recipient . . . and that is cognate to the user.”*

We agree with Patent Owner that “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” requires that the identified other user is both a recipient of the same piece of content that the user received and is also cognate to the user. PO Resp. 54–55. Petitioner shows by a preponderance of the evidence that a person of ordinary skill in the art would have understood that Dumais teaches that the identified other user is both “cognate to the user” and a “recipient” of the same content because Dumais identifies similar users via collaborative filtering techniques to identify users sharing similar interactions with the same email. Pet. 31–32; Pet. Reply 24–26; Ex. 1005 ¶¶ 52, 55.

Patent Owner does not contest that Dumais describes “cognate” other users and instead argues that Dumais’s identified other users are not *both*

⁴ Available at www.uspto.gov/patents/ptab/trial-practice-guide.

recipients *and* cognate to the user. *See* PO Resp. 54–56; PO Sur-reply 23–24. As discussed immediately above, Dumais identifies cognate users based on their similar usage, i.e., interaction, with the same email. Ex. 1005 ¶¶ 52, 55–56. Petitioner explains that a person of ordinary skill in the art “would have understood that evaluating the similarity in how users ‘use’ items would involve considering users who received the same emails” and “would have understood Dumais identifies a cognate user that is a recipient of content.” PO Reply 25 (citing Ex. 1003 ¶¶ 120–121; Ex. 1045 ¶ 53). That is, the other identified user is cognate to the user because that other user had similar interactions with the same content the user was sent, thereby meeting both the “recipient” and “cognate” aspects required by the claim. To emphasize, Dumais identifies cognate users based on their similar interaction with the same email, which, therefore, identifies users who are recipients of that email (otherwise it would not be possible to have common interactions with that email). Ex. 1005 ¶¶ 52, 55–56. As such not all recipients of the same email are necessarily cognate in Dumais; rather, recipients who have the same interaction with that email are cognate, whereas recipients of that email who do not have the same interaction with that email are not cognate. *See id.*

Patent Owner does not address that case and instead, addresses a different hypothetical based on features Petitioner does not rely on and that the claim does not recite. In Patent Owner’s hypothetical,

all of the users spent time visiting websites relating to a particular topic. Assuming that the first user (i.e., the user for which the content is being scored) is part of that group, Dumais does not also attempt to “*identify*” some other user (or group of users) within that group **that also** received the piece of content that the first user received and that is being scored.

PO Resp. 55. That hypothetical addresses a situation where a website user is first identified as cognate and is then required to further identify that user is a recipient of the content. However, the claim only requires the identified user is both cognate and a recipient. As Petitioner explains, in *Dumais*, users are both cognate and recipients of the same content because they have similar interactions with the same email. Pet. 31–32; Pet. Reply 24–26; Ex. 1005 ¶¶ 52, 55.

In another hypothetical, Patent Owner describes a situation in which “*Dumais* were to create a group of two (or more) users that received a single email.” PO Resp. 55. But, whether *Dumais* creates a group of users simply based on receiving a single email is irrelevant because that is not the feature relied upon to meet this limitation. As discussed above, the relevant teaching in *Dumais* identifies users having similar interactions on the same email, not simply identifying users who receive the same email. Ex. 1005 ¶ 52.

Patent Owner also argues, in its Sur-reply, that *Dumais* does not create cognate groups for each user or that a user is part of “any group.” PO Sur-reply 23–24. The claim, however, does not recite that each user must have its own cognate group created or have been assigned to a cognate group. Patent Owner’s arguments inappropriately rely on features the claim does not require.

Patent Owner further argues that “even if *Dumais*’ group of with [sic] similar ‘usage of data items’ could be considered a group of both ‘*recipients*’ (of those items) and ‘*cognate*’ ‘*users*,’ that does nothing to address numerous problems” it argued in its earlier discussion of the limitation reciting “a recipient of the piece of electronic content.” PO Sur-

reply 24–25. As we discussed above in § II.D.3.g.1, those arguments are unavailing.

Accordingly, for the reasons discussed above, Petitioner shows, by a preponderance of the evidence, that Dumais teaches or suggests limitation 1[f].

h) Limitation 1[g]

Petitioner contends that Dumais teaches

determine 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 local importance describing an importance of the sender to the user,

- a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

- a content relevance determined responsive to content of the piece of electronic content, and

- 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.

Pet. 32–35 (citing Ex. 1005 ¶¶ 22, 31, 38, 42–46, 48, 52–53, 55, Fig. 5; Ex. 1003 ¶¶ 105–111, 123–128). As noted above, Dumais describes a user model, which reflects user interests based on user activity. Ex. 1005 ¶¶ 40, 43, 53. Furthermore, Dumais creates its user model in consideration of recent or frequent contacts (*id.* ¶¶ 43, 46), its user model considers relationships in an organizational chart, at least suggesting a hierarchical importance (*id.* ¶ 49), matches users’ interests with items based on a statistical similarity match (*id.* ¶¶ 25, 42, 52), and its user model considers

the actions of other users who are similar to the user (*id.* ¶ 52). Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Dumais teaches this limitation.

i) Limitation 1[h]

Petitioner contends that Dumais teaches “a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, 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.” Pet. 35–39 (citing Ex. 1005 ¶¶ 19, 24–25, 33, 40–42, 45–46, 50, Figs. 4, 5; Ex. 1003 ¶¶ 99, 129–133). Indeed, Dumais personalizes, e.g., ranks, search results for a user based on the user’s past interactions and its user model. Ex. 1005 ¶¶ 41, code (57). Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Dumais teaches this limitation.

j) Conclusion as to Claim 1

For the reasons provided above, we are persuaded that the subject matter of claim 1 is taught or suggested by Dumais. As discussed below in § II.G, Patent Owner’s objective indicia of nonobviousness does not outweigh Petitioner’s showing. Accordingly, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of independent claim 1 would have been obvious over Dumais.

4. *Remaining Claims*

Petitioner provides argument and evidence in support of its contention that remaining claims 2, 3, 5–9, 13–15, 18, 19, and 22 are taught, suggested, or would have been obvious over Dumais. Pet. 39–43. Patent Owner does not address the remaining claims beyond linking those claims to arguments that Dumais alone does not teach limitation [1f], which we addressed in claim 1. *See* PO Resp. 56. For reasons provided above in § II.D.3.g, Patent Owner’s arguments are unavailing.

As to Petitioner’s analysis addressing the subject matter recited in claims 2, 3, 5–9, 13–15, 18, 19, and 22, Petitioner provides citations and reasoned analysis supported by the record to show that the claims would have been obvious by a preponderance of evidence. *See* Pet. 39–43.

Regarding the remaining claims challenged over Dumais, claims 6 and 7 are independent claims, which recite similar subject matter as independent claim 1. *See* Ex. 1001, 48:16–49:20. As such, we determine that Petitioner has shown that the subject matter of claims 6 and 7 would have been obvious over Dumais for the same reasons discussed above in § II.D.3. Regarding claims 2, 13, and 18, Dumais teaches a user interface that returns color-highlighted content, which indicates the content’s score; we agree it would have been obvious to show the score of the content in light of that teaching. *See* Ex. 1005 ¶ 36; Ex. 1003 ¶¶ 136–137. Regarding claims 3, 14, and 19, Dumais teaches providing content search results which are ranked in accordance with user interest. Ex. 1005 ¶¶ 40, 53, 55. Regarding claims 5 and 15, Dumais teaches that its content includes documents, files, and email messages. *Id.* ¶ 31. Regarding claims 8 and 22, as discussed above in § II.D.3.g, Dumais teaches identifying a cognate user based on analysis of historical actions of the user and cognate user, such as

past actions. Regarding claim 9, Dumais teaches collaborative filtering techniques that may be limited such that a person of ordinary skill in the art would have understood that the resulting filtering only identifies cognate users, specific and exclusive to one user. *See id.* ¶¶ 51–52, 55; Ex. 1003 ¶¶ 157–164.

Accordingly, we conclude that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 2, 3, 5–9, 13–15, 18, 19, and 22 would have been obvious to one of ordinary skill in the art over Dumais.

E. Obviousness over Rose

Petitioner also contends that the subject matter of claims 1–3, 5–9, 13–15, 18, 19, and 22 would have been obvious over Rose. Pet. 2, 44–66.

Patent Owner opposes, contending that Rose fails to teach, suggest, or render obvious limitation 1[f] and limitation 1[h]. PO Resp. 22–23, 27–41.

We conclude that the challenged claims would have been obvious over Rose. We provide our analysis below.

1. Summary of Rose (Ex. 1006)

Rose describes a system that presents ranked information to a user based on a predicted degree of relevance to the user. Ex. 1006, 2:25–28. For example, in an email system, messages particularly pertinent to a user's interests are highly ranked while junk mail is given a low ranking. *Id.* at 4:40–44; *see id.* Fig. 3. Rose considers two factors when predicting a user's interest in a particular piece of information: the first factor is based on the similarity between a document vector and the user's profile vector, and the

second factor is based on correlating indications provided by other users. *Id.* at 6:51–7:6.

The first factor for predicting a user's interest in a specific document, i.e., a piece of information, considers the similarity between the document's vector and the user's profile vector. *Id.* at 6:51–58. Figure 5B, reproduced below, is a graph showing two-dimensional arrows representing a user profile vector and document vectors in a two-term space. *Id.* at 3:7–8; *see also id.* at 6:53–56.

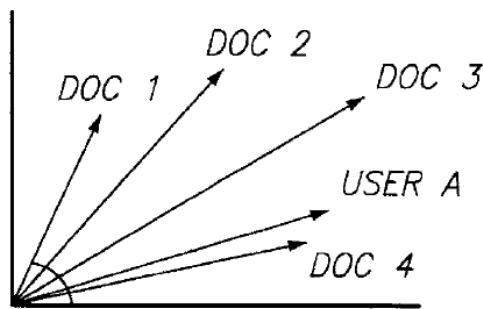


FIG. 5B

In Figure 5B, USER A is a user profile vector that represents a user's profile, and DOC 1–DOC 4 are document vectors that represent documents signified by the user to be of interest. *See id.* at 6:36–58. For example, a user indicates a document is of interest to the user through feedback in the form of a “thumbs-up” icon. *Id.* at 5:15–30; *see also id.* Fig. 4. From that user's indication of interest in the document, the user's profile vector, which is part of the user's profile, is modified to reflect the user's interest in the document's contents, e.g., significant terms in the document. *Id.* at 6:36–43. Document vectors for respective documents are created based upon attributes, e.g., the content, of the respective document. *Id.* at 6:6–9, 6:17–19, 6:26–35. Rose predicts how relevant a document is to a user based on

the similarity between a user's profile vector and the document's vector, e.g., the angle between those vectors as shown in Figure 5B. *Id.* at 6:51–58.

The second factor for predicting a user's interest in a specific document is based on other users' indications. For example, where another user, correlated to the user, favored the specific document, the document is deemed to be of more interest to the user. *Id.* at 6:59–61, 7:25–33. Rose states that both factors are considered when predicting a user's likely interest in a particular piece of information. *Id.* at 6:50–53, 6:59–61.

2. *Independent Claim 1*

a) *Preamble*

Petitioner contends that the Rose teaches the preamble, i.e., “[a] computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user.” Pet. 48–50 (citing Ex. 1006, 1:6–10, 2:25–34, 3:14–21, 3, 36–42, 3:45–62, 6:51–7:6, claim 12, Fig. 1; Ex. 1003 ¶¶ 171–173, 206–208, 215). Indeed, Rose describes an electronic mail system in which messages are sent from one user to another and ranking “messages in an electronic mail network . . . according to their likely degree of relevance. Ex. 1003, 1:6–10, 2:25–34, 3:36–42, 6:51–7:6. Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Rose teaches the preamble.⁵

⁵ Accordingly, we need not determine whether the preamble is limiting. *See Vivid Techs.*, 200 F.3d at 803.

b) Limitation 1[a]

Petitioner contends that Rose teaches “a computer processor.” Pet. 50 (citing Ex. 1006, 3:14–18, 3:20–21; Ex. 1003 ¶ 174). Indeed, Rose describes its system involves multiple personal computers that are connected via a network (Ex. 1006, 3:14–21), and we agree with Dr. Fox that a person of ordinary skill in the art would have understood that a multi-computer system includes multiple computer processors (Ex. 1003 ¶ 174). Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Rose teaches this limitation.

c) Limitation 1[b]

Petitioner contends that Rose teaches “a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules.” Pet. 50–51 (citing Ex. 1006, 3:45–59; Ex. 1003 ¶¶ 175–176). Indeed, Rose describes computers having information storage and executing Rose’s invention (Ex. 1006, 3:45–59) and we agree with Dr. Fox that a person of ordinary skill in the art would have understood that Rose would store computer programs for execution on its computer storage medium (Ex. 1003 ¶¶ 175–176). Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Rose teaches this limitation.

d) Limitation 1[c]

Petitioner contends that Rose teaches “a monitoring module configured to track actions by a plurality of users associated with an

application for managing electronic content.” Pet. 51–54 (citing Ex. 1006, 1:13–49, 2:25–34, 2:46–57, 3:63–4:5, 4:13–20, 4:38–44, 5:8–23, 5:43–46, 5:56–64, 6:44–46, 7:7–10, 7:35–50, 8:38–40, Figs. 4, 7; Ex. 1030, 93–94; Ex. 1031, 1, 85–87; Ex. 1032, 193; Ex. 1003 ¶¶ 75, 89 n.5, 178–180).

Indeed, Rose describes computing interfaces for a user to indicate its interest in electronic content, e.g., a thumbs-up and thumbs-down icon. Ex. 1006, 5:8–46, Fig. 4. Patent Owner does not dispute this contention.

See PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Rose teaches this limitation.

e) Limitation 1[d]

Petitioner contends that Rose teaches “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.” Pet. 54–56 (citing Ex. 1006, 2:48–50, 3:51–62, 4:11–20, 4:33–35, 5:1–28, 6:26–43, 6:54–57, Fig. 5B; Ex. 1003 ¶¶ 181–184). In particular, Petitioner asserts that Rose’s user’s profile that includes a user’s profile vector. *Id.* at 54 (citing Ex. 1006, 6:36–43, Fig. 5B). Petitioner explains that the score of a document’s relevance based on the similarity between the user’s profile and a document, reflected in the angle between the profile vector and a vector of the document, teaches “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.” *Id.* at 54–55 (citing Ex. 1006, 6:54–57, Fig. 5B).

Regarding the user profile and profile vector, Petitioner explains that, in Rose, a user rates the relevance of an electronic document; that rating

updates a user's profile by updating the user's profile vector. Pet. 46, 54–55 (citing Ex. 1006, 4:33–35, 5:21–23). Indeed, Rose states that “[e]ach user profile also comprises a vector, based upon the user's indications as to his or her relative interest in previously retrieved documents” and “[e]ach time a user provides a new response to a retrieved message, the profile vector is modified in accordance with the results of the indication.” Ex. 1006, 6:36–40. The user profile, through the user profile vector, is 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” because the user's profile vector is updated to reflect the user's indicated relevance of a document. For example, “if the user indicates interest in a document, all of the significant terms in that document can be given increased weight in the user's profile.” *Id.* at 6:40–43. Regarding the score of the document's relevance, Petitioner explains that score is determined based on the similarity between the user's profile vector and the document's vector, e.g., the angle between those vectors. Pet. 46, 55 (citing Ex. 1006, 6:36–43, 6:51–57, Fig. 5B).

Patent Owner presents arguments regarding limitation 1[h], reciting “the first determined measure of relevance,” that reference this limitation's recitation that 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.” *See* PO Resp. 27–37; PO Sur-reply 3–7. As detailed in our discussion of limitation 1[h] in § II.E.2.i, Patent Owner's arguments are unavailing. Accordingly, we determine Petitioner has shown, by a preponderance of the evidence, that Rose teaches this limitation.

f) Limitation 1[e]

Petitioner contends that Rose teaches “a second relevance measurement module coupled to the monitoring module.” Pet. 56 (citing Ex. 1006, 6:59–7:6, 8:38–40; Ex. 1003 ¶¶ 178, 185). Indeed, Rose describes determining a second factor in the prediction of a user’s interest in information that is based upon a correlation with indications provided by other users, e.g., via a correlation matrix. Ex. 1006, 6:59–7:6. Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Rose teaches this limitation.

g) Limitation 1[ff]

Petitioner contends that Rose teaches “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.” Pet. 57–59 (citing Ex. 1006, 5:57–61, 6:26–29, 6:61–7:1, 7:35–51, Fig. 6; Ex. 1022, 533, 541; Ex. 1033, 247, 249; Ex. 1003 ¶¶ 180, 186–188). Patent Owner contends that Rose does not teach or suggest “identify at least one other of the plurality of users . . . that is cognate to the user.” PO Resp. 41; *see id.* 37–40; PO Sur-reply 7–9.

We determine that Petitioner has shown, by a preponderance of the evidence, that Rose teaches this limitation. Rose uses “correlation-based prediction” to rank items for a user by relevance. Ex. 1006, 7:35–37. As Petitioner points out, Rose’s correlation-based prediction is based on other “users having similar feedback responses” as the user. Pet. 57–58; Ex. 1006, 7:39–51; *see id.* at 6:59–61 (a “factor in the prediction of a user’s interest in information is based upon a correlation with the indications provided by other users”), 6:64–7:1 (“correlation matrix R can be generated, whose entries indicate the degree of correlation between the various users’ interests

in commonly retrieved messages” and those entries “contain[] a measure of correlation between the i-th user and the j-th user.”). Because Rose’s correlation-based prediction considers the feedback of other users having similar feedback responses (or indications provided by other users or interests in commonly retrieved messages) to the user, Rose “identif[ies] at least one other of the plurality of users . . . that is cognate to the user,” as recited in this limitation.

Patent Owner argues that Rose does not teach or suggest “‘*identify[ing]*’ other ‘*users*’ that are ‘*cognate to the [first] user*’” because Rose “considers the feedback from **all other users** that have rated the item that is going to be presented to the first user (i.e., the item for which relevancy is being predicted)” rather than feedback from “a **subset** of users – i.e., only those users that are *cognate to the [first] user*.” PO Resp. 37; PO Sur-reply 7.

Patent Owner’s arguments are unavailing. Patent Owner does not contest Petitioner’s showing that users having similar feedback responses are other users that are “cognate to the user.” See PO Sur-reply 9 (“a group of users with ‘similar’ ‘interests’ or ‘feedback responses’ may be ‘cognate’ to other members in the group”); PO Resp. 37–41. Even if Patent Owner were correct that Rose considers “feedback of all other users” (PO Resp. 37–38), Patent Owner’s argument fails because the claim does not preclude consideration of feedback from all other users, whether they are cognate or not. Instead, the claim simply requires “identify[ing] at least one other of the plurality of users . . . that is cognate to the user.” Rose teaches that feature because Rose’s correlation-based prediction factor “identif[ies] the most important attributes that are used as predictors, e.g., . . . users having similar feedback responses.” Ex. 1006, 7:39–51. And, even if the claim

somehow were limited to only identifying cognate users, that portion of Rose only discusses users who are similar, which supports finding that the identified users are limited to similar users.

In another argument, Patent Owner emphasizes that Rose states that “**attributes**” are identified, rather than cognate users. PO Resp. 40 (citing Ex. 1006, 7:39–51). However, that argument ignores the remainder of that passage which goes on to state that exemplary attributes include, “e.g., salient terms in a document *and users having similar feedback responses.*” Ex. 1006, 7:41–47 (emphasis added). Petitioner’s additionally cited disclosures in Rose further show that similar other users are identified to make content relevance predictions for a user. *See* Pet. 57–59. In one portion, Rose explains that a user’s reaction to a movie “provide[s] information to rank that movie for viewing by other users whose interests in movies are similar or opposed.” *Id.* at 5:55–60. Using a first user’s reaction to a movie to rank that movie for a second user with similar movie interests identifies the first user as cognate to the second user based on their similar movie interest. In another portion, Rose states that it generates a “degree of correlation between the various users’ interests in commonly retrieved messages.” *Id.* at 6:64–7:1; *see id.* at 7:27–29 (“the first value represents the degree of correlation between the other user and the current user in question, as indicated by the matrix.”). These descriptions show that Rose identifies users who are cognate, as required by the claim.

Accordingly, Petitioner has shown, by a preponderance of the evidence, that Rose teaches this limitation.

h) Limitation 1[g]

Petitioner contends that Rose teaches

determine 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 local importance describing an importance of the sender to the user, a global importance describing an importance of the sender within an organization with which the plurality of users are associated, a content relevance determined responsive to content of the piece of electronic content, and 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.

Pet. 59–60 (citing Ex. 1006, 2:46–50, 5:8–23, 5:56–60; 6:59–66, 7:35–51; Ex. 1003 ¶¶ 186–190, 192–193). In particular, Petitioner asserts limitation 1[g] recites a Markush group and Rose teaches the last option in that group. Indeed, Rose describes a correlation matrix with entries indicating the degree of correlation between users’ interests in commonly retrieved messages. Ex. 1006, 6:51–7:1. Patent Owner does not dispute this contention. *See* PO Resp. We find that Petitioner has shown, by a preponderance of the evidence, that Rose teaches this limitation.

i) Limitation 1[h]

Petitioner contends that Rose teaches “a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, 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.” Pet. 60–61 (citing Ex. 1006, 6:36–43, 6:54–57, 6:64–66, 7:35–40, 7:44–47, 7:51–62). Referencing limitation 1[d], Petitioner reiterates that Rose teaches a “first

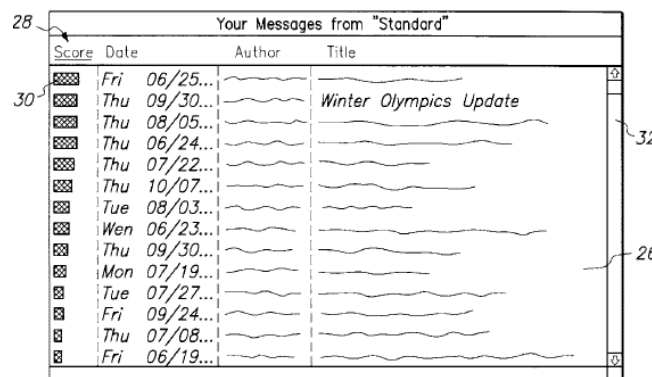
measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content” because Rose compares a user’s profile, which is updated based on a user indicating interest in content, to a document in order to determine their similarity, e.g., by comparing the angle between vectors of the user profile the document’s, Pet. 60 (citing Ex. 1006, 6:36–43, 6:54–57). Petitioner then explains that the similarity between the user profile and the document is used to “determine the relevance score of the piece of electronic content” as required in this limitation based on Rose’s description that “a combination of attribute-based and correlation based prediction is employed to rank the relevance” of documents by, e.g., calculating a “final ranking score” which is a “a *weighted sum of scores* that are obtained from each of the content and correlation predictors.” *Id.* at 61 (citing 1006, 7:35–40). Based on the document’s ranking score, Rose ranks and lists the document against other documents. Ex. 1006, 4:45–54; *see id.* Fig. 3.

Patent Owner contends that Rose does not teach “determin[ing] the relevance score of the piece of electronic content . . . based at least in part on the first determined measure of relevance” (as recited in limitation 1[h]) where that first determined measure of relevance is based on “one or more actions of the user on the piece of electronic content” (as recited in limitation 1[d]). PO Resp. 27–35; PO Sur-reply 3–7. More specifically, the claim requires that the relevance score for the piece of electronic content is based on the user’s actions on that piece of electronic content — but Patent Owner argues “Rose predicts the relevancy of content before it is presented to the first user,” and, so, “Rose does not use the first user’s **own actions** on an item to determine the item’s relevance score for the first user.”

PO Resp. 27–28. Patent Owner continues on, asserting that “[o]nce the first

user has rated that item, there is no longer any value in ‘predicting’ whether that item will be relevant to the first user; the system already knows whether the first user gave the item a thumbs up (relevant) or a thumbs down (not relevant).” *Id.* at 34. Patent Owner succinctly describes this issue as a “dispute[over] whether Rose also re-scores the content after the first user interacts with it.” PO Sur-reply 3.

Petitioner shows, by a preponderance of the evidence, that a person of ordinary skill in the art would have understood that Rose teaches or at least suggests ranking of a piece of electronic content based on the user’s indication that the piece of electronic content is of interest to the user. Figure 3 of Rose, reproduced below, shows “an e-mail system” where “all of the messages addressed to [a] user are ranked” such that “messages which are particularly pertinent to the user’s interests are highly ranked, whereas junk mail messages are given a low ranking.” Ex. 1006, 4:40–49.



Score	Date	Author	Title
30	Fri 06/25...		
28	Thu 09/30...		Winter Olympics Update
26	Thu 08/05...		
24	Thu 06/24...		
22	Thu 07/22...		
20	Thu 10/07...		
18	Tue 08/03...		
16	Wen 06/23...		
14	Thu 09/30...		
12	Mon 07/19...		
10	Tue 07/27...		
8	Fri 09/24...		
6	Thu 07/08...		
4	Fri 06/19...		

FIG. 3

Figure 3 shows an interface window for an email system which lists messages ranked in order from the highest to the lowest ranking. *Id.* at 3:1–2, 4:40–49. When a user selects an email message, e.g., the message titled “Winter Olympics Update,” that message is displayed in an interface which “permit[s] the user to indicate his or her interest in that particular message,” e.g., selecting a “thumbs-up” or “thumbs-down” icon. *Id.* at 5:1–6, 5:15–17,

Fig. 4. That indication of interest results in an update to the user's profile vector, e.g., "if the user indicates interest in a document, all of the significant terms in that document can be given increased weight in the user's profile." *Id.* at 6:36–43. Rose explains that it updates the user's profile vector "[e]ach time a user provides a new response to a retrieved message" indicating the user's interest. *Id.* at 6:38–40.

The evidence best supports Petitioner's assertion that, after a user has indicated interest (or no interest) in an email message, when that message is provided in Rose's listing of ranked messages, that message's ranking would be based on the user's indicated interest. *See* Pet. 54 ("[R]atings from the user's client device are . . . 'used to update the user profile' . . . that is 'used to rank the messages stored within the system.'"), 60–61 ("Rose . . . discloses calculating a final relevance score based on . . . a relevance score based on that user's actions."); Pet. Reply 4 ("[W]hen Rose presents content to the user with rankings, those rankings reflect an overall relevance score based on the user's actions on that content.").

Most notably, Rose describes "an e-mail system" and expressly states that "*all* of the messages addressed to that user are ranked." Ex. 1006, 4:38–42 (emphasis added). As such, even if a user previously indicated an email message was of interest, that email message would be listed and ranked based on that interest indication because Rose's email system lists all messages. Additional portions of Rose support that finding. For example, Rose explains that its user profile vector is updated "[e]ach time a user provides a new response [indicating interest] to a retrieved message." *Id.* at 6:38–40. Because Rose always updates its user's profile when an indication of interest in an email is provided, it follows that when Rose provides its ranking of all email messages, that email's ranking is updated.

Patent Owner's assertion that Rose would not provide a "**ranking score** for an item **after** the first user has read and rated it," (PO Resp. 30), asks for an unintuitive reading of Rose's email system and, further, does not comport with Rose's teachings. Patent Owner's assertion means that, after the user indicates interest in a first email at an original ranking, the first email's original ranking is fixed. As such, when Rose's email system displays a ranking of "all of the messages addressed to that user" (Ex. 1006, 4:40–42), strangely, the first email is fixed in its original ranking, no matter how relevant the first email is in comparison to other emails. This also means that new emails are somehow ranked in comparison to the first email, but cannot displace the email's original ranking which, according to Patent Owner's assertion, is not recalculated no matter how the user rated it. Following Patent Owner's assertion also leads to results antithetical to Rose's purpose which aims to rank "particularly pertinent" messages highly while "junk mail messages are given a low ranking." *Id.* at 4:38–44. For example, if a user indicated an email message that was originally highly ranked, but was actually uninteresting junk email, then, according to Patent Owner's reading, that junk email message would remain highly ranked when listed in Rose's email interface — a result that does not comport with Rose's overall teachings and stated purpose.

We also disagree with Patent Owner's assertion that when Rose states "all of the messages to be provided to the user are ranked on the basis of a predicted degree of relevance to the user" and "all of the messages addressed to that user are ranked" (Ex. 1006, 4:38–42), Rose actually means "ranking each message **before** it is rated by the first user" because Rose ranks messages "on the basis of a **predicted** degree of relevance" (PO Resp. 32). Patent Owner's reading of Rose adds a caveat to Rose's plain words such

that “all messages” means *not* all messages and, instead, means a specific subset of all messages that have not been rated by a user or means “unread messages.” *Id.* at 33. However, we do not find any disclosure in Rose supporting that caveat. Patent Owner makes too much out of Rose’s use of the phrase “predicted degree of relevance,” as if making an initial prediction forecloses making updated predictions based on updated information. *See* PO Sur-reply 5–6 (discussing its “citation to dozens of citations in Rose ‘predicts’ an item’s ‘likely’ relevance”). Even if a user has indicated that a message is or is not of interest, the predicted degree of its relevance predicts the relevance of that message as compared to all messages.

Furthermore, the example Patent Owner points to as support for its opposition to Rose’s plain language better supports Petitioner’s position. Patent Owner argues that after a user indicates interest in a message via a “thumbs up (relevant) or a thumbs down (not relevant)” button, “there is no longer any value in ‘predicting’ whether that item will be relevant to the first user” and “continu[ing] to rank items for the first user after the first user rated them” is contrary to Rose’s aim to avoid dealing with “irrelevant information.” PO Resp. 34–35; Ex. 1006, 5:15–21. But ranking the message based on the user’s interest indicator is consistent with and furthers that goal. For example, where a user indicates an email message is not of interest, that email would be given a relatively low ranking and displayed towards the bottom of the list of messages, thereby deprioritizing irrelevant information. *See id.* at 4:42–48 (“Those messages which are particularly pertinent to the user’s interests are highly ranked, whereas junk mail messages are given a low ranking. A list of the ranked messages is provided to the client program, which displays some number of them through a

suitable interface. Preferably, the messages are sorted and displayed in order from the highest to the lowest ranking.”).

Accordingly, Petitioner has shown, by a preponderance of the evidence, that a person of ordinary skill in the art would have understood that Rose teaches or at least suggests this limitation.

For the reasons provided above, we are persuaded that the subject matter of claim 1 would have been taught or suggested by Rose. As discussed below in § II.G, Patent Owner’s proffered objective indicia of nonobviousness do not outweigh Petitioner’s showing. Accordingly, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of independent claim 1 would have been obvious over Rose.

3. Remaining Claims

Petitioner provides argument and evidence in support of its contention that remaining claims 2, 3, 5–9, 13–15, 18, 19, and 22 are taught, suggested, or would have been obvious over Rose. Pet. 62–66.

Patent Owner does not address claims 2, 3, 5–9, 13–15, 18, 19, and 22 beyond linking those claims to arguments that Rose does not teach limitations 1[f] and 1[d]/1[h], which we addressed in claim 1. *See* PO Resp. 22. For reasons provided above in § II.E.2, Patent Owner’s arguments are unavailing.

As to Petitioner’s analysis addressing the subject matter recited in claims 2, 3, 5–9, 13–15, 18, 19, and 22, Petitioner provides citations and reasoned analysis supported by the record to show that the claims would have been obvious by a preponderance of evidence. *See* Pet. 62–66.

Regarding the remaining claims challenged over Rose, claims 6 and 7 are independent claims that recite similar subject matter as independent claim 1. *See* Ex. 1001, 48:16–49:20. As such, we determine that Petitioner has shown that subject matter of claims 6 and 7 would have been obvious over Rose for the same reasons discussed above in § II.E.2. Regarding claims 2, 13, and 18, Rose teaches an email interface with a score column disputing the relative ranking score of each message. Ex. 1006, 4:50–53, Fig. 3. Regarding claims 3, 14, and 19, Rose teaches a text searching and text retrieval service. *Id.* at 2:51–55, 3:26–28. Regarding claims 5 and 15, Rose teaches its electronic content includes messages in an electronic mail network. *Id.* at 2:28–34, 3:38–43. Regarding claims 8 and 22, Rose teaches correlating users based on similar past feedback responses. *Id.* at 5:57–60, 6:61–7:1, 7:39–51. Regarding claim 9, it would have been obvious that Rose’s correlation matrix, when considering vectors with thousands of dimensions for each user/document, would be asymmetric. Ex. 1003 ¶¶ 223–224; *see* Ex. 1006, 6:26–30.

Accordingly, we conclude that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 2, 3, 5–9, 13–15, 18, 19, and 22 would have been obvious to one of ordinary skill in the art over Rose.

F. Obviousness over Rose and Bieganski

In another ground, Petitioner asserts claims 1–3, 5–9, 13–15, 18, 19, and 22 would have been obvious over Rose in combination with Bieganski. Pet. 2, 66–78.

Patent Owner opposes, arguing that Petitioner improperly combined Rose and Bieganski. PO Resp. 42–44.

We conclude that the challenged claims would have been obvious over the combination of Rose and Bieganski. We provide our analysis below.

1. Summary of Bieganski (Ex. 1007)

Bieganski describes techniques for recommending content to a user. Ex. 1007, 4:66–5:12. One technique uses “automated collaborative filtering” to match users with shared interests into “affinity groups” or “neighborhoods.” *Id.* at 6:27–36. Neighborhoods are formed by selecting a set of users from a user population who have profiles most similar to a user’s profile. *Id.* at 7:9–11. After forming a neighborhood, a set of recommendations is generated based on the neighborhood, e.g., recommended items occurring in profiles of the user’s neighbors that do not occur in the profile of the user. *Id.* at 7:66–8:3.

2. Combination of Rose and Bieganski

As described above, Petitioner relies on Rose (*see* Pet. 44–61) to teach a system that ranks and lists information, e.g., emails, for a user based on relevance (Ex. 1006, 2:25–34). Rose determines the relevance of an email to the user based on, among other things, other users’ feedback on that email. *Id.* at 6:59–61. Petitioner further asserts Bieganski’s collaborative filtering technique, which groups selected users into neighborhoods to recommend content, teaches identifying other users who are “cognate” to the user. Pet. 69–70, 74. Petitioner combines Bieganski’s collaborative filtering technique with Rose, explaining that doing so would improve Rose’s recommendations by refining which other users are considered when

determining an email's relevance. *Id.* at 71 (citing Ex. 1003 ¶¶ 235–236), 75 (citing Ex. 1003 ¶¶ 247–248).

Petitioner adequately shows that one of ordinary skill would have combined Rose and Bieganski. Rose and Bieganski are both concerned with recommending content to a user based on other users' content preferences. Ex. 1006, code (57); Ex. 1007, code (57). Petitioner, supported by Dr. Fox, adequately shows that Bieganski discloses an improved technique for selecting which other users' preferences are considered in a recommendation. Pet. 71 (citing Ex. 1003 ¶¶ 235–236), 75 (citing Ex. 1003 ¶¶ 247–248). We agree that improving Rose's content ranking system using Bieganski's content recommendation technique sufficiently motivates the combination. *See KSR Int'l*, 550 U.S. 417 (noting that where “a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious”).

Patent Owner's argument that Bieganski's approach is not an improvement over Rose because Rose “teach[es] that feedback from all users is valuable” (PO Sur-reply 9–10 (citing Ex. 2029 ¶ 199)) has two faults. First, that argument mischaracterizes Rose. We find no description in Rose which states that feedback from all users is “valuable” such that selecting certain users is not an improvement. Rather, Rose aligns with Bieganski's selection of relevant users because Rose emphasizes feedback from similar users by adjusting the weight given to feedback from users who are more or less correlated. Ex. 1006, 6:64–7:1, 7:10–34 (“ R_{jk} is the correlation of users i and k , the V_{kj} is the weight indicating the feedback of user k on document j .”). Second, even if Rose describes an embodiment where feedback from all users is considered, that does not preclude

considering feedback from only the most relevant users as a suitable motivating improvement. *See PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197–98 (Fed. Cir. 2014) (noting it is not necessary to show that a combination is “the *best* option, only that it be a *suitable* option”).

Patent Owner also contends one of ordinary skill in the art would not have combined Rose and Bieganski because there are “numerous reasons why a POSITA would **not** have been motivated to combine the references and would not have expected to be successful in doing so.” PO Resp. 42–43; PO Sur-reply 9–10. Patent Owner argues “a skilled artisan would not be motivated to look to Bieganski at all to solve the problems involving sent pieces of electronic content that the ’217 Patent was trying to solve “[b]ecause Bieganski is directed to a different type of content,” namely, “non-textual multimedia content such as movies and videos.” PO Resp. 43 (citations omitted). However, the factual premise of Patent Owner’s argument, that “Bieganski addresses recommending a particular type of content: non-textual multimedia content” (PO Resp. 43), is flawed. Bieganski describes “[a]nother application area” for its recommendation system “is textual information sources” such as “Internet documents.” Ex. 1007, 17:44–50. Although Patent Owner asserts that “Internet documents” are not “sent” electronic content (PO Resp. 43–44), any document accessed through the internet is a “sent” document because the internet is a network of devices being served information to and from one another.

Moreover, even if Bieganski did not teach “sent” content, we disagree with Patent Owner’s suggestion that Bieganski is not analogous art to the ’217 Patent. Bieganski is analogous art to the ’217 Patent under both tests for analogous art, i.e., (1) whether the art is from the same field of endeavor,

regardless of the problem addressed and, (2) whether the reference is reasonably pertinent to the particular problem with which the inventor is involved. *See In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004). Bieganski and the '217 Patent are in the same field of endeavor, specifically, identifying and recommending relevant content to a user. Ex. 1001, code (57); Ex. 1007, code (57). And Bieganski and the '217 Patent address similar problems — determining which other users should be considered when recommending content to a particular user. Ex. 1001, 14:59–15:11 (“[T]he 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.”); Ex. 1006, 7:11–16 (“[I]t is also important to limit the number of users that are selected as neighbors.”).

Patent Owner further argues that “combining Rose and Bieganski would not be as simple of a change as Petitioner and its expert suggest” because Bieganski makes “two threshold selections in Bieganski – i.e., minimum neighbor similarity and maximum neighborhood size,” which “are not trivial.” Prelim. Resp. 50 (citing Ex. 2029 ¶ 202). The evidence, however, weighs in favor of Petitioner. The only evidence that Patent Owner cites to show selecting neighbor similarity and maximum neighborhood size are non-trivial is a statement by its declarant, Dr. Khan, which asserts, but does not explain why, such selections are non-trivial. *See* Ex. 2029 ¶ 202. Petitioner’s declarant, Dr. Fox, on the other hand, explains that the similarity of the features in Rose and Bieganski “demonstrates that a POSITA would be able to easily combine their teachings” and further explains how those teachings would be combined. *See* Ex. 1003 ¶ 237. Furthermore, the threshold selections in Bieganski are numerical parameters used to optimize recommendations, e.g., “a minimum number of items in

common with the customer before being included in a neighborhood” or a “maximum neighborhood size.” Ex. 1007, 7:16–27. We credit the testimony of Dr. Fox that selecting a number to optimize recommendations was within the ability of a person of ordinary skill in the art. *See* Ex. 1003 ¶ 237.

Accordingly, we find that a person of ordinary skill in the art would have been motivated to combine Rose and Bieganski and would have achieved the combination with a reasonable degree of success.

3. Claims 1–3, 5–9, 13–15, 18, 19, and 22

Petitioner contends that the combination of Rose and Bieganski teaches each of the limitations of claim 1–3, 5–9, 13–15, 18, 19, and 22, supporting its contentions with evidence from the asserted prior art and from the testimony of Dr. Fox. Pet. 73–78.

Patent Owner references its previous arguments regarding Rose to contend that the combination of Rose and Bieganski does not teach limitations 1[d]/1[h], which we addressed above in § II.E.2.i. *See* PO Resp. 42. Aside from that, Patent Owner does not dispute whether the cited portions of the relied upon references disclose, teach, or suggest the respective limitations the claims for which they are relied upon. *See id.*

As to Petitioner’s analysis addressing the subject matter recited in the claims, Petitioner provides citations and reasoned analysis supported by the record to show that the claims would have been obvious by a preponderance of evidence. *See* Pet. 73–78.

Regarding independent claim 1, Petitioner relies on its previous analysis of Rose to meet limitations 1[pre], 1[a], 1[b], 1[c], 1[d], 1[g], and 1[h] in this combination. *Id.* at 73, 76. As discussed above, Petitioner has

shown that Rose meets those limitations. Further, Petitioner relies on the combination of Rose and Bieganski's teachings to meet limitations [1e] and 1[f]. In particular, Petitioner asserts that Bieganski teaches an "automated collaborative filtering" feature which "evaluate[s] the relevance of content by looking at feedback from "matching users who have shared interests" that have been sorted into "affinity groups" or "neighborhoods" teaches identifying cognate users. Pet. 74–75 (citing Ex. 1007, 6:27–36, 7:6–39, 7:57–65; Ex. 1003 ¶¶ 246–248). Indeed, Bieganski describes forming a neighborhood of users who are similar. Ex. 1007, 7:8–39 ("[T]he neighborhood 406 is formed by selecting all the users whose profiles share at least two items with the customer's profile . . . In this case, five users are selected as members of the neighborhood."). For the reasons provided above, we are persuaded that the subject matter of claim 1 would have been taught or suggested by the combination of Rose and Bieganski.

Regarding the remaining claims challenged over the combination of Rose and Bieganski, claims 6 and 7 are independent claims that recite similar subject matter as independent claim 1. *See* Ex. 1001, 48:16–49:20. As such, we determine that Petitioner has shown that subject matter of claims 6 and 7 would have been obvious over Rose and Bieganski for the same reasons discussed above. Regarding dependent claims 2, 3, 5, 8, 13–15, 18, 19, and 22, Petitioner references its analysis previous analysis of Rose to meet those claims. *See id.* at 76–77. As discussed above, Petitioner has shown that Rose meets those limitations.

Regarding dependent claim 9, Petitioner relies on Bieganski's teachings that "neighborhoods" are limited by minimum neighbor similarity and maximum neighborhood size and assert that a person of ordinary skill in the art would have "understood neighborhoods would be asymmetrical

because the most similar users for one user may not mirror those of another.” Pet. 77–78 (citing Ex. 1007, 7:16–27, 7:57–65; Ex. 1003 ¶¶ 153–158, 269). Petitioner shows, by a preponderance of the evidence that Bieganski teaches the limitations recited in claim 9. As Bieganski’s maximum neighborhood size suggests that neighborhoods include different sets of users, it follows that a user may be considered cognate to another user, but the mirror relationship may not exist. As such, Petitioner has shown the combination of Rose and Bieganski meets the limitations recited in claim 9.

As discussed below in § II.G, Patent Owner’s objective indicia of nonobviousness does not outweigh Petitioner’s showing. Accordingly, we conclude that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 1–3, 5–9, 13–15, 18, 19, and 22 would have been obvious to one of ordinary skill in the art over the combination of Rose and Bieganski.

G. Objective Indicia of Nonobviousness

Patent Owner has presented, and so we analyze, objective indicia of nonobviousness (also known as secondary considerations). PO Resp. 57–59; *see* Exs. 1001, 2079–2085, 2086–2088.

“The objective indicia of non-obviousness play an important role as a guard against the statutorily proscribed hindsight reasoning in the obviousness analysis.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1328 (Fed. Cir. 2016). Objective indicia “may often be the most probative and cogent evidence in the record” and “must be considered in every case” where present. *Id.* (quotation and emphasis omitted); *see also Graham*, 383 U.S. at 36 (“[Objective indicia] may also serve to guard against slipping into

use of hindsight, and to resist the temptation to read into the prior art the teachings of the invention in issue.” (internal quotation marks and citation omitted)).

“In order to accord substantial weight to secondary considerations in an obviousness analysis, the evidence of secondary considerations must have a nexus to the claims, *i.e.*, there must be a legally and factually sufficient connection between the evidence and the patented invention.” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (citations and internal quotation marks omitted). “The patentee bears the burden of showing that a nexus exists.” *Id.* A patent owner is entitled to a rebuttable presumption of nexus “when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Id.* (citation omitted).

Alternatively, the patent owner may prove nexus “by showing that the evidence of secondary considerations is the “direct result of the unique characteristics of the claimed invention.” *Id.* at 1373–74 (quotation omitted).

Patent Owner argues that evidence of commercial success, long-felt need, failure by others, industry praise, recognition of the problem solved, and copying show that claim 1 would not have been obvious. PO Resp. 57–59; PO Sur-reply 25–26. Petitioner argues that Patent Owner “has not shown any nexus (presumed or actual) between the claimed invention and the asserted objective indicia related to those products.” *See* Pet. Reply 27. Having considered the parties’ arguments and evidence, we determine that Patent Owner fails to sufficiently show a nexus between any of its evidence and the claimed invention. *See Fox Factory*, 944 F.3d at 1373 (“The patentee bears the burden of showing that a nexus exists.”).

In fact, Patent Owner's Response does not address the nexus requirement at all. *See* PO Resp. 57–59. First, Patent Owner has not shown that it is entitled to a presumption of nexus because it does not identify which specific features in what product embody the claimed features or are coextensive with the claimed features. *See* PO Resp. 57–59; PO Sur-reply 25–26.

Nor does Patent Owner establish nexus by showing that any of its objective indicia evidence is the direct result of the unique characteristics of the claimed invention. Patent Owner does not address a number of features that Patent Owner itself identifies as unique to the claimed invention. For example, Patent Owner argues the '217 Patent is distinguishable from the prior art because the '217 Patent identifies another user who is a “recipient” of the same piece of electronic content as the user. PO Resp. 37–41, 52–54. But in its discussion of objective indicia, Patent Owner does not address that particular feature. *See id.* at 57–59. In another example, Patent Owner does not address how the objective indicia are the result of other relevancy considerations calculated by the claim, i.e., “the relevance score being determined based . . . on the first determined measure of relevance and on the second determined measure of relevance.” *See id.* In a nutshell, Patent Owner argues that the '217 Patent claims a unique manner of determining relevancy, but there is no explanation of how its objective indicia evidence is attributable to that allegedly unique manner of determining relevancy.

Patent Owner, in its Sur-reply, asserts that it “submitted the Complaints from the federal litigations, in which PO laid out the allegations as to why the products meet all of the limitations.” PO Sur-reply 25. First, it is improper to incorporate arguments from Patent Owner's infringement complaints into Patent Owner's Response because that would violate

37 C.F.R. § 42.6(a)(3), which states that “[a]rguments must not be incorporated by reference from one document into another document.” Moreover, Patent Owner’s infringement allegations and citation to the entirety of its infringement complaints do not specifically address the nexus issue and explain why there is a nexus. *See* PO Resp. 57–58.

As it is Patent Owner’s burden to show nexus, but Patent Owner has not adequately discussed nexus, Patent Owner’s objective indicia evidence are given little to no weight for this reason alone. *See Fox Factory*, 944 F.3d 1373. As a result, Patent Owner’s objective indicia evidence does weight in favor of nonobviousness.

III. PATENT OWNER’S MOTION TO EXCLUDE

Patent Owner moves to exclude certain portions of Dr. Khan’s cross-examination testimony, specifically pages 123–131:21 of Exhibit 1044. Paper 36, 6–7. Patent Owner argues that these declarations should be excluded under the Federal Rules of Evidence §§ 401, 403, and 611. *Id.*

We have not considered any of the evidence Patent Owner moves to exclude in reaching our findings and conclusions set for in this Decision. As a result, Patent Owner’s Motion to Exclude this evidence is dismissed as moot.

IV. PETITIONER’S MOTION TO EXCLUDE

Petitioner moves to exclude: (1) the Claim Chart for BlueSpace Mail Documents (Ex. 2014); (2) certain conception documents (Exs. 2004–2008, 2010–2012, 2019–2023, 2025–2027, 2032–2036, 2038–2039, 2043–2045, 2047–2050, 2054, 2056–2062, 2065–2069, 2073–2074) and related inventor testimony (Ex. 2003, ¶¶ 3–14; Ex. 2015 ¶¶ 10–32, 37–48; Ex. 2030 ¶¶ 5,

14–15, 20, 22–23, 26–32, 34, 37–43, 45, 61–62; Ex. 2031 ¶¶ 12, 19, 21, 23–30, 33–37); (3) inventor testimony from the perspective of a person of ordinary skill in the art (Ex. 2003 ¶¶ 15–30); (4) inventor testimony and exhibits allegedly based on hearsay and/or lacking authentication (Ex. 2030 ¶¶ 58–59, 62; Ex. 2031 ¶¶ 19, 24–26; Exs. 2047–2048, 2050, 2056–2058); (5) web pages (Exs. 2079–2083); and (6) Exhibits 2023–2039 and 2041–2078. Paper 37, 14–15.

Because we have determined that all challenged claims are unpatentable without excluding the evidence Petitioner seeks to exclude, Petitioner’s Motion to Exclude is dismissed as moot.

V. CONCLUSION

Based on the evidence presented with the Petition, the evidence introduced during the trial, and the parties’ respective arguments, Petitioner has shown by a preponderance of the evidence that claims 1–3, 5–9, 13–15, 18–19, and 22 are unpatentable.

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1-3, 5-9, 13-15, 18, 19, 22	103(a)	Dumais	1-3, 5-9, 13-15, 18, 19, 22	
1-3, 5-9, 13-15, 18, 19, 22	103(a)	Rose	1-3, 5-9, 13-15, 18, 19, 22	
1-3, 5-9, 13-15, 18, 19, 22	103(a)	Rose, Bieganski	1-3, 5-9, 13-15, 18, 19, 22	
Overall Outcome			1-3, 5-9, 13-15, 18, 19, 22	

VI. ORDER

In consideration of the full trial record before us, and for the foregoing reasons, it is:

ORDERED that claims 1–3, 5–9, 13–15, 18, 19, and 22 of U.S. Patent No. 7,716,217 B2 are determined to be unpatentable;

FURTHER ORDERED that Patent Owner’s Motion to Exclude (Paper 35) is *dismissed* as moot;

FURTHER ORDERED that Petitioner’s Motion to Exclude (Paper 36) is *dismissed* as moot; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2025-00430
Patent 7,716,217 B2

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