

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNIFIED PATENTS INC.,
Petitioner,

v.

S.I.SV.EL. SOCIETA ITALIANA PER LO SVILUPPO
DELL'ELETTRONICA S.P.A.,
Patent Owner.

IPR2019-00471
Patent 7,734,680 B1

Before TERRENCE W. McMILLIN, AMANDA F. WIEKER, and
MONICA S. ULLAGADDI, *Administrative Patent Judges*.

McMILLIN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

We have jurisdiction to conduct this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed herein, we determine that Unified Patents Inc. (“Petitioner”) has shown, by a preponderance of the evidence, that claims 1, 4, 8, 11–13, and 16–18 of U.S. Patent No. 7,734,680 B1 (Ex. 1001, “the ’680 patent”) are unpatentable. Petitioner has not shown that claim 10 of the ’680 patent is unpatentable.

I. BACKGROUND

A. *Procedural History*

Petitioner filed a Petition challenging claims 1, 4, 8, 10–13, and 16–18 of the ’680 patent. Paper 2 (“Pet.”).¹ S.I.SV.EL. Societa Italiana Per Lo Sviluppo Dell’elettronica S.p.A. (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 6 (“Prelim. Resp.”). On July 24, 2019, we instituted trial. Paper 10 (“Inst. Dec.”). Patent Owner filed a Response. Paper 14 (“PO Resp.”). Petitioner filed a Reply. Paper 18 (“Pet. Reply”). Patent Owner filed a Sur-reply. Paper 20 (“PO Sur-reply”). An oral argument was held on April 23, 2020, and a transcript was entered into the record. Paper 35 (“Tr.”).

¹ Petitioner filed a motion to correct clerical and typographical errors in the Petition under 37 C.F.R. § 42.104(c). Paper 7. This motion was granted and the changes in the red-lined version of the Petition filed as Exhibit 1020 were incorporated into the Petition as originally filed. Paper 9, 5. Accordingly, we review the Petition as including the changes shown in Exhibit 1020.

B. Related Matters

The parties indicate that the '680 patent has been asserted in these three cases filed in the United States District Court for the District of Delaware on January 8, 2018:

S.I.SV.EL. Societa Italiana Per Lo Sviluppo Dell'elettronica S.p.A. v. Rakuten Kobo Inc., No. 1:18-cv-00068;

S.I.SV.EL. Societa Italiana Per Lo Sviluppo Dell'elettronica S.p.A. v. Rhapsody International Inc., No. 1:18-cv-00069; and

S.I.SV.EL. Societa Italiana Per Lo Sviluppo Dell'elettronica S.p.A. v. Spotify USA Inc., No. 1:18-cv-00070. Pet. 64; Paper 3, 2.

The '680 patent was also the subject of IPR2019-00520 in which we denied institution of *inter partes* review.

C. The '680 Patent

The '680 patent is titled, "Method and Apparatus for Realizing Personalized Information from Multiple Information Sources." Ex. 1001, code (54). "A meta-browser presents personalized collections of information from multiple sources of different media types in a single browser space." *Id.* at 2:37–39. Figure 4 of the '680 patent is reproduced below.

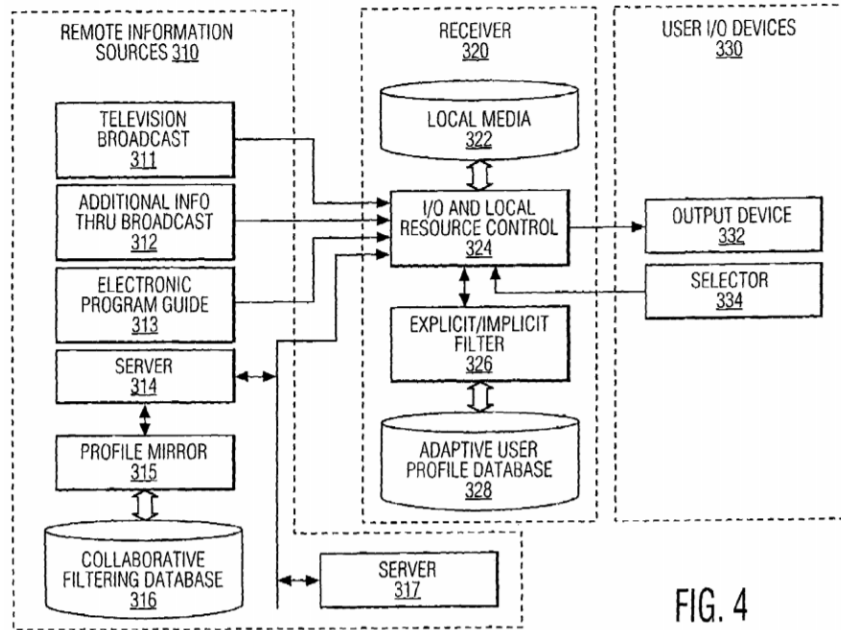


FIG. 4

Figure 4 depicts “a block schematic diagram of a meta-browser system.” *Id.* at 2:28–29. The system shown in Figure 4 includes remote information sources 310 comprised of collaborative filtering database 316 and other sources of information. *Id.* at 7:24–27. Figure 4 also depicts receiver 320 with explicit/implicit filter 326 and adaptive user profile database 328. *Id.* at 5:41–6:17. Figure 4 further depicts user I/O devices 330 including output device 332 and selector 334. *Id.* at 5:16–40.

“The meta-browser presents personalized collections of information from multiple sources of different media types as different media collections in [a] unified browser space.” *Id.* at code (57) (Abstract). “[P]ersonalized recommendations . . . are generated based on a profile of the user’s interests captures across multiple media sources.” *Id.* “Collaborative filtering, which uses multiple user profiles to compute co-relations between the user’s profile and others, is also used to make recommendations.” *Id.*

D. Challenged Claims

Petitioner challenges claims 1, 4, 8, 10–13, and 16–18 of the '680 patent. Pet. 2. Of the challenged claims, claim 1 is an independent method claim, claim 11 is an independent apparatus claim, and claim 16 is an independent computer program product claim. Ex. 1001, 10:21–12:64. Claim 1 recites:

1. A method operable in a computer-enabled apparatus, said method comprising:
 - establishing a user profile for a user based on various interests of the user;
 - establishing a virtual unified space including a virtual library on the computer-enabled apparatus;
 - populating the virtual library with a plurality of different virtual media collections in accordance with the user profile, wherein the plurality of the different virtual media collections includes information obtained directly from at least a broadcasted television signal; and
 - browsing the virtual library by moving between the plurality of different media collections under user control;
 - searching the virtual unified space with a search engine under user control; and
 - filtering the results of the searching step in accordance with the user profile and the browsing step, wherein said filtering comprises explicit and implicit filtering, wherein said explicit filtering provides filtering of from information from said plurality of different media collections and said implicit filtering draws from collaborative data among said plurality of different media collections and similar user profiles;
 - prioritizing results of said filtering step; and
 - updating the user profile in accordance with at least one selection of the results of the filtering step, wherein said updating is reflected in a ratio in responding to said user's current programming choice or specific requests.

Id. at 10:21–48.

Claim 11 recites:

11. A receiver apparatus for obtaining content from multiple information sources for viewing by a viewer, comprising:
an input/output (“I/O”) controller including an Internet connection input, a video output, and a selector input;
an adaptive user profile database;
a filter coupled to the adaptive user profile database, the filter being coupled to the I/O controller for filtering information from the Internet connection input in accordance with the adaptive user profile database, wherein said filtering comprises explicit and implicit filtering, wherein said explicit filtering provides filtering of information from said plurality of different media collections and said implicit filtering draws from collaborative data among said plurality of different media collections and similar user profiles,
an output display device configured to display a virtual unified space including a virtual library transmitted through the video output;
a populator that populates the virtual library with virtual multiple media collections using the filtered information from the filter;
a browser that browses the virtual library by moving between multiple media collections in accordance with the selector input;
and a recommender that recommends virtual media in the virtual multiple media collections in the virtual library to a user based on a user profile for the user, and
an updater for updating the user profile based on at least one selection of the recommended virtual media, wherein said updating is reflected in a ratio in responding to said user’s current programming choice or specific requests.

Id. at 11:32–65.

Claim 16 recites:

16. A computer program product comprising a computer readable medium having program logic recorded thereon for enabling a computer-enabled apparatus to display personalized information for a user from multiple information sources, comprising:

- a populator for populating a virtual library with a plurality of different virtual media collections in accordance with a user profile, wherein the virtual library is populated with different types of media obtained from different media sources; and
- a browser for browsing the virtual library by moving between the plurality of different media collections under user control;
- a search engine for searching the virtual library under user control; and
- a filter for filtering the results of the searching step in accordance with the user profile and said browsing step, wherein said filtering comprises explicit and implicit filtering, wherein said explicit filtering provides filtering of information from said plurality of different media collections and said implicit filtering draws from collaborative data among said plurality of different media collections and similar user profiles;
- a prioritizer for prioritizing results of the filtering step; and
- an updater for updating the user profile in accordance with at least one selection of the results of the filtering step, wherein said updating is reflected in a ratio in responding to said user's current programming choice or specific requests.

Id. at 12:25–53.

E. Prior Art and Asserted Grounds

Petitioner asserts (Pet. 7) that claims 1, 4, 8, 10–13, and 16–18 of the '680 patent would have been unpatentable on the following grounds:

Claims Challenged	35 U.S.C. §	References/Basis
1, 4, 8, 10–13, 16–18	103(a) ²	Easty, ³ Hendricks ⁴
1, 4, 8, 10–13, 16–18	103(a)	Easty, Hendricks, Kittaka ⁵

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the '680 patent issued was filed before this date, the pre-AIA version of § 103 applies.

³ US Patent No. 6,189,008 B1 (Ex. 1004) filed April 3, 1998.

⁴ US Patent No. 5,798,785 (Ex. 1005) issued August 25, 1998.

⁵ US Patent No. 5,999,975 (Ex. 1006) filed March 5, 1998.

Petitioner relies on the Declaration of Loren Terveen, Ph.D. (Ex. 1003) (“Terveen Decl.”) and the First Supplemental Declaration of Loren Terveen, Ph.D. (Ex. 1021) (“Terveen Supp. Decl.”). Patent Owner relies on the Declaration of Dr. Michael J. Pazzani (Ex. 2001) (“Pazzani Decl.”) and the Supplemental Declaration of Dr. Michael J. Pazzani (Ex. 2009) (“Pazzani Supp. Decl.”).⁶

II. ANALYSIS

A. *Legal Standard*

A patent claim is unpatentable as obvious if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The 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) objective evidence of nonobviousness.⁷ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

“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

⁶ The Supplemental Declaration of Dr. Michael J. Pazzani (Ex. 2009) is the subject of a Motion to Strike (Paper 22). As discussed *infra* (Section II.D.), we deny the Motion to Strike.

⁷ Neither party presents any objective evidence of nonobviousness or any related arguments for us to consider.

petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”). Petitioners cannot satisfy their burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

B. Level of Skill in the Art

With regard to the level of ordinary skill in the art, Petitioner contends that a person of ordinary skill would have had “(i) an undergraduate degree in computer science, computer engineering, or similar technical field; and (ii) one to two years of experience in analysis, design, or development related to recommender systems and collaborative filtering, with additional education substituting for less experience and vice versa.” Pet. 6 (citing Ex. 1003 (Terveen Decl.) ¶¶ 22–24). Patent Owner contends the applicable level of ordinary skill in the art would have had “(i) a B.S. in Computer Science or a closely related field with three or more years of experience in either embedded systems or recommendation systems or (ii) at least an M.S. in Computer Science. Additional education or experience may serve as a substitute for these requirements.” PO Resp. 19 (citing Ex. 2001 (Pazzani Decl.) ¶ 24) (internal citations omitted). Although these contentions differ slightly in the amount of required experience, they are very similar, and neither party contends that these differences are material to any issue in dispute.

Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In addition, the level of ordinary skill in the art may be reflected by the prior art of record. *Okajima v. Bourdeau*, 261 F.3d 1350,

1355 (Fed. Cir. 2001). Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovention Toys, LLC v. MGA Entm't, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”).

We do not find it necessary to resolve the differences between the contentions of the parties. In other words, our conclusions herein would not differ under either party’s assessment of the appropriate level of skill in the art.

C. Claim Construction

“[I]n an *inter partes* review proceeding, a claim of a patent . . . shall be construed 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), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). In applying a district court-type claim construction, we are guided by the principle that the words of a claim “are generally given their ordinary and customary meaning,” as understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (citation omitted). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). There is a “heavy presumption,” however, that a

claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted).

We are also guided by the principle that we only construe claim terms if, and to the extent that, it is necessary. *See, e.g., Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e 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))).

In the Petition, Petitioner proposes constructions for “implicit filtering” and “explicit filtering.” Pet. 8–9. Patent Owner does not dispute Petitioner’s proposed constructions. Prelim. Resp. 33. Patent Owner does not dispute Petitioner’s showing that the cited art teaches “implicit filtering” and “explicit filtering” as used in the context of the claims of the ’680 patent. *See generally* PO Resp. Thus, we do not discern any dispute between the parties regarding these terms. As construction of these terms is not necessary in order to resolve this proceeding, we do not explicitly construe these terms.

Patent Owner contends that the term “virtual library” as used in independent claims 1, 11, and 16 should be construed to mean “a personalized collection of information from multiple sources of different media types in a single browsing space without requiring switching between different systems to access the different media types.” PO Resp. 19–23; PO Sur-reply 3–10. For the reasons discussed below, we do not adopt Patent Owner’s proposed construction as it is too restrictive and incorporates a number of limitations unsupported by the claims or the intrinsic evidence.

The plain and ordinary meaning of “virtual library” is broader than Patent Owner’s proposal and encompasses information that is not

personalized, originates from a single source, or contains a single media type. *See, e.g.*, Ex. 1021 (Terveen Decl.) ¶¶ 6–8. For example, we are persuaded that a website originating from a public library that contains only the text of books is within the plain and ordinary meaning of “virtual library.” *Id.* ¶ 8 (opining that a skilled artisan would not have understood “virtual library” to require, e.g., multiple media sources); *but see* Ex. 2001 ¶ 54 (providing only conclusory opinion that a “virtual library” “includes the ability to browse multiple types of media”). Patent Owner has not identified an explicit definition in the Specification or other evidence to overcome the presumption that “virtual library” should be given its plain and ordinary meaning, as opposed to the more restrictive construction it proposes.

Patent Owner argues that “the Specification contains numerous columns of text defining the virtual library” (PO Resp. 20) but cites in support a single passage from the “Detailed Description from the Preferred Embodiment.”^{8,9} *Id.* at 20–21. This passage contains a description of a

⁸ In a section titled “Applicable Legal Principles,” Patent Owner states, “Generally, however, it is a ‘cardinal sin’ to read a limitation from the specification into the claims,” and “[t]his holds even if the specification describes only one embodiment.” PO Resp. 5 (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1320 (Fed. Cir. 2005) (*en banc*) and *Epos Techs. Ltd. v. Pegasus Techs. Ltd.*, 766 F.3d 1338, 1341 (Fed. Cir. 2014)). In addition, Patent Owner provides the following quote from *Kara Tech. Inc. v. Stamps.com Inc.*, 582 F.3d 1341, 1348 (Fed. Cir. 2009): “a patentee is entitled to the full scope of his claims and [a court] will not limit him to his preferred embodiment or import a limitation from the specification into the claims” (addition by Patent Owner). We accept that the law does not support limiting the construction of “virtual library” based on the Specification as proposed by Patent Owner.

⁹ The Specification states: “The description and applications as set forth herein are illustrative and are not intended to limit the scope of the invention, which is defined in the following claims.” Ex. 1001, 10:9–11.

meta-browser and provides, “The metaphor underlying the meta-browser is shown in FIG. 1. The metaphor is a virtual library that has multiple floors.” Ex. 1001, 2:37–55; *see also id.* at 3:57–62 (describing an “example of a user’s experience with the meta-browser” as a “‘library’ having three floors,” each for a different type of media content, where “the library having floors 110, 120, and 130 is the unified browsing space”). Figure 1 of the ’680 patent is reproduced below.

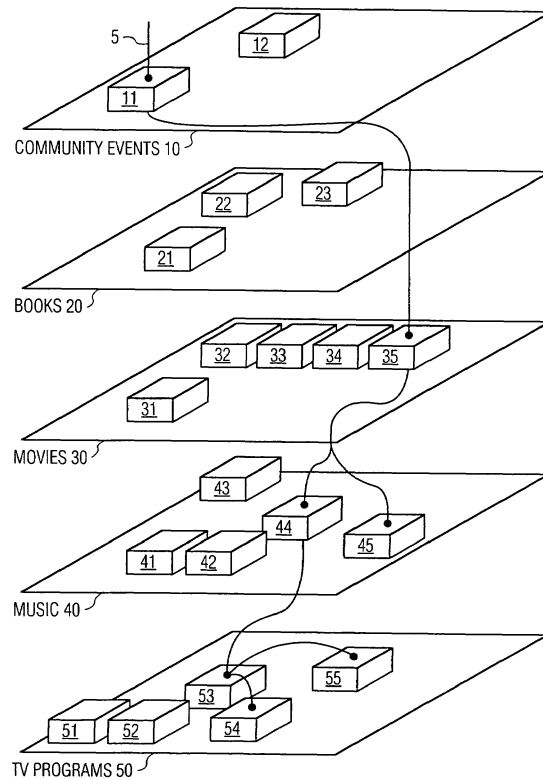


FIG. 1

Figure 1 is “a pictorial representation of a virtual digital library, in accordance with the present invention.” *Id.* at 2:20–21. Patent Owner contends, “[t]his text effectively provides a definition of ‘virtual library’ within the claims, and that definition should be adopted here.” PO Resp. 21.

We do not agree. First and foremost, the Specification does not provide that this “metaphor” or “pictorial representation” is a limiting

definition¹⁰ of “virtual library.” Indeed, the Specification provides to the contrary. The Specification states: “While the library metaphor is a particularly useful personalized visualization of heterogeneous media, other useful visualizations are possible. Other possible visualizations include, for example, simple nested menus and an office and file drawer metaphor.” *Id.* at 5:11–15. Patent Owner does not explain, and we do not discern, how the alternative visualizations of “simple nested menus” or “an office and file drawer metaphor” support Patent Owner’s proposed construction.

Second, the description of the “virtual library” metaphor in the Specification does not support Patent Owner’s proposed construction. With regard to that portion of Patent Owner’s proposed construction that provides “a personalized collection of information,” the same paragraph Patent Owner cites states, “The types of floors in the virtual library, the types of stacks populating each floor, and the specific media items on each of the stacks preferably are selected based on the user’s profile, **although they may also be based on all of the information that is available to the meta-browser when the available information is a relatively small and manageable amount.**” Ex. 1001, 3:10–15 (emphasis added). The alternative of displaying “all of the information that is available to the meta-browser,” as opposed to content “selected based on the user’s profile,” does not support limiting “virtual library” to require personalization.

With regard to the portion of Patent Owner’s proposed construction that provides “information from multiple sources from different media types

¹⁰ See *GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) (in order to act as its own lexicographer to define a claim term in the specification, a patentee must clearly set forth a definition and clearly express an intent to define the term).

in a single browsing space,” the ’680 patent states, “**The unified browsing space may be** the entire library, particular floors of the library, or **one particular floor of the library**, depending on what media collections the user wishes to browse.” Ex. 1001, 3:16–18 (emphasis added).¹¹

Importantly, each floor of the described library contains **only one** media type. *See id.* at 2:53–3:6 (“[F]loor 10 contains community events . . . Floor 20 contains books . . . Floor 30 contains movies . . . Floor 40 contains music . . . Floor 50 contains television programs.”). Therefore, these passages from the Specification do not limit the recited “virtual library” to “information from multiple sources from different media types in a single browsing space,” because the Specification explicitly contemplates a collection of a single media type, i.e., “one particular floor.”

Additionally, Patent Owner’s arguments regarding the language of independent claim 11 contradicts construing “virtual library” as Patent Owner proposes. Claim 11 recites, “a filter . . . for filtering information from the Internet connection input” and “a populator that populates the **virtual library** with virtual media collections using the filtered information from the filter.” Ex. 1001, 11:39–41, 11:52–54 (emphasis added). In the Response, Patent Owner argues, “the prior art lacks a ‘virtual library’ because it discloses an Internet-based search engine and that the Internet is a single source, ‘which is but one resource of the instantly claimed invention.’” PO Resp. 32. If “the Internet is a single source,” claim 11 recites populating the “virtual library” with information from a single

¹¹ As discussed above, the Specification describes the metaphorical “library” as an example of “the unified browsing space.” Ex. 1001, 3:57–62 (“the library having floors 110, 120, and 130 is the unified browsing space”).

source.¹²

Finally, Patent Owner does not cite any support in the Specification for including “without requiring switching between different systems to access the different media types” in its construction of “virtual library.” There is no language in the passage that Patent Owner quotes that could reasonably be interpreted as supporting construing “virtual library” to contain this restrictive phrase.¹³ *See* PO Resp. 20–21 (quoting Ex. 1001, 2:37–55); *see also* PO Sur-reply 6–7. And, we find no support elsewhere in the Specification.

Patent Owner argues, “during prosecution, the Applicant likewise disclaimed singular source libraries from its definition and confirmed that user personalized, multi-source libraries are required features.”¹⁴ PO Resp. 21. In support, Patent Owner quotes four passages from the

¹² Also, in the Response, Patent Owner argues “this is a misreading of claim 11” and “Claim 11 is merely limited to those embodiments where *one* of the sources is the Internet.” PO Resp. 32. However, at oral argument, Patent Owner acknowledged that claim 11 could be met by populating the “virtual library” with only information from the Internet. Tr. 42–43.

¹³ *See Teleflex Inc. v. Ficosa North America Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002) (requiring “expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope” in order to limit claims based on language in the specification).

¹⁴ Patent Owner does not argue that the prosecution history supports including “without requiring switching between different systems to access the different media types” in its construction of “virtual library.”

prosecution history. *See id.* at 21–22 (citing Ex. 2007,¹⁵ 449,¹⁶ 451, 477, 478). The quoted passages are:

[D]escribes the arrangement of the virtual library, wherein the library includes a number of floors indicative of ***different sources of media types*** so that the ***user may selectively browse between floors in accordance with the user profile.***

* * *

[A] ***virtual library with a plurality of different virtual media collections in accordance with the user profile,*** in which the browsing of the virtual library is achieved by moving between the plurality of different media collections . . .

* * *

Applicants claimed invention is a meta-browser that creates ***a virtual library based on a variety of sources*** and constantly updates the virtual library dependent on the actions of the user.

* * *

The virtual library of the claimed invention, ***which is created of user profile information,*** provides a user with an ability to ***search for information outside the scope of the Internet,*** and then retrieve, and search and/or browser the virtual library. . . .

¹⁵ Exhibit 2007, like Exhibit 1002, is the prosecution history of the '680 patent. In its Response, Patent Owner cites to both Exhibit 1002 and Exhibit 2007, sometimes in the same paragraph. *See* PO Resp. 17, 21–22. This has created confusion and difficulty in analyzing Patent Owner's arguments. This was unnecessary and violated the rules governing this proceeding. Exhibit 2007 was filed by Patent Owner without authorization from the Board, in violation of 37 C.F.R. § 42.6 (d) ("A document already in the record of the proceeding must not be filed again, not even as an exhibit or an appendix, without express Board authorization."). Although we could expunge Exhibit 2007 (*see* 37 C.F.R. § 42.6 (a)) (and render substantial portions of Patent Owner's arguments unsupported by cited evidence), we exercise our discretion not to do so and, instead, analyze Patent Owner's arguments on the merits, as best the supporting evidence can be discerned.

¹⁶ In the Response, Patent Owner cites page 449 of Exhibit 1002. *See* PO Resp. 21. The quoted passage does not appear on this page of Exhibit 1002. It does appear at page 449 of Exhibit 2007.

Ex. 1002, 124, 125, 151, 153. In its Response, Patent Owner cites case law providing that a disclaimer of claim scope during prosecution must be clear and unmistakable. PO Resp. 5 (citing *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325–26 (Fed. Cir. 2003) (“Although a patent’s prosecution history is relevant to the claim construction analysis, any disclaimer of claim scope based on prosecution history must be ‘clear and unmistakable.’”)). Patent Owner does not argue or explain how or why the passages it quotes from the prosecution history constitute a clear and unmistakable disclaimer. See PO Resp. 21–22. These passages were used by the Applicant in its patentability arguments. See Ex. 1002, 124, 125, 151, 153. In response to these arguments, the Examiner found the Applicant was arguing unclaimed features of the invention. *Id.* at 177–178. The Examiner wrote:

As per Appellant’s argument that a meta-browser is not an obvious variant of a browser, Appellant is arguing matter not explicitly claimed in the claims of the specification. Appellant further argues that the claimed invention involves searching a multitude of sources, where Rapaport^[17] teaches searching the single source of the Internet. However, Appellant does not distinguish in claims what that [sic] a multitude of sources are searched in addition to the Internet. Applicant further argues that the meta-browser “preferably monitors for data events even if the user engages in other activities such as...” Appellant continues to argue features not claimed in the claims of the specification.

As per Appellant’s argument that the virtual library of the claimed invention searches outside the scope of the Internet and is more than just a text-based search engine, Appellant is arguing features not claimed in the claims of the specification.

Id., see also *id.* at 367. And, on appeal from this rejection, this argument was evaluated and rejected by a predecessor of the Board, the Board of

¹⁷ U.S. Patent No. 5,890,152. See Ex. 1002, 371.

Patent Appeals and Interferences (“BPAI”). *Id.* at 376–377. The BPAI wrote:

Appellants allege that “Rapaport, as admitted in the Final Office Action, is silent with regard to a virtual library, and fails, of course, to disclose that the library may be browsed by moving between different media collections.” (Br. 6, top). This argument is key to the Appellants’ objection to the rejection, and is best analyzed by considering Claim 1’s limitations,^[18] read in the context of the specification

As noted in Findings of Fact 2, above, Rapaport teaches an enhanced browser designed to acquire information from various information sources spread across the Internet. We find in Rapaport a teaching of the claimed user profile based on the user’s interests. (Col. 3, l. 5 *ff*). We also find in Rapaport a virtual unified space: Figure 15a of Rapaport shows a Search Results screen that brings together in a single view the results of searching for butterflies in various contexts and from various information sources, which the Examiner considered a unified space. We do not find error in that reading.

Is the claimed virtual library also taught? We must consider what is a virtual library. In accordance with *Philips* [sic] (cited above) we look first to the common meaning of the term, in light of the specification. **We have not found that Appellants rely on an exact definition of virtual library in the specification.** We have found the term used in the specification to refer to a metaphor for a physical library, with stacks of information sources listed on various floors of a virtual building. (Specification, Figure 1, and page 11, line 10 *ff*). **This metaphor**

¹⁸ At this point in the prosecution, claim 1 recited (Ex. 1002, 371):

A method of realizing personalized information for a user from multiple information sources, comprising:

- establishing a user profile for the user based on various interests of the user;
- establishing a virtual unified space including a virtual library;
- populating the virtual library with a plurality of different virtual media collections in accordance with the user profile; and
- browsing the virtual library by moving between the plurality of different media collections under user control.

is not claimed, however, and only the general term virtual library is recited as a limitation in the claim. We are thus free to interpret the term with the reasonable breadth used during examination. The claim only requires that the virtual library is populated with a plurality of different virtual media collections. The Examiner has pointed out (with regard to the discussion of Claim 6, on page 5 of the Answer) that Figure 15a of Rapaport presents, as part of the unified screen (space), a plurality of different virtual media collections – for text, for audio sources, for video sources. We find this a sufficient teaching of a virtual library as claimed, as the claimed steps (claim 1), structure (claim 15), and means (claim 19) are clearly taught by Rapaport.

Id. (emphasis added). “In determining whether a clear and unambiguous disclaimer attaches to particular claim language, it is important to consider the statements made by the applicant both in the context of the entire prosecution history and the then-pending claims.” *Mass. Inst. of Tech. v. Shire Pharm., Inc.*, 839 F.3d 1111, 1120 (Fed. Cir. 2016). We have reviewed the entire prosecution history and find nothing therein that could be reasonably considered a clear and unmistakable disclaimer.¹⁹ The

¹⁹ The Patent Owner’s Response states, “The Prosecution History demonstrates that ‘virtual library’ was the key limitation focused on during prosecution.” PO Resp. 17 (citing (again) Ex. 1002, 124, 125, 151, 153). A review of the entire prosecution contradicts this statement. The Applicant did not appeal from the BPAI’s decision affirming the rejection but continued to prosecute the application while abandoning its arguments based on the “virtual library” limitation. In its first submission after the appeal, Applicant filed a Request for Continued Examination (“RCE”), amended the claims, and presented arguments that did not rely on the “virtual library” limitation. Ex. 1002, 379–392. Thereafter, the application was repeatedly rejected (*see id.* at 402–414, 433–448, 477–491, 514–520, 539–545) and Applicant submitted five more amendments to the claims (*see id.* at 418–427, 455–464, 469–476, 498–510, 525–535, 548–555). Thus, the scope of the claimed invention was substantially narrowed in order to gain allowance after “virtual library” was added to the independent claims. And, Applicant

intrinsic evidence contradicts, rather than supports, Patent Owner's proposed construction.

Patent Owner also argues that its proposed construction is supported by the extrinsic evidence²⁰ of the Pazzani Declaration (Ex. 2001). PO Resp. 22–23 (citing Ex. 2001 ¶¶54, 77); *see also* PO Sur-reply 4, 9–10. Compared to the strong intrinsic evidence²¹ contradicting Patent Owner's proposed construction, we find the cited paragraphs of the Pazzani Declaration to be unpersuasive. Most importantly, the Pazzani Declaration never endorses Patent Owner's proposed construction as the proper construction of “virtual library” and provides no analysis or evidence that supports Patent Owner's proposed construction. Indeed, Patent Owner's proposed construction is nowhere found in the Pazzani Declaration. In cited paragraph 54, Dr. Pazzani does not provide any proposed construction or explain or suggest any reason for adopting the multi-part construction proposed by Patent Owner. Ex. 2001, 15–20. Paragraph 54 of the Pazzani Declaration (Ex. 2001) states:

Petitioner fails to provide any proposed construction for the term “virtual library,” which appears in all challenged claims. It is apparent, however, that Petitioner's arguments throughout

never argued after losing before the BPAI that the invention could be distinguished based upon the “virtual library” element. *See id.* In the Applicant's submission before allowance, Applicant did not refer to “virtual library” in its Remarks. *Id.* at 548–555. The Examiner made no specific reference to “virtual library” in allowing the claims. *See id.* at 559–565.

²⁰ The Patent Owner's Response states, “a court should not rely upon [extrinsic] evidence to interpret the claim terms where their meaning is clear from the intrinsic sources.” PO Resp. 6.

²¹ The Patent Owner's Response states, “When it is necessary to construe a claim, intrinsic evidence is typically ‘the single best guide to the meaning of a disputed term.’” PO Resp. 5 (citing *Phillips*, 413 F.3d at 1315, and *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

its Petition misapprehend the term “virtual library,” and fail to account for the fact that a “virtual library” of the ‘680 patent includes the ability to browse multiple types of media within the same system.

This paragraph consists entirely of criticism of Petitioner’s purported failure to properly construe “virtual library” but contains no proposed construction. Cited paragraph 77 of the Pazzani Declaration (Ex. 2001) also contains criticism of Petitioner’s argument relating to the prior art reference Easty but, like paragraph 54, contains no proposed construction of “virtual library.” Thus, even considering the extrinsic evidence of the Pazzani Declaration, we determine that Patent Owner’s proposed construction is not supported.

For these reasons, we reject Patent Owner’s proposed construction of “virtual library” and, instead, give “virtual library” its plain and ordinary meaning. The term “virtual library” is broad and Patent Owner has not shown why it should be limited. Accordingly, in the context of the claims of the ‘680 patent, we determine that a “virtual library” is a representation of an organized collection of one or more types of information or content. *See* Pet. Reply 3 (“Consistent with the plain meaning of ‘virtual’ (digital, not in physical form) and ‘library’ (organized collection of information or content), it is a metaphor for an organized collection of content not physically existing, but made by software to appear so.”); Ex. 1022, 92:4–12; Ex. 1021 ¶¶ 5–8. The information or content represented in a virtual library can be of a single media type, such as books or movies or television programs or music, or can be of more than one media type. Ex. 1001, 3:10–22; Ex. 2021 ¶ 8. The information or content can be from a single source such as the Internet, a broadcast television signal, a radio signal, or a cable signal. *Id.*

D. Petitioner's Motion to Strike

Petitioner filed a Motion to Strike directed to Exhibits 2009–2017 and portions of the Sur-reply. Paper 22. Patent Owner filed an Opposition. Paper 24.

In considering the Motion to Strike, it has been necessary for us to analyze the evidence and arguments that Petitioner moves to strike and to consider how this evidence and these arguments relate to the other evidence and arguments submitted in this proceeding. We conclude, based on the quality and weight of all the evidence and arguments submitted in this proceeding, that Petitioner prevails as to unpatentability of the challenged independent claims and as to the specific issues to which the evidence and arguments sought to be struck relate. And, we determine that the evidence and arguments which are the subject of the Motion to Strike are entitled to much less weight than the evidence provided by the cited art, particularly the teachings of Easty and Hendricks as they relate to the patentability of the challenged claims of the '680 patent. Stated differently, the evidence and arguments that are the subject of the Motion to Strike, regardless of whether they are considered on the merits, do not change any of our factual findings or legal conclusions, or otherwise affect the outcome of this proceeding. Accordingly, we deny the Motion to Strike.

E. Grounds Based on Easty and Hendricks

Petitioner contends that claims 1, 4, 8, 10–13, and 16–18 of the '680 patent would have been obvious in view of Easty and Hendricks. Pet. 7, 10–59. Patent Owner argues that this combination of references fails to teach a “virtual library.” PO Resp. 27–43. Patent Owner also argues that the

limitation recited in dependent claim 10²² is not taught by the cited art. *Id.* at 38–40. Based on the detailed analysis set forth below, we conclude that Petitioner has shown by a preponderance of the evidence that claims 1, 4, 8, 12, 13, and 16–18 would have been obvious, but has not shown claim 10 would have been obvious.

1. Easty

Easty was filed on April 3, 1998. Ex. 1004, code (22). The earliest priority date claimed for the '680 patent is based on its filing date of September 30, 1999. Ex. 1001, code (22). Therefore, Easty is prior art to the '680 patent under 35 U.S.C. § 102(e). Patent Owner does not contest the prior art status of Easty. *See generally* PO Resp.

Easty is titled, “Dynamic Digital Asset Management.” Ex. 1004, code (54). Easty is directed to a “[m]ethod and apparatus . . . utilized in a system for distributing digital contents from a central server to a plurality of endpoint servers for further distribution to end users for automatically managing the digital assets of the endpoint servers.” *Id.*, code (57) (Abstract). Easty relates to “dynamically managing the digital assets of the endpoint servers based on aggregate profile information reflecting the preferences of the user population served by the endpoint server.” *Id.* at 1:7–10.

2. Hendricks

Hendricks was filed on December 2, 1993, and issued on August 25, 1998. Ex. 1005, codes (22), (45). The earliest priority date claimed for the '680 patent is based on its filing date of September 30, 1999. Ex. 1001,

²² Claim 10 recites, “The method as in claim 1 further comprising storing results of the searching step as media collections in the unified space for browsing by the user.” Ex. 1001, 11:29–31.

code (22). Therefore, Hendricks is prior art to the '680 patent under 35 U.S.C. § 102(b) and (e). Patent Owner does not contest the prior art status of Hendricks. *See generally* PO Resp.

Hendricks is titled, “Terminal for Suggesting Programs Offered on a Television Program Delivery System.” Ex. 1005, code (54). It is directed to “[a] set top terminal . . . which suggests programs for viewing.” *Id.*, code (57) (Abstract). “The terminal is capable of applying several methods of analysis and a variety of informational sources to solve the problem of choosing a program that the subscriber is most likely to watch.” *Id.* at 2:65–3:1. The analysis may use “mood, personal profile, and historical program watched and network watched data.” *Id.* at 3:3–4. “A menu display of the suggested programs is offered to the subscriber. Within the suggested group of programs, the terminal can also prioritize the programs and determine each programs menu position.” *Id.* at 3:22–26.

3. Independent Claims 1, 11, and 16

Claim 1

“A method operable in a computer-enabled apparatus, said method comprising:”

Petitioner relies on Easty as teaching the preamble of claim 1. Pet. 13 (“To the extent it is limiting, *Easty* teaches, or at least renders obvious, the preamble.”). *Cf. Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1346 (Fed. Cir. 2002) (“Generally, the preamble does not limit the claims.”). Easty states, “[e]ach end user may be a personal computer (PC), a network computer, a set-top box for a television set or other types of computers or devices connected to a communications network.” Ex. 1004, 2:32–35. Patent Owner does not take a position as to whether the preamble is limiting. *See generally* PO Resp. Regardless of whether the preamble is limiting,

Petitioner has shown that the recitation in the preamble is satisfied by the prior art.

“establishing a user profile for a user based on various interests of the user;”

Petitioner relies on Easty as teaching this limitation. Pet. 14–15.

Easty states:

The endpoint server 13 also includes an agenting Section 13a which cooperates with a client agenting Section 16a of the client software 16 on a user's PC to act as a “personal assistant” for the user. The assistant may, for example, recommend contents to the user based on a ***user profile which reflects the user's habits and preferences***, and allow a user to submit feedback information to the server, such as the user's rating of the delivered contents. ***The user profile is generated and continuously updated based on user information acquired by the agenting Section 13a.***

Ex. 1004, 4:14–24 (emphasis added). Patent Owner does not argue this limitation. *See generally* PO Resp. We find Easty teaches this limitation.

“establishing a virtual unified space including a virtual library on the computer-enabled apparatus;”

Petitioner relies on Easty alone and, in the alternative, the combination of Easty and Hendricks as teaching this limitation. Pet. 15–20. Petitioner contends, “[w]hile *Easty* alone renders this limitation obvious, *Easty* in view of *Hendricks* also renders this limitation obvious to the extent that this term requires that a graphical interface (i.e., virtual unified space) display the virtual library contents according to categories.” *Id.* at 16.

Easty states, “[e]ach end user 16 may be a programmed computer

such as a personal computer (PC), a network computer, or the like running client software.” Ex. 1004, 3:42–45. “Preferably, the client provides a variety of interfacing capabilities, including video on demand, music download, agenting, electronic commerce, video conferencing and so on.” *Id.* at 3:60–63.

Figure 8 of Hendricks is reproduced below.

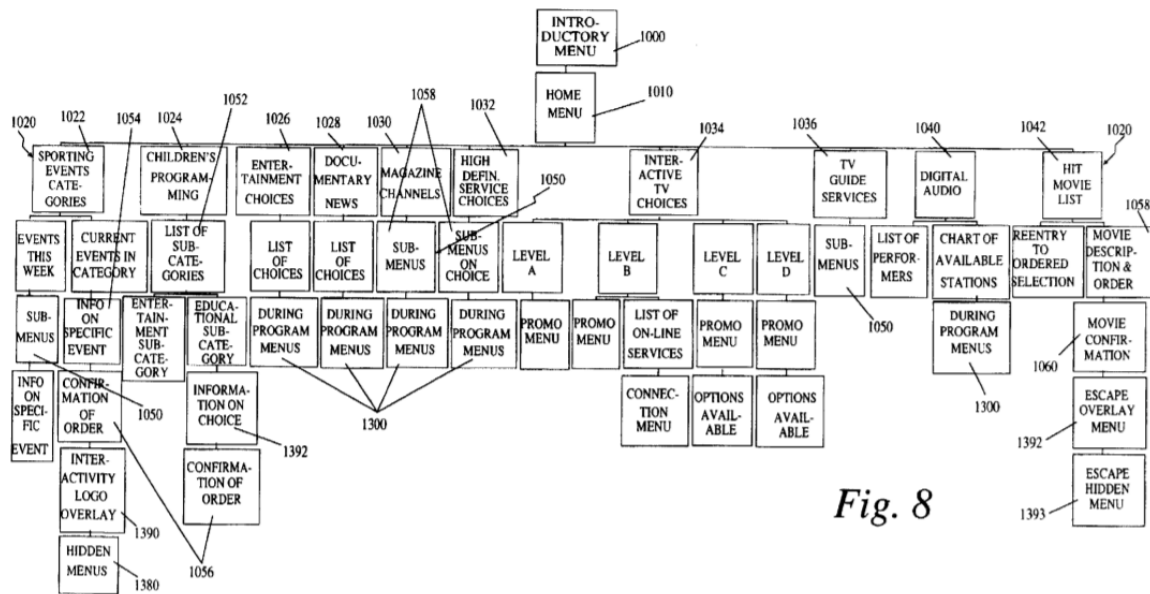


Fig. 8

Figure 8 depicts “an example of one possible structure for a series of menus.” Ex. 1005, 16:27–28. “[T]he sequence of menu is structured with an introductory menu, a home menu, various major menus and a multitude of submenus.” *Id.* at 16:28–30. Hendricks also depicts the display of menus. Figures 12a and 12b of Hendricks are reproduced below.

Fig. 12a

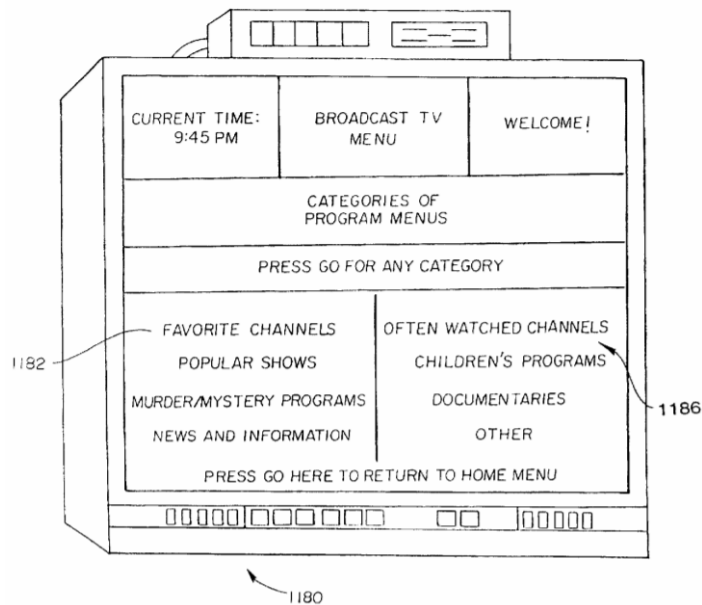
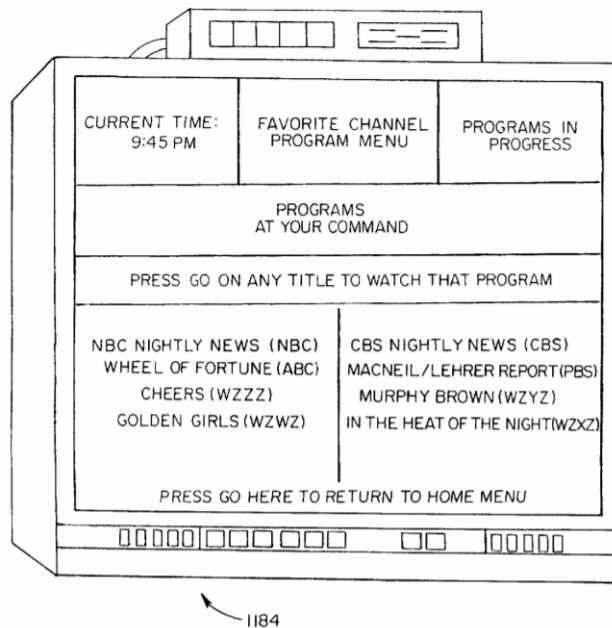


Fig. 12b



Figures 12a and 12b depict “broadcast television menu[s] and submenu[s].”
Id. at 4:20–21.

With regard to combining these teachings of Easty and Hendricks, the
 Petition states:

A PHOSITA [person having ordinary skill in the art] would have been motivated to use a category-based media browsing and searching interface, as in *Hendricks*, for implementing the graphical user interface in *Easty*. *Easty* teaches a recommender system for various types of media (movies, videos, television, music) and various genres (e.g., rock, jazz, history, the Civil War, etc.); therefore, a PHOSITA would have appreciated that *Hendricks*' category-based interface would have been a user-friendly means to browse and search recommended content by category in *Easty*. See *Terveen Decl.* (Ex. 1003) at ¶¶52–53; see also *Hendricks* (Ex. 1005), at Abstract (*Hendricks* provides a “user friendly menu based approach” to accessing media content); see also *id.* at 6:30–34, 25:10–17, 26:2–3. A PHOSITA would have appreciated that such well-known category-based browsing would have enhanced the user's ability to view recommended content in *Easty* by allowing the user to navigate categories of content. See *Terveen Decl.* (Ex. 1003) at ¶¶52–53. Further, a PHOSITA would have had a reasonable expectation of success in implementing *Hendricks*'s interface in *Easty*'s system, as *Easty* and *Hendricks* both categorize media content, both make personalized media content recommendations using these categories, and both teach similar end-user devices (*Easty*'s client device can be a “set-top type of device”/“set-top box” that is compatible with “a variety of interfacing capabilities” such as “video on demand” and “music download,” and *Hendricks*'s interface is designed for a “set top terminal” with a conventional cable TV system). *Id.* at ¶52; see also *Easty* (Ex. 1004) at 2:25–35, 3:50–4:7; *Hendricks* (Ex. 1005) at 4:61–5:16, 9:21–34, 13:34–42. Therefore, establishing a virtual unified space including a virtual library on a computer-enabled apparatus would have been obvious over the combination of *Easty*'s integrated recommender system in view of the menu-driven graphical interface of *Hendricks*.

Pet. 19–20. Petitioner's reasoning with regard to combining the teachings of *Easty* and *Hendricks* that are relevant to this limitation is reasonable and well-supported. Based on Petitioner's showing, we find a motivation to combine the cited teachings existed because using the category-based media

browsing and searching interface of Hendricks to view the recommended content in the system of Easty would have enhanced the user's ability to view the recommended content.

Patent Owner does not dispute Petitioner's articulated reasons to combine the teachings of Easty and Hendricks. Instead, Patent Owner argues that "claims 1, 4, 8, 10-13, and 16-18 are not obvious in light of Easty in view of Hendricks when applying the correct construction of 'virtual library.'" PO Resp. 3, 27-37; *see also* PO Sur-reply 10-16. However, Patent Owner's arguments are based on its proposed construction of "virtual library" which, as stated above (*see* Section II.C.), we have not adopted because it lacks support and is too restrictive. Based on the plain and ordinary meaning of "virtual library," and the evidence cited by Petitioner, we find that Easty, and the combination of Easty and Hendricks, teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

"populating the virtual library with a plurality of different virtual media collections in accordance with the user profile, wherein the plurality of the different virtual media collections includes information obtained directly from at least a broadcasted television signal; and"

Petitioner relies on Easty as teaching this limitation. Pet. 20-23. Easty states, "[t]he categories of contents that may be delivered through this distribution system may include movies, videos, **television programs**, music, music videos, concerts, books, style, software, games, travel and the like." Ex. 1004, 2:11-16 (emphasis added). The distribution system sources may include the "headend of a cable company" connected through a "cable network" to end users which may be a "set-top box for a television set." *Id.*

at 2:18–34. Easty teaches calculating user profiles. *Id.* at 4:50–65. Easty states:

The agenting section 13a generates an affinity profile of a user by weighing and correlating the intrinsic parameters of the contents and the activity information obtained from the user. The affinity profile therefore reflects the individual user's preferences. The agenting section 13a may also compare the profiles of individual users against those of other users served by the same server to identify users with similar demographics or preferences.

Id. at 4:58–65. Except for disputing that the cited art does not teach a “virtual library,” Patent Owner does not argue this limitation. *See generally* PO Resp. As discussed above, we are not persuaded by Patent Owner’s arguments with respect to Petitioner’s showing of a “virtual library.” We find Easty teaches this limitation.

“browsing the virtual library by moving between the plurality of different media collections under user control;”

Petitioner relies on a combination of the teachings of Easty and Hendricks for this limitation. Pet. 23. Petitioner also contends, “[t]he specification of the ’680 Patent confirms that media browsing systems were already known in the art.” *Id.* (citing Ex. 1001, 1:13–15 (“Web browsers and electronic program guides permit a user to browse various information sources such as Web sites, television program listings, and music collections.”)).

Easty states, “[t]he client provides a variety of interfacing capabilities, including video on demand, music download, agenting, electronic commerce, video conferencing and so on.” Ex. 1004, 3:60–62. Petitioner contends, “[t]his would have prompted a PHOSITA to look to user-friendly

interfaces for browsing media from different categories, such as that of *Hendricks*.” Pet. 24. *Hendricks* teaches “Menu-Driven Program Selection.” Ex. 1005, 11:23 et seq. *Hendricks* states: “[t]he menu-driven scheme provides the subscriber with one-step access to all major menus, ranging from hit movies to sport specials to specialty programs. From any of the major menus, the subscriber can in turn access submenus and minor menus by cursor or alpha-character access.” *Id.* at 11:24–28.

With regard to combining these teachings of *Easty* and *Hendricks*, the Petition states:

A PHOSITA would have been motivated to incorporate *Hendricks*’ ability to move between different categories of media in *Easty*’s system at least because both teach systems with similar goals—distributing and recommending relevant media content to users based on user profiles. *See supra* at 1[a]; *see also, e.g., Hendricks* (Ex. 1005) at 33:58–34:19 (describing the “personal profile” of a user). Further, like *Hendricks*, *Easty* teaches that the client may be implemented using a cable set-top box device. *See Easty* (Ex. 1004) at 2:32–35, 3:50–53, 3:64–4:7; *compare with Hendricks* (Ex. 1005) at 13:34–42. Additionally, both *Easty* and *Hendricks* teach organizing media by program genre and/or type. *See Easty* (Ex. 1004) at 2:10–15 (“categories of contents that may be delivered through this distribution system may include movies, videos, television, music . . .”), 4:53–57 (type, genre), 7:59–60 (“the contents may be categorized according to the type of programming or other criteria”); *see also Hendricks* (Ex. 1005) at Fig. 8; 4:58–59. A PHOSITA would have recognized that the browsing capabilities of *Hendricks* would better allow a user to navigate their recommended content and would have had a reasonable expectation of success in implementing such concepts into the system of *Easty* given all of these technical and functional similarities. *See Terveen Decl.* (Ex. 1003) at ¶¶52–53. Such changes would have only required minor software modifications and yielded predictable results related to refining a user’s search and browsing content in an organized fashion, because of the similarities of the systems and

given the well-known nature of category-based media browsing systems. *See id.*; *see also Hendricks* (Ex. 1005) at 11:59–60. Therefore, this limitation is obvious over the combination of *Easty* and *Hendricks*.

Pet. 24–25. Petitioner’s rationale for combining the teachings of *Easty* and *Hendricks* that are relevant to this limitation is reasonable and well-supported by sufficient rational underpinning. Based on Petitioner’s showing, we find that a motivation to combine the cited teachings existed because implementing the browsing capabilities of *Hendricks* into the system of *Easty* would better allow a user to navigate the recommended content. Except for disputing that the cited art does not teach a “virtual library,” Patent Owner does not argue this limitation. *See generally* PO Resp. We find that the combination of *Easty* and *Hendricks* teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“searching the virtual unified space with a search engine under user control”

Petitioner relies on a combination of the teachings of *Easty* and *Hendricks* for this limitation. Pet. 25. Petitioner also contends, “[t]he specification of the ’680 Patent confirms, search engines enabling users to search media were already well-known.” *Id.* (citing Ex. 1001, 1:29–32 (“For example, a person may use a web browser to access a search engine to obtain a list of recommended Web sites based on the person’s historical browsing activities.”)).

With regard to *Easty*, Petitioner contends, “*Easty* teaches that users may view available media collections in the user interface (i.e., the virtual

unified space) and submit requests for content, but it does not explicitly disclose specific details regarding the interface or how users submit these requests.” Pet. 26 (citing Ex. 1004, 2:36–40, 3:2–6, 3:54–63). With regard to Hendricks, Petitioner contends, “*Hendricks*, however, goes into such detail. *Hendricks* teaches searching collections of media content with a search engine, such as by allowing a user to search an actor’s name or performing a Boolean search based on a user’s selections.” *Id.* (citing Ex. 1005, 32:24–26 (“Any typical search tool can be used to search the program abstract database. For example, a Boolean search can be used to search the database.”)).

With regard to motivation to combine these teachings, the Petition states:

A PHOSITA would have been motivated to incorporate *Hendricks*’ teachings of performing a Boolean search or a text-type search for an actor in *Easty* because these were “typical” methods of generating desired content. *See id.* at 32:20–32; *see also Terveen Decl.* (Ex. 1003) at ¶¶28, 54. And, indeed, Boolean search systems, including for multimedia, were well known in the art long before the ’680 Patent. *Terveen Decl.* (Ex. 1003) at ¶54. Further, given that *Easty* expressly teaches that known interfacing capabilities such as those for “video on demand,” “music download,” and “electronic commerce” could be provided in *Easty*’s client (*Easty* (Ex. 1004) at 3:60–63), a PHOSITA would have appreciated that *Easty* contemplated using a search engine in submitting requests for media content, because user searches for content were commonplace in digital content distribution systems by 1999, and a PHOSITA would have appreciated that search capabilities would have made *Easty*’s system more user-friendly. *See Terveen Decl.* (Ex. 1003) at ¶54. Such a combination would have required the incorporation of well-known techniques into an existing prior art system and would have yielded predictable results related to more user-friendly browsing. *Id.* Given the commonplace nature of search-enabled content databases and the similarities

noted between *Hendricks* and *Easty*, a PHOSITA would have had a reasonable expectation of success in making this combination. *Id.*

Pet. 26–27. Petitioner’s reasoning with regard to combining the teachings of *Easty* and *Hendricks* that are relevant to this limitation is reasonable and well-supported. Based on Petitioner’s showing, we find that a motivation to combine the search technology teachings of *Hendricks* into the system of *Easty* would have made the system more user-friendly. Patent Owner does not argue this limitation. *See generally* PO Resp. We find the combination of *Easty* and *Hendricks* teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“filtering the results of the searching step in accordance with the user profile and the browsing step, wherein said filtering comprises explicit and implicit filtering, wherein said explicit filtering provides filtering of from [sic] information from said plurality of different media collections and said implicit filtering draws from collaborative data among said plurality of different media collections and similar user profiles;”

Petitioner relies on a combination of the teachings of *Easty* and *Hendricks* for this limitation. Pet. 27. Petitioner also relies on statements in the Specification of the ’680 patent as to existing knowledge. *Id.* (citing Ex. 1001, 8:22–25 (“Suitable algorithms and software for performing data collection and filtering and for maintaining databases [such as the adaptive user profile database 328 and the collaborative filtering database 316] is well known to [persons of ordinary skill in the art].”)). And, Petitioner contends the ’680 Patent confirms “that filtering search results of websites, movies,

and television programs based on a user's profile was also well-known." *Id.* (citing Ex. 1001, 1:26–37 (“Tools used for searching Web sites have been improved by including a capability of generating recommendations based on a profile of the user's interests, as have tools for viewing television and tools for listening to music.”)). Petitioner further points out that during prosecution of the application for the '680 patent, “the Examiner found that implicit filtering using collaborative data was also a ‘known technique’ in the field of recommender systems.” *Id.* at 27–28 (citing Ex. 1002 at 482, 488, 490 (“Using the known technique of implicit filtering which draws from collaborative data to provide improved search results . . . would have been obvious to one of ordinary skill in the art.”)).

With regard to Easty, Petitioner contends, “*Easty* teaches explicit filtering because the user profile is updated based on a user's content ratings as well as answers to demographic questions” (*id.* at 28 (citing Ex. 1004, 2:40–43, 4:22–28, 4:33–34, 4:50–63)) and “*Easty* teaches implicit filtering because the user profile is updated based on user ‘activities’ such as ‘contents requested, contents purchased, date and time of each request, [and] actual playing time of requested content,’ called ‘affinity information’” (*id.* (citing Ex. 1004, 4:27–35, 4:58–61)). And, Petitioner argues, “[w]hile *Easty* does not expressly teach filtering results of a searching step or in accordance with a browsing step, this would have been obvious over Easty in light of *Hendricks*.” *Id.*

With regard to Hendricks, Petitioner contends, “*Hendricks* teaches ‘intelligent methods’ (i.e., implicit filtering) for suggesting content as a viewer browses menus and submenus, where the contents are based on the subscribers’ behavioral patterns (i.e., implicit filtering) and via ‘responsive methods’ (i.e., explicit filtering), such as the subscriber’s explicit menu

selections regarding preferred content or inquiries about the particular subscriber.” *Id.* at 28–29 (citing Ex. 1005, 29:1–56, 34:1–3). Petitioner also contends, “*Hendricks* further teaches filtering of results of the searching step in accordance with the browsing step and the user profile.” *Id.* at 29 (citing Ex. 1005, 32:54–33:4 (“The weight a program is assigned could be based on either most watched program information, favorite channel, or personal profile as described below.”)). And, Petitioner states, “*Hendricks* also teaches filtering the results of a user’s browsing and search in accordance with a personal profile.” *Id.* at 30 (citing 32:54–62 (“searching program abstract databases can be combined with the other methods described below, including viewer profile data and most often watched information”))).

With regard to the motivation for combining these teachings of Easty and Hendricks, the Petition states:

[A] PHOSITA would have been motivated to implement *Hendricks*’s browsing and searching in *Easty*’s user interface. *See supra* claims 1[c]–1[d]. For the same reasons, a PHOSITA would have been motivated to combine Hendricks’ filtering concepts with *Easty* to perform implicit and explicit filtering of search results to refine the results in accordance with the user’s profile and their browsing selections. *See Terveen Decl.* (Ex. 1003) at ¶¶55–56. This would have further enhanced the user’s ability to locate desired media by allowing refining of search results in a flexible manner and thus would have predictably enhanced user-friendliness. *Id.* Further, given the similarities in *Hendricks* and *Easty* discussed and that *Easty* already uses implicit and explicit filtering to recommend content, it would have required only minor modifications in software to implement filtering to refine search results in accordance with the user profile and the user’s browsing by categories. Because these browsing, filtering, and searching concepts were already prevalent in search-engine systems, a PHOSITA would have had a reasonable expectation of success in modifying *Easty* so as to

achieve the predictable result of enhancing the quality of search results. *Id.* at ¶¶55–56, 54, 28.

Id. at 30–31. Petitioner’s reasoning with regard to combining the teachings of Easty and Hendricks that are relevant to this limitation is reasonable and well-supported. Based on Petitioner’s showing, we find that a motivation to combine the teachings of Hendricks relating to filtering concepts into the system of Easty would have existed, because the combination would have enhanced user-friendliness. Patent Owner does not argue this limitation. *See generally* PO Resp. We find the combination of Easty and Hendricks teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“prioritizing results of said filtering step”

Petitioner relies on Hendricks as teaching this limitation. Pet. 33–34 (citing Ex. 1005, 33:7–13 (“Those programs suggested from the program abstract search can then be prioritized . . .”) (emphasis omitted), 36:25–29 (“The matching algorithm involves . . . determining priority of desired programs.”)).

With regard to combining these teachings from Hendricks with the relevant teachings of Easty, the Petition states:

[I]t would have been obvious to incorporate *Hendricks*’ teachings of providing a search engine into the system taught by *Easty*. Further, a PHOSITA would have been motivated to list the results of the system of *Easty* according to an order of priority, as taught by *Hendricks*. A PHOSITA would have recognized that some prioritization is necessary, as presenting results in a random order would defeat the purpose of filtering results and recommending relevant results to a user. *See Terveen Decl.* (Ex. 1003) at ¶57. There were many different algorithms known in the art for presenting results in some predetermined

order, and positioning the “best” (i.e., highest-priority) results at the top was a known, user-friendly practice in the art. *Id.* Implementing *Hendricks*’s teachings therefore would have required only minor software modifications to the system in *Easty* and would have yielded the predictable result of presenting search results to provide the most relevant results first. *Id.* Such modifications would have been met with a reasonable expectation of success, given the conventional nature of prioritizing recommendation results in the art. *Id.*

Pet. 33–34. Petitioner’s reasoning with regard to combining the teachings of *Easty* and *Hendricks* that are relevant to this limitation is reasonable and well-supported. Based on Petitioner’s showing, we find that a motivation to combine the cited teachings existed because failure to prioritize the filtered results would defeat the purpose of filtering. Patent Owner does not argue this limitation. *See generally* PO Resp. We find the combination of *Easty* and *Hendricks* teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“updating the user profile in accordance with at least one selection of the results of the filtering step, wherein said updating is reflected in a ratio in responding to said user’s current programming choice or specific requests.”

Petitioner relies on a combination of the teachings of *Easty* and *Hendricks* for this limitation. Pet. 34. With regard to *Easty*, the Petition states, “*Easty* teaches or at least renders obvious, updating the user profile in accordance with at least one selection of the results of the filtering step in that the selection of a recommended media item results in the user profile being updated.” *Id.* (citing Ex. 1004, 4:22–31, 4:66–5:3, 7:8–15). In the

first cited passage, *Easty* teaches, “[t]he user profile is generated and continuously updated based on user information acquired by the agenting section 13a . . . user information may be acquired from the information transmitted by the client relating to the user’s activities, such as [the] . . . contents requested.” Ex. 1004, 4:22–31. (emphasis omitted). Petitioner also argues:

Easty does not explicitly teach that updating is “reflected in a ratio” used in responding to the user’s current programming choice or specific requests. However, *Easty* provides an express motivation to “weigh[]” and “correlate” the category attributes of content (e.g., media type, genre, etc.) with the user’s activity (contents requests, purchases) to store an affinity profile of preferences for those categories. *Easty* (Ex. 1004) at 4:57–62, 4:28–36. This would have motivated a PHOSITA to review known weighting methods for updating user profiles in recommender systems, such as that used by *Hendricks* and discussed below. See *Terveen Decl.* (Ex. 1003) at ¶60.

Pet. 35.

With regard to *Hendricks*, Petitioner argues, “[l]ike *Easty*, *Hendricks* teaches updating a personal profile (i.e., a user profile) based on a learning a user’s habits.” *Id.* (citing Ex. 1005, 35:9–18 (“A subscriber’s viewing habits may be ‘learned’ by maintaining historical data on the subscriber and analyzing this data.”) (emphasis omitted), 35:42–44). Petitioner points to teachings in *Hendricks* related to using weights to update a user’s personal profile. *Id.* at 36 (citing Ex. 1005, 36:1–12). With regard to teaching the use of a ratio, Petitioner argues:

A PHOSITA would have recognized that the “weights” in *Hendricks* reflect a ratio used in deciding how often to recommend a certain category of content as compared to the other categories of content, just like described by the ’680 Patent. See *Terveen Decl.* (Ex. 1003) at ¶59; see also ’680 Patent

(Ex. 1001) at 6:65–7:2 (“For example, if advertising information rather than reference material is usually selected, the adaptive user profile database reflects the user’s behavior in a ratio and uses the ratio in responding to the user’s current programming choice or specific requests.”). Indeed, the preliminary mood and profile weights add to 100, indicating that these are percentages, or ratios per 100. *See Terveen Decl.* (Ex. 1003) at ¶38 (citing *Schild* (Ex. 1018)). Further, the weight of 40 for sports and the weight of 20 for comedy, for example, would reflect a 40:20 (or 2:1) ratio reflecting that sports content should be recommended twice as often as comedy. *Id.* at ¶¶58-60.

Id. at 36–37.

With regard to the motivation to combine these teachings of Easty and Hendricks, the Petition states:

A PHOSITA would have been motivated to incorporate *Hendricks*’ technique of using a weights system to update a user profile into the system of *Easty*. First, *Easty* provides an express motivation to use “weighing” of the categories of media content determined from user interactions with those categories of content, which would have prompted a PHOSITA to look to known methods of assigning weights in a recommender system, such as the percentage-based weights taught by *Hendricks*. *See Terveen Decl.* (Ex. 1003) at ¶60 (citing *Easty* (Ex. 1004) at 4:57–62, 4:28–36). Second, *Easty* does not provide specifics on its weights used, so a PHOSITA would have looked to known ways of doing so, including *Hendricks*’s simple percentage-based category weighting system. *See id.* Third, a PHOSITA would have appreciated that this would have provided a computationally inexpensive way to update the user profile in *Easty* to provide better recommendations of *Easty*’s categories of content; for example, if a user begins to watch sports 10% more and drama 10% less than previously, adjusting these category weights in the profile would be straightforward. *Id.* Fourth, given the similarities between *Easty* and *Hendricks*, this combination would have simply required the incorporation of known techniques into similar prior art and would have required only minor software modifications to the mathematical

computations performed to update user profiles in *Easty*. *Id.* Performing percentage weight-related computations in the manner taught by *Hendricks* would have been a natural step for *Easty*, which already teaches weighing among categories and allocating percentages to categories of content to maintain in endpoint servers. *Id.*; see also *Easty* (Ex. 1004) at 7:59–65. Therefore, modifying *Easty* to allocate weights to categories and thereby reflect a ratio in updating the user profile, as taught by *Hendricks*, would have been obvious to a PHOSITA. See *Terveen Decl.* (Ex. 1003) at ¶60.

Id. at 37–38. Petitioner’s reasoning with regard to combining the teachings of *Easty* and *Hendricks* that are relevant to this limitation is reasonable and well-supported. Based on Petitioner’s showing, we find that a motivation to combine the technique of using weights from *Hendricks* into the system of *Easty* would have improved the recommendations of the system. Patent Owner does not argue this limitation. See generally PO Resp. We find *Easty* and *Hendricks* teach the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

We find that Petitioner’s showing that claim 1 of the ’680 patent would have been obvious in light of *Easty* and *Hendricks* to be well-supported and sound. Petitioner has shown by a preponderance of the evidence that all the limitations of claim 1 are taught by the cited art and that a skilled artisan would have had motivations to combine the relevant teachings. In contrast, we find Patent Owner’s arguments regarding claim 1 to lack merit and to be unsupported. Thus, the weight and quality of the arguments and evidence presented by the parties greatly favor the positions taken by Petitioner. We conclude that claim 1 of the ’680 patent would have been obvious in view of the combination of *Easty* and *Hendricks*.

Claim 11

Although claim 1 is directed to a method and claim 11 is directed to an apparatus, these two independent claims contain many similar limitations. Petitioner relies heavily on its showing with regard to claim 1 in presenting its arguments and evidence as to claim 11. *See* Pet. 44–53. Patent Owner relies on its argument that the cited art fails to teach a “virtual library” and presents no specific argument related to claim 11. *See* PO Resp. 41 (“For the reasons set forth above, neither *Easty* nor *Hendricks* teach the virtual library of claim 11.”). Accordingly, we rely on our analysis of claim 1 in our analysis of claim 11, particularly as it relates to combining the relevant teachings of the cited references. We conclude that claim 11 of the ’680 patent would have been obvious in view of the combination of *Easty* and *Hendricks*.

“A receiver apparatus for obtaining content from multiple information sources for viewing by a viewer, comprising:”

With regard to the preamble of claim 11, the Petition states:

To the extent the preamble is limiting, *Easty* teaches it. *Easty* discloses a digital content delivery system including an endpoint server and end user computer (collectively, a receiver apparatus) that obtains media content for viewing by a viewer. *See Easty* (Ex. 1004) at 3:44–48 (“The computer typically includes . . . display devices such as a video display, an audio display or the like”); *see also supra*, Sec. IV.A.i (Claim 1), IV.A.iv (Claim 10). Further, *Easty* teaches that its system integrates content delivery of a variety of media types from multiple entertainment services (i.e., multiple information sources) into a single service. *Id.* at 2:6–17, 4:50–65, 5:3–13.

Pet. 44. We have reviewed and considered the passages in Easty that Petitioner cites and, based on this unopposed showing, we find that Easty teaches all the elements of the preamble of claim 11. Regardless of whether the preamble is limiting, Petitioner has shown that the recitation in the preamble is satisfied by the prior art.

“an input/output (‘I/O’) controller including an Internet connection input, a video output, and a selector input;”

Petitioner relies on Easty as teaching this limitation. *See* Pet. 45–46. As cited by Petitioner (*id.* at 45), Easty teaches that an “end user” may be a “personal computer (PC)” with “display devices such as a video display” and “input devices such as a mouse, a keyboard or the like.” Ex. 1004, 3:43–49. And Easty teaches, “The computer may be connected to the network via a cable modem, a telephone modem, a satellite dish or the like” (*id.* at 3:49–50) and “the subscriber may dial up a local service such as an Internet service provider (ISP) over a standard analog modem” (*id.* at 1:59–61). We find that Easty teaches the elements of this limitation.

“an adaptive user profile database;”

Petitioner contends that both Easty and Hendricks individually and, in combination, teach “an adaptive user profile database.” Pet. 45–47. Petitioner contends Easty teaches “user profiles are stored and updated in real-time in a database at the endpoint server” and that Hendricks teaches that “the user profile is stored locally at a set-top terminal” (i.e., at the “receiver apparatus” as recited in claim 11). *See id.* at 46.

Petitioner cites the following passage (*id.* at 46) in Easty as teaching an “adaptive user profile database:” “The user profiles are stored at the

endpoint server 13, and are continuously updated in real time. In other words, each time a request is received from a client, the agenting section 13a parses the new information, recalculates the correlations and updates the user profiles stored in the database.” Ex. 1004, 4:65–5:3. We find that Easty teaches an “adaptive user profile database.”

Petitioner cites the following passage (Pet. 46) in Hendricks:

[C]lues as to the subscribers behavioral pattern must be saved in the set top terminals memory. These clues, such as programs watched and time periods of television viewing, are analyzed as necessary to develop a profile of the viewer. Most of this information is gathered and stored by the set top terminal 220 unbeknownst to the subscriber.

Ex. 1005, 29:31–37. We find that Hendricks teaches an “adaptive user profile database.”

With regard to the combination of these teachings of Easty and Hendricks, the Petition states:

A PHOSITA would have been motivated to combine *Hendricks*’ teachings on storing user profile information locally with the *Easty*’s system (which teaches using a client set-top device) so that a user device could update the profile with less latency and while offline. *See Terveen Decl.* (Ex. 1003) at ¶62. Such would have required only minor modifications in software, with a reasonable expectation of success, for storing both a local copy of the user profile database, in addition to the server copy taught in *Easty*; and it would have yielded predictable results related to storing a user profile. *See id.* Storing an adaptive user profile database locally also would have been an obvious and routine design choice from among a finite number of known options (i.e., either storing the user profile locally, remotely, or both), and, thus, at a minimum, would have been obvious to try. *See id.* A PHOSITA would have been motivated to store the adaptive user profile database locally (in addition to on the server) to allow the profile database to collect information unavailable remotely, such as how long the user had played downloaded content

offline, a stated feature of both *Easty*. *Id.*; *see also Easty* (Ex. 1004) at 4:47–49. *Easty*’s aggregate profiling would still be possible when the user returned online, as it would have been simple enough to update the server version of the profile with changes made to the local version. *Id.* Indeed, *Easty* describes the client-side software as already including agenting section 16a for interfacing with the end server; therefore, a PHOSITA would have had a reasonable expectation of success in implementing a local adaptive user profile database on the end user computer in *Easty*. *See Terveen Decl.* (Ex. 1003) at ¶62; *see also Easty* (Ex. 1004) at Fig. 1, 4:15–18.

Pet. 46–47. We find that a skilled artisan would have been motivated to combine the teachings of *Easty* and *Hendricks* in the manner suggested by Petitioner to allow the locally stored adaptive user profile database as taught by *Hendricks* “to collect information unavailable remotely, such as how long the user had played downloaded content offline.” We find that the combination of *Easty* and *Hendricks* teaches an “adaptive user profile database,” and that Petitioner has presented adequate reasoning to support the proposed combination.

“a filter coupled to the adaptive user profile database, the filter being coupled to the I/O controller for filtering information from the Internet connection input in accordance with the adaptive user profile database, wherein said filtering comprises explicit and implicit filtering, wherein said explicit filtering provides filtering of information from said plurality of different media collections and said implicit filtering draws from collaborative data among said plurality of different media collections and similar user profiles,”

With regard to this limitation, the Petition states:

As discussed regarding Claim 1[f], this limitation is obvious over the combination of *Easty* and *Hendricks*. *See supra*, Sec. IV.A.i (Claim 1[f]). Further, *Easty* teaches that its

filtering is provided through cooperation between a client agenting section 16a residing on the client device and a server agenting section 13a residing on the server. *Easty* (Ex. 1004) at 4:15–22, Fig. 1. Thus, to the extent the claimed “filter” must be local to the client, *Easty* teaches the same. In the alternative, it would have been obvious over *Easty* and *Hendricks* for the filter to reside on the client with the local copy of the user profile database for the reasons discussed regarding Claim 11[b]. See *supra* Sec. IV.A.v (Claim 11[b]); see also *Terveen Decl.* (Ex. 1003) at ¶62. Further, for the reasons it would have been obvious from *Easty*’s teachings for the end user device to include an internet connection input to receive media content, it would have been obvious to filter the media content received “*from the Internet connection input.*” See *id.*

Pet. 48–49. Petitioner’s showing with regard to this limitation is reasonable and well-supported. Based upon this unopposed showing, we find that the combination of *Easty* and *Hendricks* teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“*an output display device configured to display a virtual unified space including a virtual library transmitted through the video output;*”

With regard to this limitation, the Petition states:

Easty teaches, or renders obvious, the requirement including an output display device that displays the client user interface (such as a “video on demand” and “music download” interface) for receiving recommendations and displaying media content. See *Easty* (Ex. 1004) at 3:45–49 (“display devices such as a video display”); 3:54-63 (user may “view” the received content in the interface or store it “for display at a later time”). A PHOSITA would have understood that *Easty*’s video display would use a video output. *Terveen Decl.* (Ex. 1003) at ¶40 n.27. For the same reasons discussed above, *Easty* teaches displaying a virtual unified space including a virtual library. See *supra*

Claim 1[b]. Also, for the same reasons discussed above, *Easty* in view of *Hendricks* also renders this limitation obvious. *See id.*

Pet. 49. Petitioner’s showing with regard to this limitation is reasonable and well-supported. Based upon this unopposed showing, we find that the combination of *Easty* and *Hendricks* teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“a populator that populates the virtual library with virtual multiple media collections using the filtered information from the filter;”

With regard to this limitation, the Petition states:

This limitation is obvious over the combination of *Easty* and *Hendricks*. *See supra* Sec. IV.A.i. (Claims 1[b], 1[c]). As discussed, *Easty* teaches this limitation. *See id.* (Claim 1[c]). As discussed, *Easty* teaches that the populating of the virtual library is done in accordance with the user profile as it filters the media collections’ contents to recommend to the user. *See id.* And, as discussed, *Easty* in view of *Hendricks* renders obvious the claimed “filtering.” *See id.* (Claims 11[c], 1[f]).

Pet. 50. Petitioner’s showing with regard to this limitation is reasonable and well-supported. Based upon this unopposed showing, we find that the combination of *Easty* and *Hendricks* teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“a browser that browses the virtual library by moving between multiple media collections in accordance with the selector input;”

With regard to this limitation, the Petition states:

Hendricks teaches, or renders obvious, this limitation. *Hendricks* teaches browsing the virtual library by moving between multiple media collections. *See supra*, Sec. IV.A.i (Claim 1[d]). Hendricks teaches doing so in accordance with a selector input, such as buttons on the set-top box or on a remote control. *See Hendricks* (Ex. 1005) at 5:47–64; *see also id.* at 10:64–11:22 (describing remote control), 16:38–41. As discussed regarding Claim 1[d] it would have been obvious to incorporate these teachings of *Hendricks* into the system of *Easty*.

Pet. 50–51. Petitioner’s showing with regard to this limitation is reasonable and well-supported. Based upon this unopposed showing, we find that Hendricks teaches all the elements of this limitation.

“and a recommender that recommends virtual media in the virtual multiple media collections in the virtual library to a user based on a user profile for the user, and”

With regard to this limitation, the Petition states:

Easty teaches, or renders obvious, this limitation. *See supra*, Sec. IV.A.i (Claims 1[c], 1[f]). Throughout its disclosure, *Easty* teaches an agenting section (i.e., a recommender) that recommends content from the virtual media collections in the virtual library based on the user’s profile. *Easty* (Ex. 1004) at 5:3–7 (“When making content recommendations for an individual user, the agenting section uses the user’s profile to recommend contents from the endpoint database 14 that match the user’s preferences.”). To the extent the recommender must be local to the client device, *Easty* teaches client agenting section 16a residing on the client device. *See supra*, Sec. IV.A.v (Claim 11[c], citing *Easty* (Ex. 1004) at 4:15–22, Fig. 1). Further, it would have been obvious for the recommender to reside on the client along with the local copy of the user profile database for

the reasons discussed regarding Claim 11[b]. *See supra* Claim 11[b]; *see also Terveen Decl.* (Ex. 1003) at ¶62.

Further, *Hendricks* also teaches or renders obvious this limitation because it teaches that the set-top terminal includes a memory and microprocessor (together, a recommender) running a matching algorithm that uses a user's personal profile to suggest media content to the user. *Hendricks* (Ex. 1005) at 33:50–65; *see also id.* at 2:62–3:4, 29:28–33, 29:55–57.

Pet. 51–52. Petitioner's showing with regard to this limitation is reasonable and well-supported. Based upon this unopposed showing, we find that the combination of *Easty* and *Hendricks* teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“an updater for updating the user profile based on at least one selection of the recommended virtual media, wherein said updating is reflected in a ratio in responding to said user's current programming choice or specific requests.”

With regard to this limitation, the Petition states:

Easty teaches, or renders obvious, this limitation. As discussed regarding Claim 1[h], *Easty* teaches that the agenting section (i.e., an updater) continuously updates the user profile based on the user's activities, including the user's selection of recommended virtual media. *See supra*, Sec. IV.A.i (Claim 1[h]). As discussed in 1[h], the concept of the updating being reflected in a ratio in responding to said user's current programming choice or specific requests is obvious over the combination of *Easty* and *Hendricks*. *See id.*

Pet. 52–53. Petitioner's showing with regard to this limitation is reasonable and well-supported. Based upon this unopposed showing, we find that the combination of *Easty* and *Hendricks* teaches the subject matter of this

limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

We find that Petitioner’s showing that claim 11 of the ’680 patent would have been obvious in light of Easty and Hendricks to be well-supported and sound. Petitioner has shown that all the limitations of claim 11 are taught by the cited art and that a skilled artisan would have had motivations to combine the relevant teachings. We conclude that claim 11 of the ’680 patent would have been obvious in view of the combination of Easty and Hendricks.

Claim 16

Although claim 1 is directed to a method and claim 16 is directed to a computer program product, these two independent claims contain many similar limitations. Here again, Petitioner relies heavily on its showing with regard to claim 1 in presenting its arguments and evidence as to claim 16. *See* Pet. 54–58. Patent Owner relies on its argument that the cited art fails to teach a “virtual library” and presents no specific argument related to claim 16. *See* PO Resp. 42 (“[N]either *Easty* nor *Hendricks* teach the virtual library of claim 16. The Board should, thus, uphold the validity of claim 16 on this basis alone.”). Accordingly, we rely on our analysis of claim 1 in our analysis of claim 16, particularly as it relates to combining the relevant teachings of the cited references. We conclude that claim 16 of the ’680 patent would have been obvious in view of the combination of Easty and Hendricks.

“A computer program product comprising a computer readable medium having program logic recorded thereon for

enabling a computer-enabled apparatus to display personalized information for a user from multiple information sources, comprising:”

With regard to the preamble of claim 16, the Petition relies on Easty.
Pet. 54–56. Petitioner cites the following two passages (*id.*) from Easty:

The technological developments also create a demand for integrated digital content delivery systems and services that integrate various categories of information and entertainment services in a single subscription service. ***The presently described digital content distribution system is such an integrated information and entertainment content provider service.*** The categories of contents that may be delivered through this distribution system may include movies, videos, television programs, music, music videos, concerts, books, style, software, games, travel and the like.

* * *

Each end user 16 may be a ***programmed computer such as a personal computer (PC), a network computer, or the like, running client software.*** The computer typically includes a processor, a memory; storage devices such as magnetic storage devices, re-writeable CDS or the like; ***display devices such as a video display,*** an audio display or the like; and input devices such as a mouse, a keyboard or the like. The computer may be connected to the network via a cable modem, a telephone modem, a satellite dish or the like. The end user ***may also be a set-top type of device*** that provides access to the network though a television set.

The client software residing on the user's PC serves as an interface between the human user and the endpoint server. Through the client, the user may submit requests for delivery of contents to the endpoint server, input information requested by the endpoint server, view or listen to the information received from the endpoint server, or store the received information for display at a later time. Preferably, the client provides ***a variety of interfacing capabilities, including video on demand, music download, agenting, electronic commerce, video conferencing and so on.***

Ex. 1004, 2:6–17, 3:42–63 (emphasis added). We have reviewed and considered the passages in Easty that Petitioner cites and, based on this unopposed showing, we find that Easty teaches all the elements of the preamble of claim 16.

“a populator for populating a virtual library with a plurality of different virtual media collections in accordance with a user profile, wherein the virtual library is populated with different types of media obtained from different media sources; and”

With regard to this limitation, the Petition states:

This limitation is obvious over the combination of *Easty* and *Hendricks*. See *supra* Sec. IV.A.i (Claim 1[c]); see also *supra*, Sec. IV.A.v (Claims 11[c], 11[e]). Further, as discussed regarding Claim 16[P], *Easty* teaches that its system integrates content of a variety of media types from multiple entertainment services (i.e. multiple media sources) into a single service. See *supra* Claim 16[P]. Similarly, *Hendricks* teaches integrating different types of content from multiple programming sources, including movies, sports programming, children’s programming, HDTV content from HDTV sources, and digital audio stations, among others. *Hendricks* (Ex. 1005), at 6:10-13 (“Fig. 2 shows an embodiment of the operations center receiving signals from various external sources 212. Examples of the external program sources are sporting events, children’s programs, specialty channels, news or any other program source that can provide audio or visual signals.”); see also *id.* at Fig. 2; Fig. 8, 6:6–13, 10:53–55, 14:18–20.

Pet. 56–57. Based upon this unopposed showing, we find that the combination of Easty and Hendricks teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“a browser for browsing the virtual library by moving between the plurality of different media collections under user control;”

With regard to this limitation, the Petition states: “This limitation is obvious over the combination of *Easty* and *Hendricks*. *See supra*, Sec. IV.A.i, v (Claims 1[d], 11[f]).” Pet. 57. Based upon this unopposed showing and for the reasons discussed regarding claims 1 and 11, we find that the combination of *Easty* and *Hendricks* teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“a search engine for searching the virtual library under user control; and”

With regard to this limitation, the Petition states: “This limitation is obvious over the combination of *Easty* and *Hendricks*. *See supra*, Sec. IV.A.i, v (Claims 1[e]).” Pet. 57. Based upon this unopposed showing and for the reasons discussed regarding claim 1, we find that the combination of *Easty* and *Hendricks* teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“a filter for filtering the results of the searching step in accordance with the user profile and said browsing step, wherein said filtering comprises explicit and implicit filtering, wherein said explicit filtering provides filtering of information from said plurality of different media collections and said implicit filtering

draws from collaborative data among said plurality of different media collections and similar user profiles;”

With regard to this limitation, the Petition states: “This limitation is obvious over the combination of *Easty* and *Hendricks*. *See supra*, Sec. IV.A.i, v (Claims 1[f], 11[c]).” Pet. 57. Based upon this unopposed showing and for the reasons discussed regarding claims 1 and 11, we find that the combination of *Easty* and *Hendricks* teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

*“a prioritizer for prioritizing results of the filtering step;
and”*

With regard to this limitation, the Petition states: “This limitation is obvious over the combination of *Easty* and *Hendricks*. *See supra*, Sec. IV.A.i, v (Claims 1[g]).” Pet. 58. Based upon this unopposed showing and for the reasons discussed regarding claim 1, we find that the combination of *Easty* and *Hendricks* teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

“an updater for updating the user profile in accordance with at least one selection of the results of the filtering step, wherein said updating is reflected in a ratio in responding to said user’s current programming choice or specific requests.”

With regard to this limitation, the Petition states: “This limitation is obvious over the combination of *Easty* and *Hendricks*. *See supra*, Sec. IV.A.i, v (Claims 1[h], 11[h]).” Pet. 58. Based upon this unopposed showing and for the reasons discussed regarding claims 1 and 11, we find

that the combination of Easty and Hendricks teaches the subject matter of this limitation, and that Petitioner has presented adequate reasoning to support the proposed combination.

We find that Petitioner's showing that claim 16 of the '680 patent would have been obvious in light of Easty and Hendricks to be well-supported and sound. Petitioner has shown that all the limitations of claim 16 are taught by the cited art and that a skilled artisan would have had motivations to combine the relevant teachings. We conclude that claim 16 of the '680 patent would have been obvious in view of the combination of Easty and Hendricks.

4. Dependent Claims 4, 8, 12, 13, 17, and 18

Petitioner's showing with regard to dependent claims 4, 8, 12, 13, 17, and 18 and the combination of Easty and Hendricks is reasonable and well-supported. Pet. 38–40 (claim 4), 40–42 (claim 8), 53 (claim 12), 54 (claim 13), 58 (claim 17), 59 (claim 18). With the exception of claim 10, Patent Owner relies on the arguments already discussed in relation to claim 1. PO Resp. 38 (claims 4 and 8), 41–42 (claims 12 and 13), 42–43 (claims 17 and 18).

Claim 4

“The method as in claim 1 wherein the user profile establishing step comprises:

presenting a variety of questions to the user about the user's interests; and

creating a user profile based on the user's answers to the questions.”

In addition to relying upon its showing with regard to claim 1,

Petitioner presents additional argument based on the combination of Easty and Hendricks relating to the additional elements of claim 4. Pet. 38–40. With regard to Easty, the Petition states, “Although *Easty* does not explicitly teach asking the user questions about his or her interests directly when creating a new profile, *Easty* does teach asking demographic questions to derive information about the user’s interests when creating the profile.” *Id.* at 38 (citing Ex. 1004, 4:21–27, 4:62–65, 5:56–63). Within the cited passages of Easty, Easty states: “information may be obtained from a user when he or she subscribes to the service, including the user’s name, age, sex, locality and other demographic information” and “[t]he agenting section 13a may also compare the profiles of individual users against those of other users served by the same server to identify users with similar demographics or preferences.” Ex. 1004, 4:25–28, 4:62–65.

With regard to Hendricks, the Petition states, “In addition to asking demographic questions, like Easty, Hendricks also teaches presenting the user with express questions about the user’s interests.” Pet. 39 (citing Ex. 1005, 34:1–9). The cited passage in Hendricks states:

To build a personal profile, the viewer answers a series of questions presented on a series of menu screens. These personal profile screens request the viewer to input information such as name, sex, age, place of birth, place of lower school education, employment type, level of education, amount of television program viewing per week, and the number of shows in particular categories that the viewer watches in a given week such as, sports, movies, documentaries, sitcoms, etc.

Ex. 1005, 34:1–9. With regard to combining these teachings of Easty and Hendricks, the Petition states:

A PHOSITA would have been motivated incorporate Hendricks’ teaching of asking specific questions about a user’s

interests when creating the user profile in *Easty*, as doing so would better tailor *Easty*'s user profile to an individual user. *See Terveen Decl.* (Ex. 1003) at ¶56. Indeed, as discussed regarding Claim 1[f], *supra*, the inventors of *Easty* already expressed the desire to update a user profile based on the user's interests and responses to explicit questions, such as by soliciting user ratings for content. Incorporating *Hendricks*' teachings would therefore have required only minor software modifications for including questions about a user's interests when creating the profile and yielded predictable results with a reasonable expectation of success having a new profile immediately account for a user's directly expressed interests. *See id.*

Pet. 39–40. We find that Petitioner has shown that the combination of *Easty* and *Hendricks* teaches or suggests all the limitations of claim 4 and that a motivation to combine the relevant teachings existed because doing so would better tailor the user profile to an individual user. Patent Owner presents no arguments specifically relating to claim 4. *See generally* PO Resp. We conclude that claim 4 of the '680 patent would have been obvious over the combination of *Easty* and *Hendricks*.

Claims 8, 12, and 17

“8. The method as in claim 1 wherein the media collections comprises [sic] respective pluralities of similarly classifiable information items, further comprising:

identifying a selection of at least one of the information items by the user from one of the media collections; and
updating the user profile in accordance with the identifying step.”

“12. The receiver apparatus as in claim 11 wherein the media collections comprises [sic] respective pluralities of similarly classifiable information items, further comprising:

an identifier that identifies a selection of one of the information items by the user from one of the media collections;
and

an updater that updates the adaptive user profile database

in accordance with the identifying step.”

“17. The computer program product as in claim 16 wherein the media collections comprises [sic] respective pluralities of similarly classifiable information items, further comprising:

an identifier for identifying a selection of one of the information items by the user from one of the media collections; and

an updater for updating the user profile in accordance with the identifying step.”

We analyze claims 8, 12, and 17 together because they contain the same or similar limitations. In addition to relying upon its showing with regard to claim 1, Petitioner presents additional argument based on the combination of Easty and Hendricks relating to the additional elements of claims 8, 12, and 17. Pet. 40–42 (claim 8), 53 (claim 12), 58 (claim 17). With regard to “media collections compris[ing] respective pluralities of similarly classifiable information items,” Petitioner contends both Easty and Hendricks teach this limitation. As quoted by Petitioner (*id.* at 40), Easty states, “The categories of contents that may be delivered through this distribution system may include movies, videos, television programs, music, music videos, concerts, books, style, software, games, travel, and the like” and “the contents may be categorized according to the type of programming or other criteria.” Ex. 1004, 2:12–16, 7:59–60. The Petition states (Pet. 40), “Figure 8 of *Hendricks* [reproduced above] shows organizing media into categories and subcategories of ‘similarly classifiable’ items” such as “sporting events categories,” “children’s programming,” etc. Hendricks states, “The programs are grouped by category so that similar program offerings are found on the same menu.” Ex. 1004, 4:58–59.

With regard to “an identifier that identifies/identifying a selection of

at least one of the information items by the user from one of the media collections,” Easty states, “user information may be acquired from the information transmitted by the client relating to the user’s activities, such as . . . contents requested” (Ex. 1004, 4:28–31) and Hendricks states, “the subscriber can sequence the menus and select a program from any given menu” (Ex. 1005, 4:56–58).

With regard to “an updater for updating/updating the user profile in accordance with the identifying step,” Easty states, “[t]he user profile is generated and continuously updated based on user information” (Ex. 1004, 4:22–24; *see also id.* at 4:67–5:3 (“each time a request is received from a client, the agenting section 13a parses the new information, recalculates the correlations and updates the user profiles in the database”). Hendricks states,

Instead of the set top terminal 220 requiring an input of personal profile information, the terminal may also “learn” the personal profile information. A subscriber's viewing habits may be “learned” by maintaining historical data on the subscriber and analyzing this data. The historical data may include the channels (or networks) and types of programs the viewer has most frequently watched, time of viewing, duration of viewing, duration of programs viewed etc. This information must then be analyzed to profile the viewer.

* * *

Once it is gathered, it may be stored (and updated as necessary) for future use. The indicators may be newly calculated for each subscriber entry into the program selection system.

Ex. 1005, 35:9–18, 35:41–44.

We find that Petitioner has shown that the combination of Easty and Hendricks teaches or suggests all the limitations of claims 8, 12, and 17 and

that a motivation to combine the relevant teachings existed as discussed above with relation to independent claims 1, 11, and 16. Patent Owner presents no arguments specifically relating to claims 8, 12, and 17. *See generally* PO Resp. We conclude that claims 8, 12, and 17 of the '680 patent would have been obvious over the combination of Easty and Hendricks.

Claims 13 and 18

“13. The receiver apparatus as in claim 12 wherein the virtual media collections include information obtained from a broadcasted television signal and the Internet.”

“18. The computer program product as in claim 17 wherein the different media sources include internet data and a broadcasted television signal.”

We analyze claims 13 and 18 together because they contain the same or similar limitations. In addition to relying upon its showing with regard to claims 12 and 17, Petitioner presents argument based on the combination of Easty and Hendricks relating to the additional elements of claims 13 and 18. Pet. 54 (claim 13), 59 (claim 18).

With regard to claim 13, the Petition states:

As discussed, Claim 12 is obvious over the combination of *Easty* and *Hendricks*. *See supra*, Sec. IX.A.vi (Claim 12). Further, as discussed, *Easty* teaches or at least renders obvious the inclusion of information from a broadcasted television signal based, for example, on its teachings of including “television programs” in its media content distribution system and its teachings that its system can be implemented using a cable company headed, cable network, and cable set-top box, including a cable modem. *See supra*, Sec. IV.A.i (Claim 1[c]). Further, as discussed, *Easty* teaches or at least renders obvious including content from the Internet []. *See supra*, Sec. IV.A.v (Claim 11[a]).

Id. at 54.

With regard to claim 18, the Petition states, “As discussed, Claim 17 is obvious over the combination of *Easty* and *Hendricks*. *See supra*, Sec. IX.A.ix (Claim 17). Further, this limitation is obvious over the combination of *Easty* and *Hendricks*[.] *See supra*, Sec. IX.A.vii (Claim 13).” *Id.* at 59.

The assertions by Petitioner relating to claims 13 and 18 are supported by the cited art. We find that Petitioner has shown that the combination of *Easty* and *Hendricks* teaches or suggests all the limitations of claims 13 and 18 and that a motivation to combine the relevant teachings existed as discussed above with relation to independent claims 11 and 16. Patent Owner presents no arguments specifically relating to claims 13 and 18. *See generally* PO Resp. We conclude that claims 13 and 18 of the ’680 patent would have been obvious over the combination of *Easty* and *Hendricks*.

5. *Dependent Claim 10*

“The method as in claim 1 further comprising storing results of the searching step as media collections in the unified space for browsing by the user.”

We separately analyze Petitioner’s showing with regard to claim 10 because this is the only challenged claim for which we conclude that Petitioner has failed to establish it would have been obvious. For teaching the further limitation of claim 10, Petitioner relies (Pet. 42) on the following passage in *Hendricks*:

Once the main menu screen 1130 is displayed, the viewer may choose to begin a completely new search, or alternatively, may refine the prior search. If the viewer chooses to perform a refined search, the viewer can access the various submenus and choose

further preference entries resulting in a more precise search and fewer number of program selections.

Ex. 1005, 32:47–53. Based on this passage, Petitioner contends:

Because *Hendricks* allows a user to navigate away from a search results display but still revise or refine a previously executed search, the search results must be stored in the unified space for later browsing by a user, or at least it would have been obvious to store such information on *Hendricks's* set-top box. See *Terveen Decl.* (Ex. 1003) at ¶61. Without such storage, the user would be unable to start a new search without navigating away from the results display and losing existing work. Therefore, a PHOSITA would have been motivated to store the search results to prevent a user from having to re-do an identical search. Thus, *Hendricks* discloses, or at least renders obvious storing the results of the searching step as media collections.

Pet. 42–43. Petitioner's contentions do not follow from the cited passage in *Hendricks*. The passage does not say the results of the searching step are stored as media collections in the unified space and we do not discern how the cited passage teaches or suggests the limitation of claim 10. We accept that this passage teaches or suggests that the search must be stored so that it can be refined, but this does not teach or suggest that the results of the search are stored as media collections. There is a clear and apparent distinction between storing the search itself and storing the results of the search as media collections.

With regard to the paragraph from the Terveen Declaration (Ex. 1003) that Petitioner cites in support of its contention, cited paragraph 61 states:

In my opinion, it would have been obvious to store searches in light of *Hendricks's* teaching that a user may “refine a prior search” to prevent a user from having to perform a new, identical search to one performed already. Because *Hendricks* allows a user to navigate away from a search results display but still allows revision and refinement of a previously executed

search, this would have indicated to a PHOSITA that the system would store the previous search so that a user may return to it, or at least it would have been obvious to a PHOSITA to do so. Without such storage, the user would be unable to start a new search without navigating away from the results display and losing existing work. It would have therefore been obvious to store the search itself, or at least search parameters that would automatically return a user to the point in the search they wanted to refine. Thus, *Hendricks* discloses, or at least renders obvious, storing the results of the searching step in a media collection.

Ex. 1003 ¶ 61. The conclusion in the last sentence of this quote that “Hendricks discloses, or at least renders obvious, storing the results of the searching step in a media collection” does not follow from: (1) storing a search so that a user may refine it; (2) storing a search so that a user may return to it; (3) storing a search so that a new search may be performed without navigating away from the results display and losing existing work; or (4) storing a search, or at least search parameters, so that a user may return to the point in the search the user wants to refine. Again, storing the search (or its parameters) is not the same as storing the results of the searching step in a media collection. Dr. Terveen provides no explanation or reasoning to support his opinion and we accord it little or no weight. *See* 37 C.F.R. § 42.65(a) (2019) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”).

With regard to claim 10, Patent Owner argues:

Moreover, regarding Claim 10, neither *Hendricks* nor *Easty* teach or suggest “storing results of the search step as media collections in the unified space for browsing by the user.” (Ex. 1001 at 11:29–31.) Petitioner suggests that *Hendricks*’ ability to go back and “refine” a prior search query equates to storing results of the search step as *media collections*. (Pet. at

42; *see* Ex. 1005 at 32:33–53 (citing search query recall capabilities.)

Petitioner’s argument fails to recognize the “media collections” language. (Pazzani Decl. at ¶ 85.) A POSITA would understand that refining a search requires only saving the query for editing, not the results of the query. (Pazzani Decl. at ¶ 85.) *Hendricks* is not saving the results of the query as a media collection so a user can come back to the results days later, for example. (Pazzani Decl. at ¶ 85.) While *Hendricks* indeed allows a user to go back to search queries, it does not store results as media collections as required by claim 10.

PO Resp. 38. We find Patent Owner’s argument to be convincing. We agree that the passage Petitioner cites in *Hendricks* fails to teach or suggest “storing the results of the search step as media collections.”

For these reasons, we find that Petitioner failed to establish that the cited art teaches the limitation of claim 10 and, based on this record, we conclude that claim 10 has not been shown to have been obvious.

6. Summary

We conclude that Petitioner has shown that claims 1, 4, 8, 11–13, and 16–18 of the ’680 patent would have been obvious in view of *Easty* and *Hendricks*. We conclude that Petitioner has not shown that claim 10 would have been obvious.

F. Grounds Based on Easty, Hendricks, and Kittaka

Petitioner contends that claims 1, 4, 8, 10–13, and 16–18 are unpatentable over *Easty*, *Hendricks*, and *Kittaka*. Pet. 7, 59–63.

1. Kittaka

Kittaka was filed on March 5, 1998. Ex. 1006, code (22). The earliest priority date claimed for the ’680 patent is based on its filing date of September 30, 1999. Ex. 1001, code (22). Therefore, *Kittaka* is prior art to the ’680 patent under 35 U.S.C. § 102(e). Patent Owner does not dispute

that Kittaka is prior art. *See generally* PO Resp.

Kittaka is directed to, “[a]n on-line information scheme capable of dynamically accounting for user’s interest with respect to information and providing appropriate information presentation according to the user’s interest.” Ex. 1006, code (57) (Abstract). Kittaka provides for “dynamically updat[ing] the user’s interest.” *Id.* Figure 1 of Kittaka is reproduced below.

FIG. 1

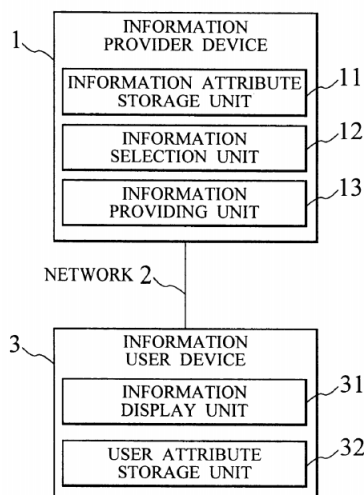


Figure 1 depicts “a block diagram for an information providing system.” *Id.* at 5:49–50.

2. Analysis

Petitioner cites Kittaka for teaching a ratio as recited in the last limitations of independent claims 1, 11, and 16. Pet. 63 (“Kittaka is relied upon only for the ‘ratio’ requirement of claim limitations 1[h], 11[h], and 16[f].”). “Otherwise, Petitioner relies on the same mappings and obviousness arguments contained above in Ground 1 for the remainder of the limitations of Claims 1, 11, and 16, as well as for each of the dependent claims set forth above in Ground 1.” *Id.* Patent Owner argues that “*Kittaka*

does not solve the inadequacies of *Easty* and *Hendricks*” and “[t]hus claims 1, 4, 8, 10-13, and 16-18 are not obvious in light of *Easty*, *Hendricks*, and *Kittaka*.” PO Resp. 43. Patent Owner does not otherwise argue against the challenge based on this combination of references. *See id.* Thus, because Patent Owner argues only the “virtual library” limitation and the limitation of claim 10, our findings and conclusions with regard to the combination of *Easty*, *Hendricks*, and *Kittaka* are fully supported by our conclusions above with regard to the combination of *Easty* and *Hendricks*. However, for completeness, we consider *Kittaka* and Petitioner’s arguments relating to *Kittaka*.

Kittaka discloses a system in which a user completes a questionnaire (“registers information fields of his/her own interest”) that “[t]he information provider then stores in a user DB (database) as information indicating the user’s interest (user attribute value) in correspondence to a user ID.” Ex. 1006, 1:19–26. The user attribute value is referred to in *Kittaka* with the letter “U.” *See, e.g., id.* at 7:40–49. Figure 10 of *Kittaka* is reproduced below.

FIG. 10

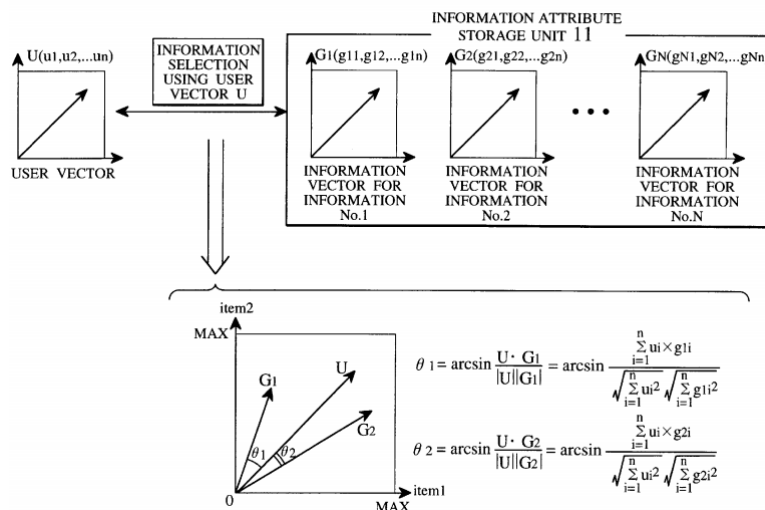


Figure 10 depicts “information selection using user vector U.” Figure 9C of

Kittaka is reproduced below.

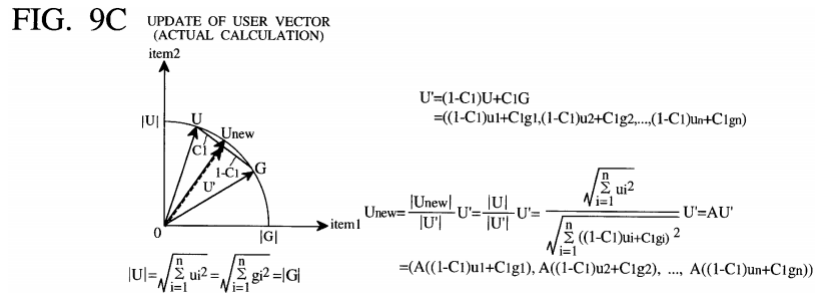


Figure 9C depicts the calculation used to update the user vector U. Kittaka states, “as shown in FIG. 9C . . . in a case of updating the user vector U, using the coefficient C1 described above, an interior division point that divides a line segment joining the user vector U and the information vector G at a *ratio* of C1:1–C1 is obtained first.” *Id.* at 11:32–36 (emphasis added). Kittaka also states, “the information selection unit 12 selects a set of information that suits the user’s interest, by using the updated user attribute value U (109).” *Id.* at 7:61–63. We find that Kittaka teaches the “ratio” limitation of the independent claims of the ’680 patent.

With regard to motivation to combine, the Petition states:

A PHOSITA would have been motivated to combine *Kittaka* with *Easty* and *Hendricks* because *Hendricks* expressly teaches that “more sophisticated methods of weighing the importance of the data may be used.” *Hendricks* (Ex. 1005) at 36:19- 21. This teaching would have prompted a PHOSITA to look to other, more sophisticated methods for updating a user’s profile, such as those in *Kittaka*. *See Terveen Decl.* (Ex. 1003) at ¶65. A PHOSITA would have also been motivated to use a ratio like the C1:1–C1 ratio of *Kittaka* because C1 is an “attenuation coefficient” designed to account for declines in interest as time elapses (*Kittaka* at 9:9–16), and a PHOSITA would have appreciated that such an approach would have improved the sophistication and reliability of the recommendations of *Easty* and *Hendricks* by accounting for time-based changes in user interest. *Terveen Decl.* (Ex. 1003) at ¶65; *see also Easty* (Ex. 1004) at 4:31–32 (considering dates and

times of content requests in updating a user profile). A PHOSITA would have had a reasonable expectation of success with this combination, because it would have involved minor software modifications to similar systems and yielded predictable results related to the computations performed to update user profiles. *Terveen Decl.* (Ex. 1003) at ¶65. Like *Easty* and *Hendricks*, *Kittaka* relates to a system that recommends content to users based on their interests stored and dynamically updated in a user profile. *Id.* And the combination of *Easty* and *Hendricks* already recites systems using adjusted weights to update the user profile based on the user's interactions and selections of content, like in *Kittaka*. The "ratio" requirement of claim limitations 1[h], 11[h], and 16[f], therefore, would have been obvious over the combination of *Easty*, *Hendricks*, and *Kittaka*. *Id.*

Pet. 62–63. Petitioner's reasoning with regard to combining the teachings of the cited references that are relevant to this limitation is reasonable and well-supported. Based on Petitioner's showing, we find that a motivation to combine the relevant teachings of the cited references existed, because it would have improved the sophistication and reliability of the recommendations by accounting for the changes of user interests over time.

Patent Owner does not present any separate arguments relating to the combination of *Easty*, *Hendricks*, and *Kittaka*. PO Resp. 43 ("*Kittaka* does not solve the inadequacies of *Easty* and *Hendricks* discussed above in Sections VIII.B-G. Thus, claims 1, 4, 8, 10–13, and 16–18 are not obvious in light of *Easty*, *Hendricks*, and *Kittaka*."). Specifically, Patent Owner does not dispute that *Kittaka* teaches the limitations in the independent claims that recite a ratio or that a motivation to combine the relevant teachings of *Easty*, *Hendricks*, and *Kittaka* existed. *See id.*

3. Summary

Kittaka teaches the limitations in the independent claims which recite

a ratio. However, Petitioner does not contend that Kittaka teaches or suggests the limitation of claim 10. Based on the cited teachings in Kittaka and our findings that the limitations in the challenged claims are taught by Easty and Hendricks, except the limitations of claim 10, and that there was a motivation to combine these teachings, we conclude that Petitioner has established that claims 1, 4, 8, 11–13, and 16–18 would have been obvious in view of Easty, Hendricks, and Kittaka. Petitioner has not established that claim 10 would have been obvious in view of Easty, Hendricks, and Kittaka.

III. CONCLUSION²³

For the foregoing reasons, we conclude that Petitioner has established that claims 1, 4, 8, 11–13, and 16–18 would have been obvious in light of the cited art. And, we conclude that Petitioner has not established that claim 10 would have been obvious in light of the prior art.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 4, 8, 11–13, and 16–18 of the '680 patent are unpatentable and claim 10 is not unpatentable.

²³ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

In summary:

Claims	35 U.S.C. §	References/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 4, 8, 10–13, 16–18	103(a)	Easty, Hendricks	1, 4, 8, 11–13, 16–18	10
1, 4, 8, 10–13, 16–18	103(a)	Easty, Hendricks, Kittaka	1, 4, 8, 11–13, 16–18	10
Overall Outcome			1, 4, 8, 11–13, 16–18	10

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