

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FACEBOOK, INC.,
Petitioner,

v.

USC IP PARTNERSHIP, L.P.,
Patent Owner.

IPR2021-00033
Patent 8,645,300 B1

Before DANIEL J. GALLIGAN, AARON W. MOORE, and
RUSSELL E. CASS, *Administrative Patent Judges*.

CASS, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

In this *inter partes* review, Facebook, Inc. (“Petitioner”) challenges the patentability of claims 1–4 and 11–17 (the “challenged claims”) of U.S. Patent No. 8,645,300 B1 (Ex. 1001, “the ’300 patent”), which is assigned to USC IP Partnership, L.P. (“Patent Owner”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision, issued pursuant to 35 U.S.C. § 318(a), addresses issues and arguments raised during the trial in this *inter partes* review. For the reasons discussed below, Petitioner has proven by a preponderance of the evidence that claims 1–4 and 11–17 are unpatentable.

B. Procedural History

In this proceeding, Petitioner relies upon the following references:

Gregov et al., U.S. Patent No. 8,032,506 B1, issued Oct. 4, 2011 (Ex. 1003, “Gregov”);

Hartman et al., U.S. Patent No. 6,615,226 B1, issued Sept. 2, 2003 (Ex. 1004, “Hartman”);

Linden et al., U.S. Patent No. 6,912,505 B2, issued June 28, 2005 (Ex. 1005, “Linden”);

Holzner, *Ajax for Dummies* (2006), pp. 1–150 (Ex. 1006, “Holzner”);

Nickerson, U.S. Patent No. 7,827,487 B1, issued Nov. 2, 2010 (Ex. 1007, “Nickerson”);

Sriver, WO 2008/130932 A1, pub. Oct. 30, 2008 (Ex. 1009, “Sriver”).

Paper 2 (“Pet.”), i, 3.

Petitioner submits declarations from Dr. Sandeep Chatterjee (Exs. 1002, 1023). Patent Owner submits a declaration from Dr. Jennifer Golbeck (Ex. 2016).

Petitioner requests *inter partes* review on the following grounds:

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1–4, 11–16	103(a) ¹	Gregov, Hartman, Linden, Holzner, Nickerson
17	103(a)	Gregov, Hartman, Linden, Holzner, Nickerson, Sriver

Pet. 3. Patent Owner filed a Preliminary Response. Paper 8 (“Prelim. Resp.”). We instituted trial on all grounds of unpatentability. Paper 13 (“Inst. Dec.”), 58–60.

During the trial, Patent Owner filed a Response (Paper 22, “PO Resp.”), Petitioner filed a Reply (Paper 25, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 27, “PO Sur-reply”).

An oral hearing was held on January 26, 2022, a transcript of which appears in the record. Paper 36 (“Tr.”).

C. Real Parties in Interest

Petitioner states that “Facebook, Inc.” is the real party in interest. Pet. 1. Patent Owner states that “USC IP Partnership, L.P., the owner of [the ’300 patent], is the real-party-in-interest,” and that “USC IP Management LLC, USC IP Partnership, L.P.’s General Partner, is also a real party in interest.” Paper 4, 1.

D. Related Proceedings

The parties identify the following district court case involving the ’300 patent: *USC IP Partnership, L.P. v. Facebook, Inc.*, 6:20-cv-555

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), included revisions to 35 U.S.C. § 103 that became effective after the filing of the application that led to the ’300 patent. Therefore, we apply the pre-AIA version of 35 U.S.C. § 103.

(W.D. Tex.). Paper 4, 1. The parties also identify the following *inter partes* review proceeding involving the '300 patent: *Facebook, Inc. v. USC IP Partnership, L.P.*, IPR2021-00034. Pet. 1; Paper 3, 1; Paper 4, 1.

E. The '300 Patent (Ex. 1001)

The '300 patent relates to a system for “determining a visitor’s intent and for using the visitor’s intent to predict and suggest webpages for the visitor.” Ex. 1001, 1:17–19. The patent explains that a company may have multiple websites, each containing multiple webpages, which are collectively referred to as a “namespace.” *Id.* at 2:49–58. The system of the invention includes “an intent engine 20 that collects and analyzes intent data from visitors as they browse webpages within a namespace” and “provides an intent tool 22 that is used in conjunction with one or more webpages 13 within a namespace.” *Id.* at 2:59–63. The intent tool 22 “may incorporate user interface display elements into a webpage that elicit[s] intent and success information from users” and “provides the collected information to the intent engine 20.” *Id.* at 2:63–67. The intent engine 20 then “process[es] the intent and success information and learns to predict intent and intent-based destination pages.” *Id.* at 2:67–3:2.

More specifically, when a visitor first navigates to a webpage within a namespace controlled by the intent engine, the intent engine infers an intent of the visitor. Ex. 1001, 4:60–62. In one embodiment, the intent engine receives the URL of the current page and uses it as a lookup to a database, which returns a ranked list of “intent candidates.” *Id.* at 4:62–65. The intent engine selects the highest ranked intent candidate as the “inferred intent,” and displays it in a “current intent” field on the webpage. *Id.* at 4:66–5:1.

The intent engine can be used to integrate a widget 22 into a webpage. Ex. 1001, 4:48–50. One embodiment of the intent widget 22 is shown in Figure 4, reproduced below:

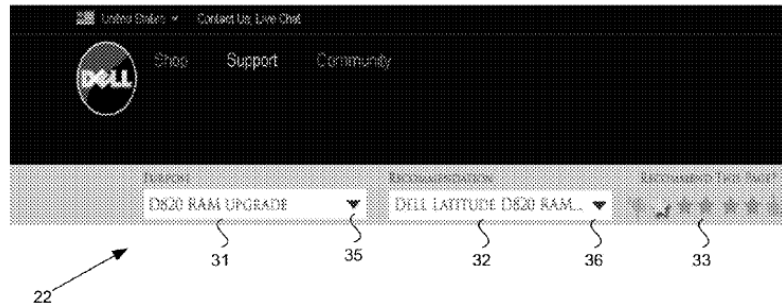


Figure 4

Figure 4 shows intent widget 22 that appears as a “toolbar” incorporated into a webpage for Dell Computers. Ex. 1001, 4:53–56, 6:19–20. It displays Current Intent 31 as “D820 RAM upgrade,” which the user may alter by selecting other intents from drop down menu 35 or typing text directly into intent field 31. *Id.* at 6:20–24. Based on the current intent, widget 22 displays a recommendation 32 that provides a hyperlink to a webpage “that is most likely to provide the information that the visitor is seeking, i.e. that matches the current intent.” *Id.* at 6:24–28. In this example, the visitor is recommended to a page dedicated to “DELL Latitude D820 RAM Upgrades.” *Id.* at 6:31–33. Alternatively, the recommendation field may be hidden until the visitor confirms their intent. *Id.* at 6:61–65.

As shown in Figure 4 above, the visitor may also “select the rating tool 33 to indicate a rating of the webpage for the current intent.” Ex. 1001, 6:34–35. “In one embodiment, a 7-point scale is provided using which the visitor may rate pages via a simple thumbs-up and thumbs-down to indicate

Success (6) or Failure (0), or they may choose to give the page 1 to 5 stars to indicate degrees of Success.” *Id.* at 6:40–44.

The ’300 patent also displays an alternative configuration of intent widget 22 in Figure 5, reproduced below.

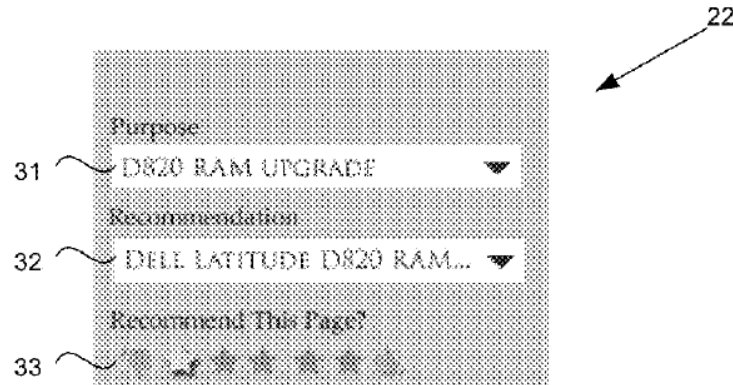


Figure 5

Figure 5 shows an alternative embodiment in which widget 22 is displayed in a vertical configuration, with equivalent fields for current intent 31, recommendation 32, and rating tool 33 as shown for the horizontal implementation of Figure 4. Ex. 1001, 6:56–59.

F. Illustrative Claim

Of the challenged claims, claims 1 and 11 are independent. Claim 1 is illustrative and is reproduced below.

1. A method for predicting an intent of a visitor to a webpage, the method comprising:
 - [a] receiving into an intent engine at least one input parameter from a web browser displaying the webpage;
 - [b] processing the at least one input parameter in the intent engine to determine at least one inferred intent;

- [c] providing the at least one inferred intent to the web browser to cause the at least one inferred intent to be displayed on the webpage;
- [d] prompting the visitor to confirm the visitor's intent;
- [e] receiving a confirmed intent into the intent engine;
- [f] processing the confirmed intent in the intent engine to determine at least one recommended webpage that matches the confirmed intent, the at least one recommended webpage selected from a plurality of webpages within a defined namespace;
- [g] causing the webpage in the web browser to display at least one link to the at least one recommended webpage;
- [h] prompting the visitor to rank the webpage for the inferred intent;
- [i] receiving a rank from the web browser; and
- [j] storing a datapoint comprising an identity of the webpage, the inferred intent and the received rank.

Ex. 1001, 18:36–58 (bracketed paragraph identifiers added).

II. DISCUSSION

A. Claim Construction

A claim “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).” 37 C.F.R. § 42.100(b) (2020). Petitioner states that the ’300 patent specification “provides . . . exemplary definitions and/or descriptions of certain terms recited in the claims” in column 4, and contends that its “analysis tracks those descriptions and is otherwise consistent with the specification.” Pet. 6–7 (citing Ex. 1001, 4:20–27). Petitioner further contends that it “does not believe express claim construction is necessary at this time.” *Id.* at 7.

In its Preliminary Response, Patent Owner stated that it was applying “Petitioner’s term interpretations to minimize the disputes to be resolved by the Board at this preliminary stage,” but that it “reserve[d] the right to contest those interpretations in the future.” Prelim. Resp. 14.

In our Institution Decision, we defined the terms “intent,” “intent candidate,” “inferred intent,” “declared intent,” and “current intent,” based on the ’300 patent specification, as follows:

Intent—a unique purpose or usage of the website.

Intent Candidates—a ranked list of Intents for the current page.

Inferred Intent—one or more of the highest ranked Intent Candidates for the current page. The intent tool passively applies the Inferred Intent to each page by default.

Declared Intent—an Intent that has been confirmed by the visitor as the purpose for the page visit.

Current Intent—the current user-specified or programmatically inferred Intent for the page visit. The Inferred Intent (top rated) is applied as the Current Intent until the user sets a Declared Intent.

Inst. Dec. 19 (citing Ex. 1001, 4:25–36). During the hearing, the parties stated that they did not have any issues with these constructions. Tr. 19:17–20:4 (Petitioner), 29:13–21 (Patent Owner). Accordingly, we adhere to the constructions of these terms adopted in our Institution Decision.

The parties do not provide express constructions for any other claim terms. Pet. 6–7; PO Resp. 6; Tr. 20:2–4. We determine that it is not necessary to provide an express interpretation of any other claim terms for purposes of in this Decision. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those

terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

B. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *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 skill in the art; and (4) where in evidence, objective evidence of non-obviousness.² *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Whether a combination of prior art elements would have produced a predictable result weighs in the ultimate determination of obviousness. *Id.* at 416–17.

In an *inter partes* review, the petitioner must show with particularity why each challenged claim is unpatentable. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016); 37 C.F.R. § 42.104(b) (2020). The burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

² Patent Owner does not present objective evidence of non-obviousness.

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

C. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art at the time of the alleged invention “would have possessed at least a bachelor’s degree in software engineering, computer science, computer engineering, or electrical engineering, with at least two years of experience in web-based software application development (or equivalent degree or experience).” Pet. 4–5 (citing Ex. 1002 ¶ 12). In our Institution Decision, we adopted Petitioner’s assessment of the level of skill in the art, with the exception of the open-ended language “at least,” finding that this level of skill is consistent with the ’300 patent and the asserted prior art of record. Inst. Dec. 21. Following our Institution Decision, Patent Owner did not dispute this level of ordinary skill. PO Resp. 5. Based on the complete record, we adhere to the level of ordinary skill adopted in our Institution Decision.

D. Ground 1: Obviousness of Claims 1–4 and 11–16

Petitioner contends that claims 1–4 and 11–16 would have been obvious over the combination of Gregov, Hartman, Linden, Holzner, and Nickerson. Pet. 3, 10–79. Patent Owner disagrees, arguing that the proposed combination does not teach a number of the limitations of these claims. PO Resp. 9–47. For the reasons explained below, we agree with Petitioner that claims 1–4 and 11–16 would have been obvious based on this ground.

1. Overview of Gregov (Ex. 1003)

Gregov is directed to a system for generating item recommendations on a merchant website. Ex. 1003, code (57), Figs. 3–6. In one embodiment,

the user first performs a key word search to generate an initial set of recommendations. *Id.* at 2:27–28, 4:8–15. For example, the user may enter the search string “digital photography” to find books relating to that topic. *Id.* at 4:12–15. The system then displays search results, as shown in Figure 4, reproduced below:

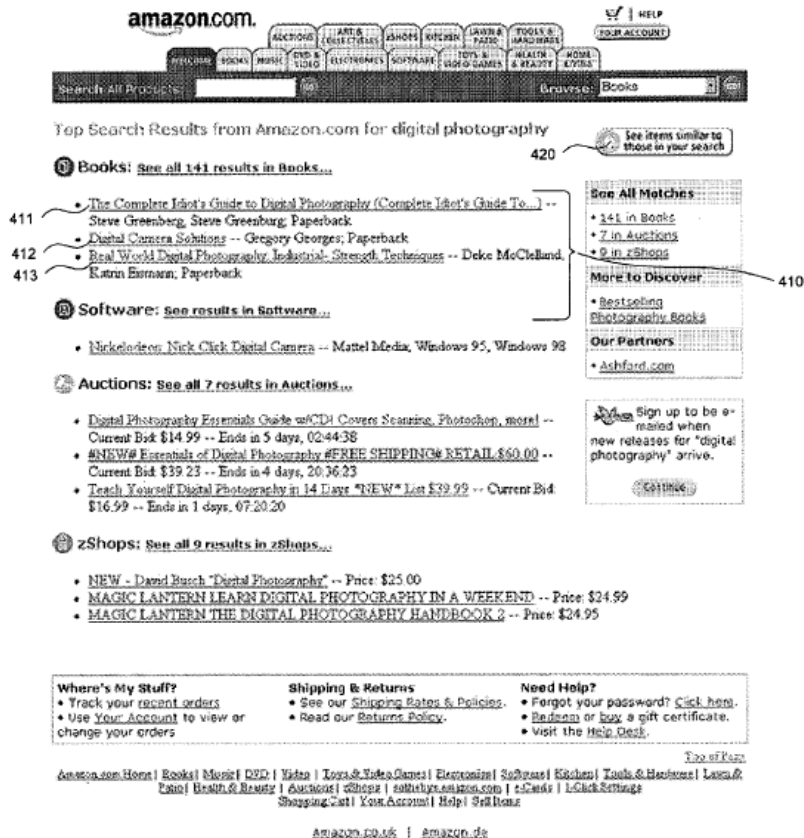


FIG. 4

Figure 4 of Gregov shows a set of search results for the term “digital photography.” Ex. 1003, Fig. 4. As can be seen in Figure 4, the search produced a number of book items 411–413 most relevant to the search string inputted. *Id.* at 4:20–22. Figure 4 also displays a recommendations button 420, which the user can click to obtain recommendations that are based upon the top three items in the search result. *Id.* at 4:22–26.

When the user clicks recommendation button 420, the system displays the screen shown in Figure 5, reproduced below.

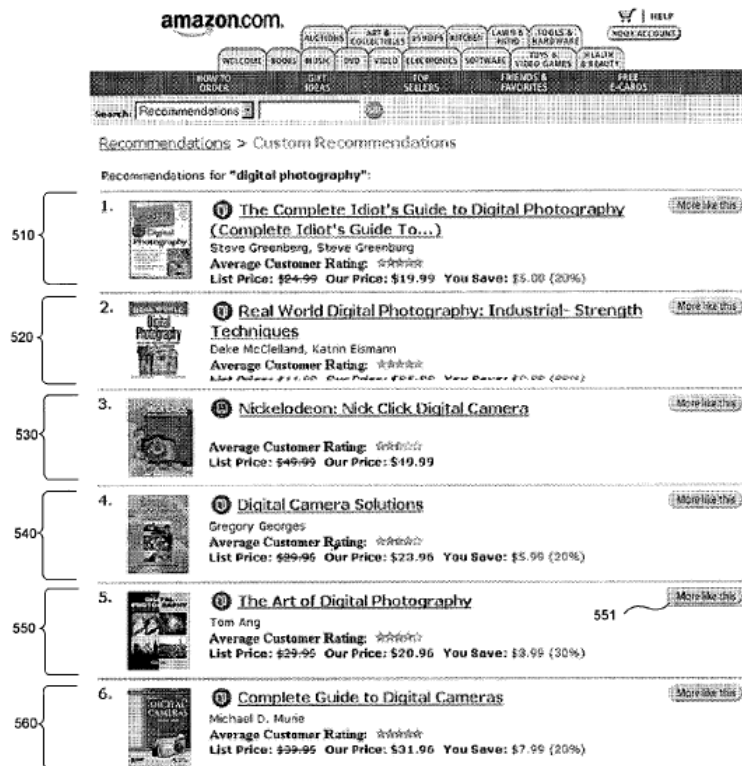


FIG. 5

Figure 5 of Gregov shows a list of recommended items 510–560. Items 510, 540, and 520 are the top three items returned as items 411–413 in Figure 4. Ex. 1003, 4:27–31. Items 530, 550, and 560 are among the items returned by the recommendation engine when seeded with the top three items from the search. *Id.* at 4:32–34. Thus, the recommended items shown in Figure 5 are a combination of the top items returned by the initial search and recommendations based upon these top items. *Id.* at 4:34–36.

Figure 5 further shows a button labeled “More like this” next to each recommended item that the user may click on to base a new set of recommendations on that item. Ex. 1003, 4:37–39. For example, if the user clicks button 551, the system will base a new set of recommendations on

item 550, a book entitled “The Art of Digital Photography.” *Id.* at 4:39–42. The results are shown in Figure 6, reproduced below.

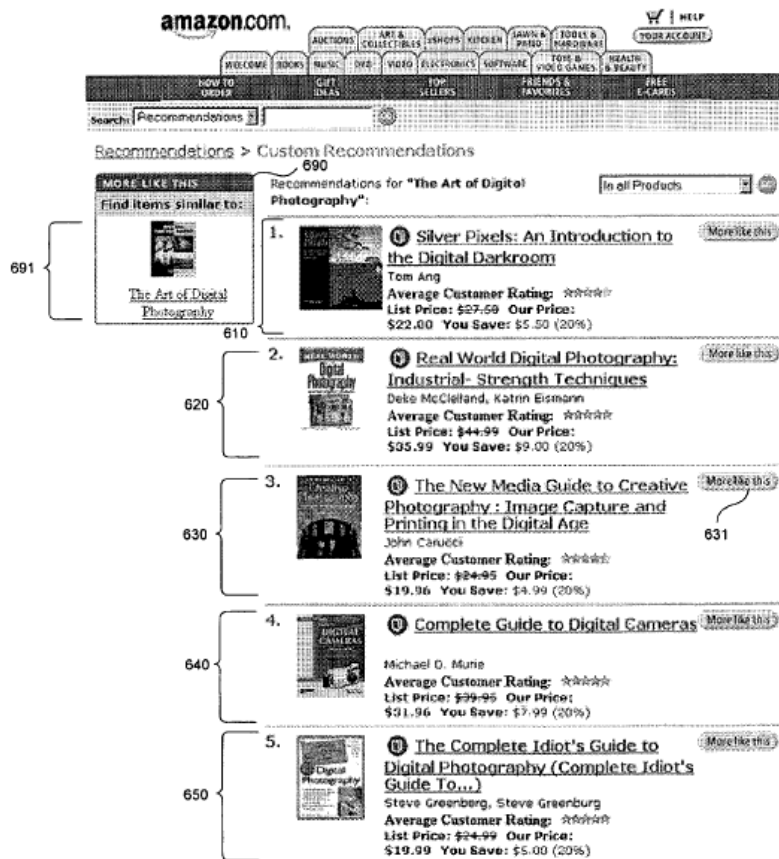


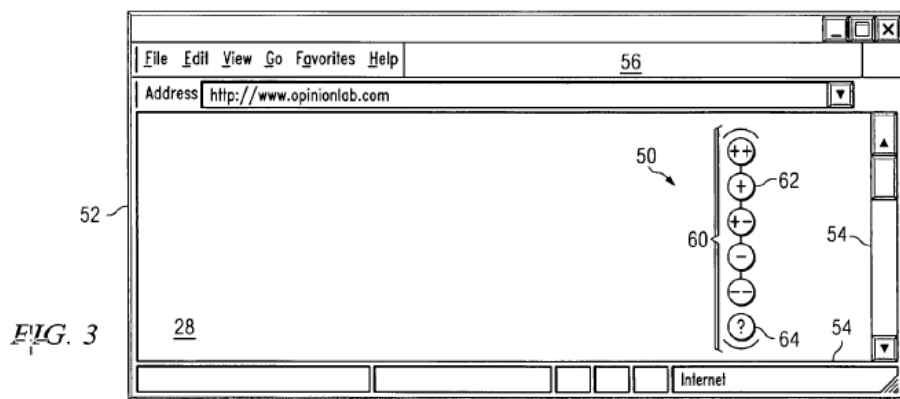
FIG. 6

Figure 6 shows a set of recommendations displayed by the system when the user clicks button 551 in Figure 5. Ex. 1003, 4:43–46. In Figure 6, seed item 691 is “The Art of Digital Photography” shown as item 550 in Figure 5. *Id.* at 4:46–49. Figure 6 also shows a list of recommended items 610–650 that are based upon using item 691 alone as a seed for the recommendation engine. *Id.* at 4:50–53. The user may add additional seed items to the list of user-specified seed items by clicking a “More like this” button associated

with one of the items listed in Figure 6, such as button 631 associated with item 630. *Id.* at 4:53–57.

2. Overview of Nickerson (Ex. 1007)

Nickerson discloses a system for receiving page-specific user feedback concerning a webpage, which may include a feedback measurement tool incorporated into the webpage. Ex. 1007, code (57), 4:27–30. An example is shown in Figure 3, reproduced below.



As shown in Figure 3, webpage 28 displays a feedback measurement tool with a multi-level subjective rating scale 60 that includes five levels ranging from very negative to very positive, each level having an associated language-independent symbol 62 (such as “+” or “-”). Ex. 1007, 15:24–30. To record general feedback concerning webpage 28, the user selects an appropriate symbol 62 reflecting their feedback. *Id.* at 15:45–59.

Nickerson also explains that, instead of or in addition to a general feedback measurement tool, the system may include a specific feedback measurement tool for measuring user feedback concerning one or more selected aspects of a webpage, including the content, design, usability, or any other suitable aspect of the webpage. Ex. 1007, 6:46–51. Feedback and

related input received from users may be stored in a database.³ *Id.* at 6:64–7:3.

3. *Analysis of Independent Claim 1*

a) *1[pre]: “[a] method of predicting an intent of a visitor to a webpage”*

Petitioner asserts that, to the extent the preamble of claim 1 is limiting, Gregov teaches the subject matter of the preamble. Pet. 10. Specifically, Petitioner states that “Gregov teaches predicting an intent of a visitor to a merchant webpage through a recommendation engine that identifies items (such as products) likely to match the purpose behind the user’s visit.” *Id.* According to Petitioner, the recited “webpage” corresponds “to a webpage on the merchant website that provides recommendations,” such as Figure 5 of Gregov. *Id.*

As to “predicting an intent of a visitor,” Petitioner argues that “the ’300 patent provides an exemplary definition of ‘intent’ as ‘a unique purpose or usage of the website.’” Pet. 11–12 (citing Ex. 1001, 4:25). According to Petitioner, the corresponding “website” in Gregov “takes the form of a merchant website (such as Amazon.com) that provides a number of products and associated product information to website visitors.” *Id.* at 12 (citing Ex. 1003, 1:20–25). Petitioner argues that the “unique purpose or usage of

³ Petitioner does not provide separate background discussions of Hartman, Holzner, and Linden, stating that it is relying on these references “primarily for basic web technologies that would have fallen within the knowledge of any skilled artisan.” Pet. 9. Instead, Petitioner discusses the relevant portions of these references in the sections of the argument where they are relied on. We will also discuss the relevant portions of Hartman, Holzner, and Linden in the sections of the argument where they are relevant to particular claim limitations and issues.

the website” “corresponds to one or more items offered by the merchant website (such as one or more books on ‘digital photography’) for which a visitor can obtain information and/or place a purchase.” *Id.* (citing Ex. 1002 ¶¶ 69–71). Thus, in Petitioner’s view, “[o]ne or more of these items would . . . match a visitor’s unique purpose for visiting the website, as well as that visitor’s unique usage of the website.” *Id.*

Petitioner further argues that “Gregov predicts the intent of a visitor by identifying at least one item recommendation directed to that visitor” based on “processing inputs from the user that provide indications of the visitor’s likely interests.” *Id.* (citing Ex. 1003, 2:10–26, 2:35–37). According to Petitioner, “[a] skilled artisan would have understood and found it obvious that by generating product recommendations, the Gregov system is making a prediction about the purpose or ‘**intent**’ behind the user’s visit to the website.” *Id.* (citing Ex. 1002 ¶¶ 72–73).

Patent Owner does not present arguments regarding the preamble.
See PO Resp.

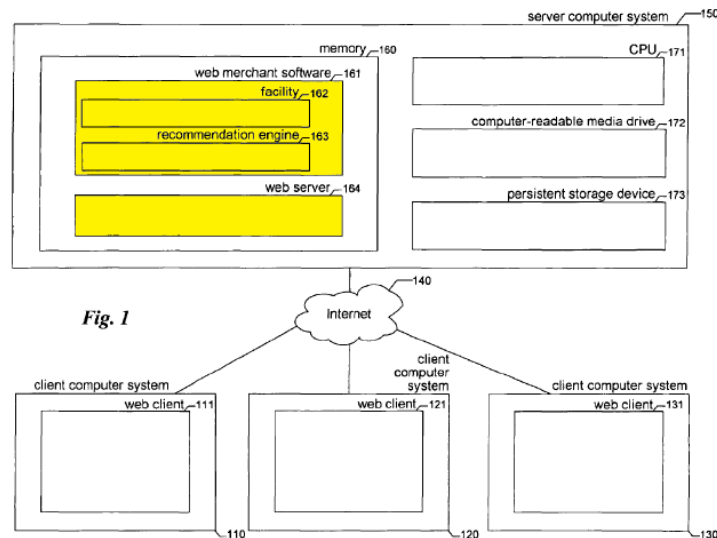
Based on the full trial record, we find that Gregov discloses the preamble of claim 1.⁴

- b) 1[a]: “receiving into an intent engine at least one input parameter from a web browser displaying the webpage”*
- 1[b]: “processing the at least one input parameter in the intent engine to determine at least one inferred intent”*

Petitioner relies primarily on Gregov for these limitations. Pet. 12–25. Petitioner first argues that Gregov discloses the claimed “intent engine”

⁴ Because we are persuaded that Petitioner has shown that Gregov teaches the subject matter recited in the preamble, we need not decide whether the preamble is limiting.

within computer system 150, as shown in Petitioner’s annotated version of Gregov’s Figure 1 below:



Petitioner’s Annotated Version of Gregov’s Figure 1. Pet 13.

Petitioner argues that memory 160 of server computer system 150 includes web server software 164 that “provides basic web server functionality,” as well as web merchant software 161 containing recommendation engine 163 that “can generate a ranked list of item recommendations.” Pet. 13 (citing Ex. 1003, 2:53–59, 2:62–64, 4:3–7; Ex. 1002 ¶ 74). According to Petitioner, the “intent engine” in Gregov includes both “the web server software 164 that receives requests from users and delivers webpages, and web merchant software 161 that generates recommendations based on user input.” *Id.* at 13–14. Petitioner asserts that this mapping “is consistent with the ’300 patent’s description of an ‘intent engine’ as having ‘functions’ that ‘may be incorporated into webpages,’ and that ‘the intent engine may be incorporated into a web server.’” *Id.* at 14 (citing Ex. 1001, 17:58–62, 3:22–24).

Petitioner argues that the claimed “at least one input parameter” received from the web browser is taught in Gregov by “the request generated

when the user presses recommendations button 420,” which is highlighted in Petitioner’s annotated version of Figure 4 reproduced below.

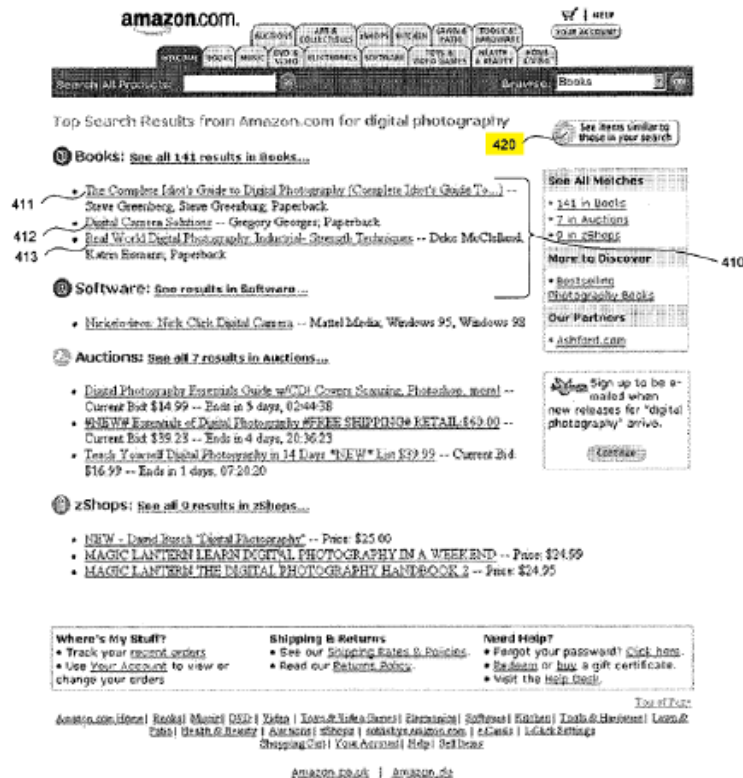


FIG. 4

Petitioner’s annotated version of Gregov’s Figure 4 highlighting button 420. Pet. 15.

Petitioner argues that “[t]he ‘**at least one input parameter**’ is received by the server when the user presses button 420 shown in Figure 4 using his web browser,” which “causes the browser to display the recommendation webpage” shown in Figure 5 of Gregov. Pet. 15–16 (citing Ex. 1003, 4:22–26, 4:24–28, Fig. 5). “Because the button triggers the display of the recommendation webpage as shown in Figure 5,” Petitioner contends, “it would have been obvious that the button causes at least one input parameter to be received by the server.” *Id.* at 16 (citing Ex. 1002 ¶¶ 76–79). Additionally, according to Petitioner, this input parameter would be received “into an intent engine . . . from a web browser displaying the web page”

because web server 164 “receives a request from the web browser that will display the recommendation page (Figure 5), in response to the user activating button 420 (Figure 4).” Pet. 16–17 (citing Ex. 1003, 2:62–64; Ex. 1002 ¶ 80). Petitioner further argues that it would have been obvious for the request message triggered by button 420 to include a URL (which would qualify as the “at least one input parameter”), in which case the recommendations in Figure 5 would be delivered in response to an HTTP request message including a URL for the webpage. *Id.* at 17–19.

With respect to the language requiring “receiving into an intent engine at least one input parameter from a web browser displaying the webpage,” Petitioner asserts that “[t]he phrase ‘web browser displaying the webpage’ simply identifies the web browser used to display the webpage” and “does not require a sequence in which the ‘webpage’ of the preamble must be displayed by the browser *before* ‘receiving . . . at least one input parameter’ occurs.” Pet. 19. Petitioner further argues that “in the event Patent Owner argues that claim 1[a] requires that the browser actually display the claimed ‘webpage’ *before* the ‘receiving . . . at least one input parameter’ step occurs, this would have been obvious in light of the Ajax technique from Holzner.” *Id.* at 20 (citing Ex. 1002 ¶¶ 87–88). Referencing its argument for element 1[g] (discussed in Section II.D.3(f) below), Petitioner contends that “it would have been obvious to implement Gregov using Ajax such that the contents of Figures 4 and 5 were provided on the **same webpage**.” *Id.* (citing Ex. 1002 ¶¶ 87–88, 122–129).

Under this mapping, according to Petitioner, “Gregov’s recommendation button 420 would still result in receipt of ‘**at least one parameter**’” because, as Holzner explains, “Ajax-enabled webpages use a

specific request (known as XMLHttpRequest) to retrieve additional information from a server to update a webpage,” and “[t]hat request includes a URL of the resource at the server from which the data will be retrieved.” Pet. 20–21 (citing Ex. 1002 ¶ 88; Ex. 1006, 11, 24). “Accordingly,” Petitioner argues, “implementing Gregov using Ajax would also have resulted in the receipt by Gregov’s server of a URL that qualifies as an **‘input parameter.’**” *Id.* at 21 (citing Ex. 1002 ¶¶ 88, 153).

Petitioner next argues that, in response to receiving the “at least one parameter” generated by pressing button 420 in Figure 4, Gregov’s server processes the parameter to “determine at least one inferred intent” by identifying recommended items available on the website, as shown in Gregov’s Figure 5. Pet. 21 (citing Ex. 1003, 4:22–36; Ex. 1002 ¶¶ 89–91). According to Petitioner, “[e]ach recommended item reflects an inference by the system about the purpose or **‘intent’** behind the user’s visit to the merchant’s website (*i.e.*, about one or more items sought by the user for obtaining product information and/or placing a purchase).” *Id.* at 22. Thus, Petitioner contends, “[t]he recommended items in Figure 5 . . . teach and suggest **‘determining at least one inferred intent.’**” *Id.* (citing Ex. 1002 ¶ 92). These items qualify as “at least one inferred intent,” according to Petitioner, “because each represents ‘one of the highest ranked Intent Candidates for the current page,’ using the terminology from the ’300 specification.” *Id.* at 23–24 (citing Ex. 1001, 4:20–30).

Petitioner further argues that Gregov teaches determining the inferred intent by “processing the at least one input parameter” because Gregov’s identification of the recommended items occurs in response to the user activating recommendations button 420 in Figure 4. Pet. 24. Petitioner also

argues that Gregov teaches processing the input parameter “in the intent engine” because the processing is done using Gregov’s web server 164 and merchant software 161 (which incorporates the recommendation engine 163), which are included in the “intent engine” as explained above. *Id.* at 24–25 (citing Ex. 1002 ¶¶ 74, 97).

Patent Owner argues that “Gregov does not teach that any type of ‘parameter’ is sent to the facility of Gregov when the recommendation button 420 is clicked” and, “[m]ore importantly, Gregov certainly does not teach that anything associated with recommendation is processed (as required by element 1[b]) ‘to determine at least one inferred intent.’” PO Resp. 10; *see* PO Sur-reply 5–6. According to Patent Owner, the processing to determine the items identified by Petitioner in Figure 5 as the “inferred intents” is “done **exclusively** by the facility **without any input** from the user or the user’s web browser.” PO Resp. 10–11.

Patent Owner bases this argument on Figure 2A of Gregov, reproduced below.

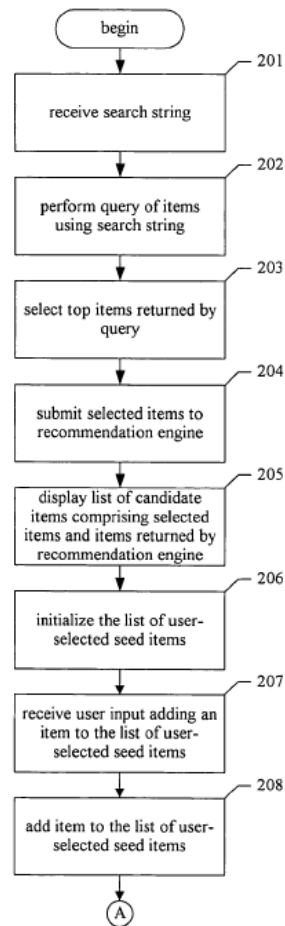


Fig. 2A

Figure 2A of Gregov.

Referring to Figure 2A, Patent Owner argues that Gregov first receives a search string from the user (step 201), then performs a query of items available for sale using that search string (step 202), then selects the top items returned by the query (step 203), and then submits the items selected in step 203 to the recommendation engine as recommendation seeds (step 204), from which the recommendation engine returns recommended items (step 205). PO Resp. 11–12. “All of this is done,” according to Patent Owner, “as a result of the user entering a search string and **prior to** the user being able to click recommendations button 420.” *Id.* at 12. “[N]one of steps 201–204,” Patent Owner contends, “require any input from the user

other than the search string, which the Petition had not identified as an input parameter.” *Id.*

Additionally, Patent Owner argues that Petitioner’s combination does not teach “processing the at least one input parameter in the intent engine **to determine at least one inferred intent**” because the combination “at best discloses methods of receiving an **explicit** request for additional information and seeking additional information similar to information previously presented as a result of the explicit request.” PO Resp. 13; *see* PO Sur-reply 2–5. Patent Owner argues that Gregov “generates user-directed product recommendations in two ways”: (1) by “us[ing] the user input search string to run a search query and then use the results to seed the recommendation engine;” and (2) by “allowing the user to add or remove items from the seed list that will be used by the recommendation engine.” PO Resp. 13–14. As to the first way, Patent Owner argues that the system “is not guessing or inferring as to the items the user seeks,” but instead “uses the explicit instructions from the user to obtain recommended items.” *Id.* at 13 (citing Ex. 2016 ¶ 58). As to the second way, Patent Owner contends that adding or removing items from the seed list “occurs **after** steps 201–205 of Fig. 2A are completed by the facility.” *Id.* at 14 (citing Ex. 1003, 3:31–45). Thus, according to Patent Owner, “the system was already explicitly informed by the user through the search string of the items the user seeks,” and relying on such explicit instructions “reads the term ‘inferred’ out of the claims completely.” *Id.* (emphasis omitted).

Patent Owner further argues that Gregov does not teach inferring intent because “[n]owhere in Gregov does the system **infer anything about the user.**” PO Resp. 14 (citing Ex. 2016 ¶ 59); *see* PO Sur-reply 5.

To the contrary, according to Patent Owner, “[i]nferring intent is antithetical to the stated purpose of Gregov, which is primarily concerned with providing a recommendation system ‘that afford[s] a high level of user control.’” PO Resp. 15 (citing Ex. 1003, 1:53–56; Ex. 2016 ¶ 61). Thus, Patent Owner asserts, Petitioner “attempts to rewrite ‘determin[ing] at least one inferred intent’ to require only ‘identifying recommended items.’” *Id.* (citing Pet. 24).

In response, Petitioner argues that Patent Owner mischaracterizes Gregov. Pet. Reply 3. According to Petitioner, Patent Owner’s argument focuses only on the recommended items in Figure 5 that “are the top three items returned in the search result” (items 510, 520, and 540), but ignores the three other recommended items (items 530, 550, and 560) “identified by the Gregov recommendation engine *after* and *in response to* recommendations button 420.” *Id.* at 4–5 (citing Ex. 1002 ¶¶ 90, 94; Ex. 1003, 4:31–33, 2:55–59). Petitioner also argues that the step of “**processing** the at least one input parameter,” does not require that the intent engine “use the parameter in any specific way to determine an inferred intent,” but rather “simply requires that the intent engine do something with the input parameter, *i.e.*, act upon it in some way to determine at least one inferred intent.” *Id.* at 6 (citing Ex. 1023 ¶ 10; Ex. 1001, 3:37–45). Thus, according to Petitioner, the “at least one input parameter” can “simply be a ‘URL or similar webpage identity,’” which is “precisely what recommendations button 420 in Gregov causes the server to receive under the proposed combination.” *Id.* at 7 (quoting Ex. 1001, 3:37–45).

Petitioner further argues that Patent Owner’s assertion that the proposed combination at most discloses methods of receiving an “explicit”

request for additional information simply recycles the argument it made in the Preliminary Response, and should be rejected for the same reasons set forth in the Institution Decision. Pet. Reply 9 (citing Inst. Dec. 32). Finally, Petitioner argues that Patent Owner is putting an unsupported gloss on the term “inferred intent” by requiring it to include some “kind of probabilistic or statistical analysis,” rather than “just an explicit lookup,” citing the deposition testimony of Patent Owner’s expert, Dr. Golbeck. *Id.* at 10–11 (citing Ex. 1024, 26:2–27:2).

Based on the complete trial record, we agree with Petitioner that limitations 1[a] and 1[b] are taught by Gregov, either alone or in combination with Holzner. First, we find that one of ordinary skill would have understood from Gregov that “at least one input parameter” is received from a web browser displaying the web page when the user presses button 420 shown in Figure 4 using a web browser. In this regard, we rely on and find credible Dr. Chatterjee’s testimony that

Because the button triggers the display of the recommendation webpage as shown in Figure 5, a person of ordinary skill would have understood and found it obvious that pressing the button causes at least one input parameter to be received by the server, such that additional content can be loaded and displayed.

Ex. 1002 ¶ 79. We also credit Dr. Chatterjee’s testimony that it would have been obvious for this “input parameter” to be a Uniform Resource Locator (URL) for a webpage contained in an HTTP request message from the browser to the server. *Id.* ¶¶ 81–82.

We also find that Gregov teaches “processing the at least one input parameter in the intent engine to determine at least one inferred intent.” As we explained in the Institution Decision, the ’300 patent describes “intent” as “a unique purpose or usage of the website,” and the parties have agreed

on this construction. Ex. 1001, 4:25; Tr. 19:17–20:4, 29:13–21; Inst. Dec. 19. In the context of the book shopping website of Gregov, the visitor’s “intent” can be to find a book that matches what the visitor is looking for. Given this understanding, we agree with Petitioner that Gregov “infers” this intent by using the visitor’s pressing of button 420 in Figure 4 labeled “See items similar to those in your search,” along with the results of the search using the visitor’s search terms, to determine one or more candidate books to match what the visitor is looking for, as shown by the listing in Figure 5. We further agree with Petitioner that each of the search results 510–580 in Figure 5 are “inferred intents” because they are “one of the highest ranked Intent Candidates for the current page,” which is how the ’300 specification describes “inferred intent.” Ex. 1001, 4:28–30; Pet. 23–24.

We disagree with Patent Owner’s argument that Gregov does not infer intent because it receives an “explicit” request for information. *See* PO Resp. 13–15; PO Sur-reply 2–5. We do not see anything in the claim language or the intrinsic evidence that would preclude inferring of intent from a button representing an “explicit” request for additional information. Moreover, button 420 in Figure 4, upon which Petitioner relies, is not an “explicit” request for a specific book that the user is searching for, but rather is merely a request for the system to identify candidates that may match the book the user is intending to find, which is an attempt by the system to “infer” what the user is searching for. Ex. 1003, 4:22–26. Thus, we do not agree that Petitioner is reading the term “inferred” out of the claim. Similarly, we do not agree with Patent Owner’s argument that Petitioner “attempts to rewrite ‘determin[ing] at least one inferred intent’ to require only ‘identifying recommended items’” (PO Resp. 15), because we do not

see anything in the claim or the specification that would prevent “identifying recommended items” from being the result of a process of inferring the user’s intent.

We also disagree with Patent Owner’s argument that “[n]owhere in Gregov does the system infer anything about the user.” *See* PO Resp. 14. Nothing in the claim language requires that the system infer anything about the **user**; it merely requires determining at least one “inferred intent.” As construed above, neither the term “intent” nor “inferred intent” requires the intent to be “about the user”; it need only be “a unique purpose or intent of the website,” which, in the case of Gregov, is to find a particular book that matches what the visitor is looking for. Additionally, to the extent Patent Owner is arguing that inferring intent requires some kind of probabilistic or statistical analysis, as Dr. Golbeck testified at her deposition (Ex. 1024, 26:2–27:2), we disagree with this contention because nothing in the claim requires such an analysis.

Additionally, we disagree with Patent Owner’s argument that Gregov does not teach that anything associated with button 420 in Figure 4 is “processed” to determine the inferred intent because steps 201 through 205 in Figure 2A are performed “as a result of the user entering a search string and **prior to** the user being able to click recommendation button 420.” *See* PO Resp. 10, 12; PO Sur-reply 5–6. To the contrary, we agree with Petitioner that recommended items 530, 550, and 560 are identified by the Gregov recommendation engine after and in response to the user pressing recommendations button 420. *See* Pet. Reply 4–5; Ex. 1002 ¶¶ 89–92. In this regard, Gregov states as follows:

FIG. 4 is a display diagram showing sample search results. . . . The search results are preferably accompanied by a recommendations button 420. **The user preferably clicks the recommendations button in order to obtain recommendations that are based upon the top three items in the search result.**

FIG. 5 is a display diagram showing a list of recommendations based upon the sample search. The diagram shows six recommended items 510, 520, 530, 540, 550, and 560. Items 510, 540, and 520 are the top three items returned in the search result, shown as items 411, 413 and FIG. 4. **Items 530, 550, and 560 are among the items returned by the recommendation engine when seeded with the top three items from the search.** Thus, the recommended items shown in FIG. 5 are **a combination of the top items returned by the search and recommendations based upon these top items.**

Ex. 1003, 4:22–36 (emphasis added). Based on this disclosure, we agree with Dr. Chatterjee that Gregov teaches identifying new item recommendations (items 530, 550, and 560) in response to the user clicking recommendation button 420 and the previously presented search results.

Ex. 1002 ¶ 90. As a result, Patent Owner is incorrect that all of the processing needed to determine the recommendations in Figure 5 takes place before the user clicks recommendation button 420.

Finally, we agree with Petitioner that the term “processing” in the phrase “processing the at least one input parameter . . . to determine at least one inferred intent” does not require that the parameter be used in any specific way to determine an inferred intent, but instead simply requires that the intent engine act upon it in some way to determine at least one inferred intent. *See* Pet. Reply 6; Ex. 1023 ¶ 10. This is confirmed by the ’300 patent specification’s explanation that the intent engine “receives input parameters, such as a URL or similar webpage identity from the web

browser of a visitor” and “processes the input parameters . . . for example by referencing historical intent data, to infer one or more intents of the visitor.”

Ex. 1001, 3:38–43. Thus, Gregov’s disclosure that the system uses recommendation button 420 to determine recommended items in Figure 5 (the “inferred intents”) based on the previously identified search results in Figure 4 is consistent with the way the input parameter is processed in claim 1 and the ’300 patent specification.

Consequently, Petitioner has proven by a preponderance of the evidence that the proposed combination teaches limitations 1[a] and 1[b].

c) 1[c]: “providing the at least one inferred intent to the web browser to cause the at least one inferred intent to be displayed on the webpage”

Petitioner argues that Gregov’s system provides at least one inferred intent (the item recommendations of Figure 5) through the recommendation webpage delivered to the visitor’s web browser, and displays that inferred intent on the webpage of Figure 5. Pet. 25 (citing Ex. 1001, Fig. 5, 4:27–29; Ex. 1002 ¶ 98).

Patent Owner relies on arguments similar to those it made for limitations 1[a] and 1[b]. PO Resp. 17–19. Specifically, Patent Owner asserts that “[b]ecause the system of Gregov does not infer intent, it cannot provide an inferred intent to the web browser nor display an inferred intent on the webpage.” PO Resp. 17–18. “Moreover,” Patent Owner contends, Gregov “requires explicit user input to display any items” in the form of the search string, and “[t]here is nothing inferred, as explained above with respect to elements 1[a] and 1[b].” *Id.* at 18.

For reasons similar to those for limitations 1[a] and 1[b], we find that Gregov teaches limitations 1[c]. As discussed above with respect to

limitations 1[a] and 1[b], we find that Gregov teaches determining recommended items 530, 550, and 560 in Figure 5 based on button 420 in addition to the search string, and disagree with Patent Owner's assertion that all of the recommended items in Figure 5 are determined based on the search string alone. Given that we find that these recommended items are "inferred intents," we also find that Gregov teaches providing those items to the web browser and displaying them, as Petitioner asserts. *See* Pet. 25; Ex. 1001, Fig. 5, 4:27–29; Ex. 1002 ¶ 98.

Consequently, Petitioner has proven by a preponderance of the evidence that the proposed combination teaches limitation 1[c].

- d) 1[d]: "prompting the visitor to confirm the visitor's intent"*
- 1[e]: "receiving a confirmed intent into the intent engine"*

Petitioner argues that Gregov teaches these limitations. Petitioner contends that limitation 1[d] is met by Gregov's button labeled "More like this" in Figure 5, which "prompts the visitor to confirm that the visitor is in fact seeking 'items of a particular type' ([Ex. 1003], 2:24–25), and thus wishes to see more like it." Pet. 25–26. For example, Petitioner argues that the visitor may click the "More like this" button 551 in Figure 5 "in order to base a new set of recommendations on item 550, a book entitled 'The Art of Digital Photography.'" *Id.* at 26 (citing Ex. 1003, 4:37–42). By pressing this button, Petitioner asserts, the visitor "is prompted to provide confirmation that she is in fact seeking items of a particular type commensurate with and closely related to the specific item to which [the] button corresponds—in other words, that items of that type would match the underlying purpose of her visit to the merchant website." *Id.* at 27 (citing Ex. 1002 ¶¶ 100–101; Ex. 1003, 2:55–59, 2:19–26). According to

Petitioner, “[t]his mapping is consistent with the ’300 specification, which uses the terms ‘confirmed’ and ‘declared’ intent synonymously to refer to an intent declared by the user that is then used by the system to determine further recommendations.” *Id.* (citing Ex. 1001, 7:37–42).

As to limitation 1[e], Petitioner argues that this step corresponds to the recommendation facility in Gregov (part of the “intent engine”) receiving the user input from selecting the “More like this” button next to a presented item from Figure 5 (the confirmed intent). Pet. 27. According to Petitioner, the received input corresponds to the “confirmed intent.” *Id.* at 28.

Petitioner argues that this confirmed intent is received into the intent engine because the user input is received by Gregov’s recommendation facility in order to add the item next to the “More like this” button to the list of “seed items” for generation of further item recommendations. *Id.* (citing Ex. 1003, 3:27–44; Ex. 1002 ¶¶ 74, 103–104).

Patent Owner argues that Gregov does not disclose these limitations. PO Resp. 19–20. Patent Owner first relies on its arguments for limitation 1[b] that Gregov does not disclose inferring intent. *Id.* at 19. Patent Owner also argues that Petitioner’s reliance on the “More like this” button 551 is incorrect because “a user’s selection of button 551 actually indicates that the alleged ‘intent’ identified by Gregov, i.e., the full list of items in Fig. 5 . . . , was incorrect and that the user wants to see other options.” *Id.* Thus, Patent Owner contends, “[s]electing the ‘more like this’ button bases ‘a new set of recommendations on the item,’ repeating the process that produced the initial list of items with a new seed—it does not **confirm** an intent (and again it especially does not confirm an **inferred intent**).” *Id.* (citing Ex. 1003, 4:37–41; Ex. 2016 ¶ 71).

Based on the complete record, we find that Gregov teaches these limitations. As discussed above, we agree with Petitioner that item 550 in Figure 5 indicates an “inferred intent,” as that term is used in the ’300 patent. *See* § II.D.3.b, *supra*. Based on the present record, we agree with Petitioner that the visitor’s pressing of the “More like this” button 551 next to item 550 in Figure 5 signifies that the visitor is seeking items similar to item 550, and therefore “confirms” that item 550 reflects the visitor’s intent, at least to some degree. *See* Ex. 1003, 4:37–42. We also agree with Petitioner that Gregov teaches that this “confirmed” attempt is received into the intent engine. *See* Pet. 27–28.

Consequently, Petitioner has shown by a preponderance of the evidence that the proposed combination teaches limitation 1[d] and 1[e].

- e) 1[f]: *“processing the confirmed intent in the intent engine to determine at least one recommended webpage that matches the confirmed intent, the at least one recommended webpage selected from a plurality of webpages within a defined namespace”*

Petitioner argues that after Gregov’s server receives the user input from pressing a “More like this” button in Figure 5 (the “confirmed intent”), the server “processes th[e] confirmed intent” by adding the item corresponding to the “More like this” button to the seed list and using that “seed” item to generate new recommendations, as shown in Figure 6. Pet. 29 (citing Ex. 1003, 3:40–43, 2:55–59, 4:37–53). “Because addition of the item to the seed list occurred in response to the confirmed intent (*i.e.*, pressing ‘More like this’ for that item),” Petitioner contends, “Gregov renders obvious ‘**processing the confirmed intent**’ to determine at least one recommended webpage.” *Id.* (citing Ex. 1002 ¶ 105). “Accordingly,” Petitioner asserts, “**processing the confirmed intent in the intent engine**’

occurs when the recommendation engine receives the user input for ‘**More like this**’ and processes that information to add the corresponding item to the seed list to identify new item recommendations.” *Id.*

Petitioner also argues that the confirmed intent is “processed ‘**to determine at least one recommended webpage that matches the confirmed intent.**” Pet. 29. Petitioner points to Gregov’s Figure 6, which “shows an exemplary recommendation page including further item recommendations after adding ‘The Art of Digital Photography’ 691 to the seed list.” *Id.* at 30. “Because the recommendation engine identifies item recommendations based on the user-specified seed item (*e.g.*, ‘The Art of Digital Photography’),” Petitioner asserts, “Gregov identifies at least one item recommendation ‘**that matches the confirmed intent,**’ as claimed.” *Id.* at 31–32. According to Petitioner, “[t]he item recommendations ‘match[] the confirmed intent’ because the recommendation engine determined that they were most likely to provide information sought by the visitor.” *Id.* at 32 (citing Ex. 1002 ¶¶ 106–107).

As to the claim requirement that the confirmed intent be processed to determine “at least one recommended webpage,” Petitioner acknowledges that “Gregov does not on its face state that item recommendations as shown in Figure 6 correspond to at least one recommended webpage,” but argues that “this would have been obvious” to one of ordinary skill. Pet. 32. Relying on the testimony of Dr. Chatterjee, Petitioner asserts that “[a] skilled artisan would have recognized that the recommended items listed in Figure 6 appear with visible underlining under their names, which indicates standard hyperlink behavior—the ability to click on the item to navigate to another page.” *Id.* (citing Ex. 1003, Fig. 6; Ex. 1002 ¶ 108). Petitioner also argues

that this conclusion “is confirmed by the incorporated-by-reference disclosures of Hartman . . . , which teaches that a visitor can request an item detail webpage that provides further information about an item available on the merchant website,” and Linden, also assigned to Amazon.com and describing aspects of a merchant site, which “similarly explains that each item on the merchant website may have its own item ‘detail page’ that a visitor can access by clicking a link to the page from a search results page.” *Id.* at 32–33 (citing Ex. 1004, 4:22–31; Ex. 1005, 6:41–55; Ex. 1002 ¶¶ 109–110).

Petitioner argues that, to the extent “Gregov itself does not disclose that each recommended item in Figure 6 is hyperlinked to a corresponding item detail webpage, it would have been obvious to implement Gregov in this manner based on Hartman and Linden.” Pet. 33 (citing Ex. 1002 ¶ 111). According to Petitioner, one of ordinary skill would have been motivated to make this modification because “[a]dding hyperlinks to Figure 6 would have improved the merchant website (and potentially increase sales) by allowing the visitor to conveniently obtain more information about an item on the recommendation page by clicking the displayed hyperlink.” *Id.* at 33–34 (citing Ex. 1002 ¶ 113). Relying on the testimony of Dr. Chatterjee, Petitioner argues that “Gregov, Hartman and Linden are analogous references describing a common system,” and “[a]dapting the recommendation webpage of Gregov to show links to webpages would have been exceedingly trivial to implement using standard HTML elements.” *Id.* at 34 (citing Ex. 1002 ¶ 114). Additionally, according to Petitioner, “[i]t would have been obvious that each hyperlinked item detail page is also part of the merchant website (*e.g.*, Amazon.com) (**‘defined namespace’**),” and

thus each item detail page would “have been selected from among the webpages that make up the merchant website, *i.e.*, ‘**from a plurality of webpages within a defined namespace.**’” *Id.* at 35 (citing Ex. 1002 ¶ 118).

Patent Owner argues that “Gregov recommends **items** from either an **item category** or from **all item types**, not **webpages** from a **defined namespace.**” PO Resp. 20–21 (citing Ex. 2016 ¶ 74). According to Patent Owner, “Gregov does not once mention webpages or websites.” *Id.* at 21 “A webpage and an item,” Patent Owner asserts, “are not equivalent, and a [person of ordinary skill in the art] would not equate them.” *Id.*

Patent Owner also attacks Petitioner’s combination of Gregov with Hartman and Linden. PO Resp. 21–23, 47–49. Patent Owner argues that “Hartman is unrelated to the field of predicting a navigation destination for a visitor based on intent” and “never even mentions a user performing a search, or a user’s intent.” *Id.* at 21 (citing Ex. 1004, Abstract, 2:61–67, 3:48–54; Ex. 2016 ¶ 75), 48. Patent Owner also argues that Linden “does not teach that an item is a webpage, it teaches [that] an item may have an associated ‘detail page.’” *Id.* at 22 (citing Ex. 1005, 6:41–55; Ex. 2016 ¶ 76). Additionally, according to Patent Owner, “Linden is unrelated to the field of predicting a navigation destination for a visitor based on intent,” but instead “discloses a ‘data mining’ invention, which ‘determin[es] the relatedness of products’ based on community interaction.” *Id.* at 22 (citing Ex. 1005, 1:11–15, 2:51–54; Ex. 2016 ¶ 76), 48–49. Patent Owner further argues that Gregov teaches away from using a system like Linden, because “Gregov teaches a system that match[es] items that is not influenced by user activities,” while “Linden teaches using input from a community of users

based on the activities of the users.” *Id.* at 23 (citing Ex. 1003, 2:23–26; Ex. 1005, 2:51–64; Ex. 2016 ¶ 76), 48–49; PO Sur-reply 6–7.

Petitioner responds that “Patent Owner makes no attempt to address the motivation to combine provided in the Petition, *e.g.*, that item detail pages would have improved the Gregov merchant website by allowing the visitor to conveniently obtain information about a recommended item listed on the recommendation page.” Pet. Reply 12 (citing Pet. 33–34; Ex. 1002 ¶¶ 113–114). Specifically, according to Petitioner, “Patent Owner contends that Hartman relates to ‘single-action ordering of items,’ but does not explain how this has any bearing on the combinability of Hartman’s disclosures of item detail webpages.” *Id.* at 13 (citing PO Resp. 21–23). Petitioner similarly asserts that Patent Owner’s contention that Linden discloses a “data mining” invention that identifies products based on activities of community users “has no bearing on the proposed combination” because Linden’s item detail page “is a generic webpage for displaying information about a particular item, which can be accessed through a variety of places on the merchant website including a link from a search results page,” which “is analogous to the item list appearing on the recommendation webpage of Gregov.” *Id.* at 13–14 (citing Pet. 34; Ex. 1005, 6:41–55). Additionally, Petitioner argues, Patent Owner’s argument that Gregov discloses a recommendation system “not influenced by user activities” is incorrect because “[n]othing in Gregov suggests that its recommendation engine cannot take user actions into account in identifying items to recommend to a user.” *Id.* at 14 (emphasis omitted) (citing PO Resp. 23).

Based on the full trial record, we agree with Petitioner that the proposed combination teaches limitation 1[f]. Specifically, we find that the

proposed combination teaches processing the confirmed intent to determine “at least one recommended webpage” that matches the confirmed intent, because the item recommendations with underlining in Figure 6 would have signified links to corresponding web pages to one of ordinary skill. Our conclusion is supported by the following testimony from Dr. Chatterjee, which we find credible and agree with:

A person of ordinary skill would have recognized that the recommended items listed in Figure 6 appear with visible underlining under their names, which was widely understood as indicating standard hyperlink behavior – the ability to click on the item to navigate to a web page to receive information about that product A person of ordinary skill would have understood that each of the items shown in the recommendation webpage . . . corresponds to at least one recommended webpage. This is consistent with Gregov’s disclosure that the merchant website system can include “item detail pages.” (Gregov, 5:22.) A person of ordinary skill would therefore have appreciated that each of the recommended items would be presented in Figure 6 with a hyperlink to a product detail webpage, and thus, presenting the item would involve identifying or determining a recommended webpage for the item.

Ex. 1002 ¶ 108. Dr. Golbeck also agreed that the underlining of item names shown in a webpage was an indication of hyperlink behavior. Ex. 1024, 31:12–32:5. Based on this evidence, we find that one of ordinary skill would have found it obvious based on Gregov that each of the recommended items with underlining under their names in Figure 6 would indicate a hyperlink to a web page about the item, and thus would correspond to a “recommended webpage” for that item. We do not agree with Patent Owner’s argument that “Gregov does not once mention webpages or websites” (PO Resp. 21), because the relevant inquiry is what the reference would have taught to a person of ordinary skill, not whether the reference

uses the same words used in the claim. A prior art “reference need not satisfy an *ipsissimis verbis* test,” i.e., identity of terminology is not required, for the reference to describe the claimed subject matter. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (citing *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990)). Thus, the lack of the words “webpages” or “websites” is not dispositive; rather, we must determine what a person of ordinary skill in the art would have “reasonably understood] or infer[red] from the prior art reference’s teaching.” *Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.*, 344 F.3d 1186, 1192–93 (Fed. Cir. 2003) (quoting *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003)).

We also agree with Petitioner that one of ordinary skill would have found it obvious based on Hartman and Linden for the items in Gregov’s Figure 6 to correspond to item detail webpages. Hartman teaches that a visitor can request an item detail webpage that provides further information about an item available on the merchant website. Ex. 1004, 4:22–31 (describing “the display of a Web page describing an item that may be ordered” that “was sent from the server system to the client system when the purchaser requested to review detailed information about the item”), Fig. 1A. Linden teaches that each item on the merchant website may have its own item “detail page” that a visitor can access by clicking a link to the page from a search results page. Ex. 1005, 6:41–55 (a “detail page” for a product can be accessed by “select[ing] a link associated with that product (e.g., from a browse node page or search results page)”; Ex. 1002 ¶¶ 109–110. We also agree with Petitioner and Dr. Chatterjee that one of ordinary skill would have been motivated to add hyperlinks to Figure 6 (even if they

were not already present), as taught by Hartman and Linden, to allow the visitor to conveniently obtain more information about an item on the recommendation page by clicking the displayed hyperlink. Pet. 33; Ex. 1002 ¶ 113.

We disagree with Patent Owner’s argument that one of ordinary skill would not have been motivated to combine Hartman and Linden with Gregov because they are not directed to predicting a navigation destination for a visitor based on intent. PO Resp. 22–23. Petitioner relies on Gregov for the limitations requiring inferring intent and merely relies on Hartman and Linden to show that it was known to link an item to a web page providing more detail on that item. Therefore, Patent Owner’s argument does not address the motivation to make the combination argued by Petitioner. Pet. 32–34. We also fail to see anything in Gregov that precludes the recommendation engine from taking actions of users into account in identifying items to recommend to a user and therefore disagree with Patent Owner’s argument that Linden teaches away from Gregov by taking into account the actions of a community of users. Indeed, as discussed by Petitioner, Gregov incorporates by reference the recommendation engine of earlier U.S. Patent No. 6,266,649 (application 09/157,198), which discloses making “personalized recommendations of items based on the collective interests of a community of users,” such as purposes, ratings, and items added to or removed from user shopping carts. Ex. 1003, 2:59–61; Ex. 1027, 2:33–37; Pet. Reply 14.

Consequently, Petitioner has proven by a preponderance of the evidence that the proposed combination teaches limitation 1[f].

f) 1[g]: “causing the webpage in the web browser to display at least one link to the at least one recommended webpage”

Petitioner argues that the webpage as shown in Gregov’s Figure 6 displays a link to a corresponding item detail webpage for each item and that this item detail webpage is the “at least one recommended webpage,” as claimed. Pet. 35. Petitioner notes that “[t]he claim recites ‘causing the webpage in the web browser to display at least one link to the at least one recommended webpage,’ with ‘**the webpage**’ referring back to the ‘webpage’ in claim 1[c] (‘providing the at least one inferred intent . . . to be displayed on the webpage.’).” *Id.* at 36. Petitioner asserts that “[t]he ‘webpage’ recited in claim 1[c] corresponds to the recommendation webpage as shown in Figure 5 whereas the ‘webpage’ for claim 1[g] corresponds to the recommendation page as shown in Figure 6, updated after the visitor pressed ‘**More like this**’ from Figure 5.” *Id.* “But,” according to Petitioner, “a skilled artisan would have regarded Figure 5 and Figure 6 as referencing the **same webpage**, *i.e.*, the recommendation webpage,” because “[b]oth figures show the same header and overall format, and differ mainly with respect to Figure 6 showing its content updated in response to user selection of button 551 from Figure 5.” *Id.* (citing Ex. 1002 ¶ 121; Ex. 1003, Figs. 5, 6). Thus, Petitioner asserts, “[a] skilled artisan would have understood Figure 6 as representing the same ‘webpage’ as Figure 5, but with updated content in response to user action.” *Id.* at 37 (citing Ex. 1002 ¶ 121).

Petitioner also argues that, “[t]o the extent Patent Owner argues that Figures 5 and 6 constitute two distinct or separate webpages, their display in a single ‘webpage’ would have been obvious in light of **Holzner [EX 1006]**, which describes a well-known technology called Ajax.” Pet. 38 (citing

Ex. 1006, 11). According to Petitioner, “Ajax provides a technique for updating the content of a webpage without having to refresh or reload the webpage, and without having to navigate to a different webpage.” *Id.* (citing Ex. 1006, 1; Ex. 1002 ¶ 122). Petitioner cites to an example in Holzner that uses an Ajax-enabled search page in which, “[w]hen you enter your search term(s) and click Search Yahoo!, the page doesn’t refresh; instead, the search results just appear in the box, as shown in Figure 1-1” of Holzner, reproduced below. Pet. 38.

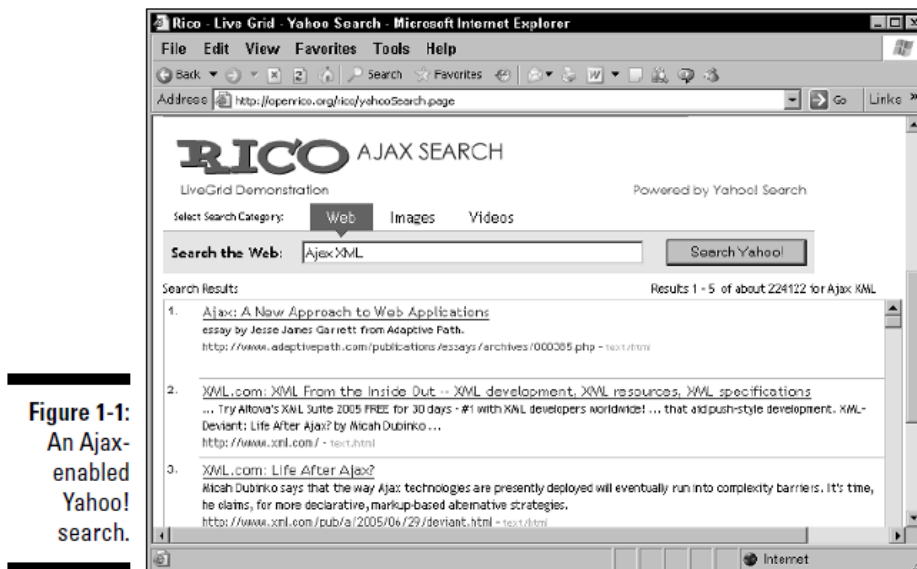


Figure 1-1:
An Ajax-
enabled
Yahoo!
search.

Figure 1 of Holzner shows an Ajax-enabled search page.
Ex. 1006, 10; Pet. 38.

According to Petitioner, “[b]ecause Ajax allows webpage content to be updated ‘on the same page,’ it does not require any change to the URL for the webpage.” *Id.* at 39 (citing Ex. 1002 ¶ 125) (citation omitted).

Petitioner argues that combining Gregov with Holzner “would have predictably resulted in the display screens in Gregov cited in the analysis above being presented on the **same webpage**.” Pet. 39 (citing Ex. 1002 ¶ 126). “For example,” Petitioner asserts, “when the visitor presses ‘**More like this**’ from Figure 5 of Gregov, the update of the webpage content from

Figure 5 to Figure 6 would occur using Ajax, and as such, would occur on the **same webpage** (at the same website URL).” *Id.* “Similarly,” Petitioner contends, “when the user presses button 420 from Figure 4, the update of content to Figure 5 would also occur on the same webpage.” *Id.* “Under Ajax,” according to Petitioner, “updates to the webpages in all cases (*e.g.*, from Figure 4 to Figure 5 to Figure 6, etc.) would have occurred (a) without requiring a refresh of the webpage, (b) without the need to navigate to a different webpage, and (c) without any change to the webpage URL shown in the user’s browser.” *Id.*

Petitioner further argues that a person of ordinary skill would have been motivated to combine Holzner with Gregov because doing so would have provided an improved user experience and improved the efficiency of Gregov by obviating the need to reload and redraw portions of the page unaffected by a content update. Pet. 39 (citing Ex. 1002 ¶¶ 127–128). Petitioner points to Holzner’s disclosure that in traditional web applications “you have to keep clicking buttons to move from page to page and watch the screen flicker as your browser loads a new Web page,” but with Ajax “Web applications finally start feeling like desktop applications to your users” because “Ajax enables your Web applications to work behind the scenes, getting data as they need it, and displaying the data as you want.” *Id.* at 39–40; Ex. 1006, 1, 9–10). Finally, Petitioner argues that one of ordinary skill “would have had every expectation of success” in combining Holzner with Gregov because “Holzner is an analogous reference describing a well-known web technology, and provides detailed examples and explanations.” *Id.* at 40 (citing Ex. 1002 ¶ 129).

Patent Owner does not present arguments regarding this limitation, although Patent Owner attacks the combination of Gregov and Holzner in its discussion of limitation 11[a]. PO Resp. 9–27 (claim 1), 32–37 (claim limitation 11[a]). We discuss Patent Owner’s argument on this point in our discussion of limitation 11[a] below. *See* § II.D.6(b), *infra*. For the reasons explained in Section II.D.6(b) below, we disagree with Patent Owner’s argument.

We agree with Petitioner that one of ordinary skill would have found it obvious to combine Gregov with Holzner and to use Holzner’s Ajax technology to implement Gregov’s Figures 5 and 6 using the same webpage. We also agree that one of ordinary skill would have been motivated to make this combination in order to improve the user experience and the efficiency of Gregov by obviating the need to reload and redraw portions of the page unaffected by a content update. Consequently, based, on the complete trial record, Petitioner has proven by a preponderance of the evidence that the proposed combination teaches limitation 1[g].

g) 1[h]: “prompting the visitor to rank the webpage for the inferred intent”

Petitioner argues that Gregov does not expressly disclose this limitation but that it would have been obvious in light of Nickerson, which discloses a technique for allowing visitors to rank webpages on a website. Pet. 40–45. Petitioner argues that Nickerson discloses a “feedback measurement tool” that can be incorporated into any existing webpage, and can appear as an icon viewable in the browser window. Pet. 40–41 (citing Ex. 1007, 14:51–57). One example provides a “multi-level subjective rating scale” including five levels ranging from very negative to very positive. *Id.* at 41 (citing Ex. 1007, Fig. 3, 15:24–39). Petitioner contends that this

teaches “prompting the user to rank [a] webpage” and is “remarkably similar” to the webpage rating tool 33 described in Figures 4 and 5 of the ’300 patent, which prompts the user to rank the webpage for the inferred intent by including the language “Recommend This Page” and providing a multi-point scale. *Id.* at 41 (citing Ex. 1001, Fig. 4–5, 6:34–44).

Petitioner argues that it would have been obvious to adapt Gregov’s webpages to include Nickerson’s feedback measurement tool. Pet. 42 (citing Ex. 1002 ¶ 134). To illustrate this combination, Petitioner provides a drawing combining Gregov’s Figure 5 recommendation page with Nickerson’s rating tool from Figure 3, reproduced below.

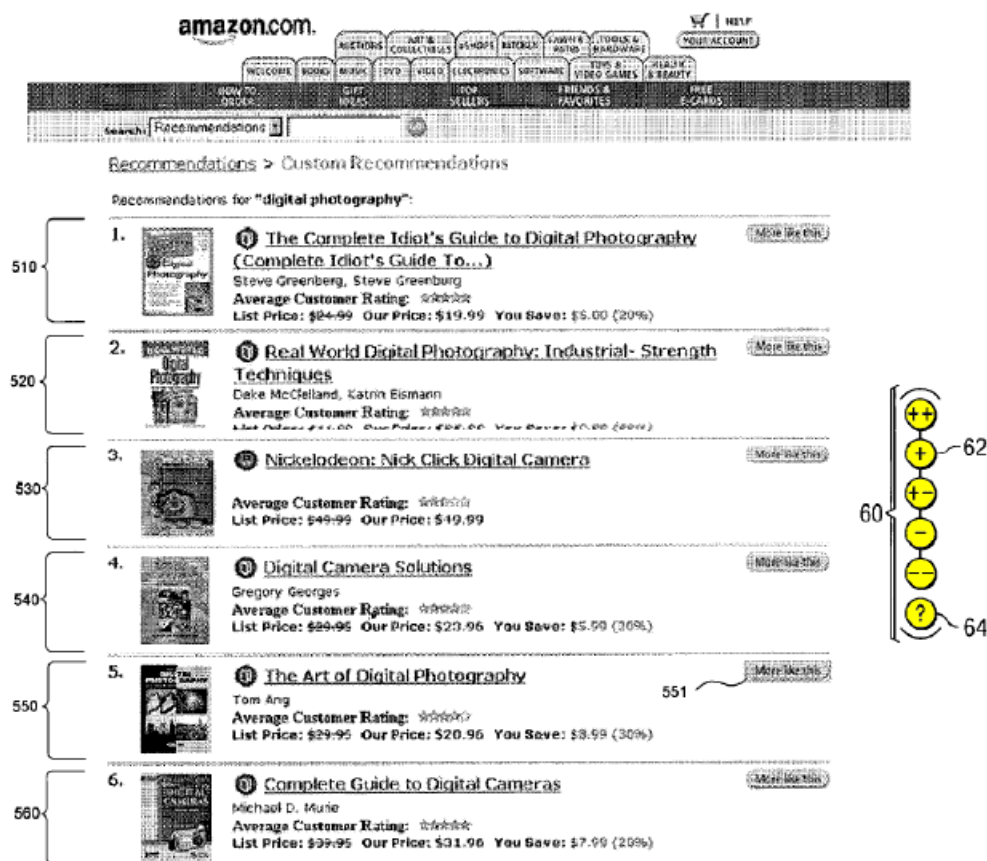


FIG. 5

Petitioner’s diagram combining Nickerson’s Figure 3 rating tool 60 into Gregov’s Figure 5 recommendations page. Pet. 42.

Petitioner argues that this combination would have resulted in a system that prompts the visitor to rank the webpage “for the inferred intent” because “[t]he feedback measurement tool in the proposed combination would prompt the visitor to rank the webpage for presenting item recommendations, such as recommended item 550 (‘The Art of Digital Photography’) (the ‘**at least one inferred intent**’).” Pet. 43. Thus, Petitioner asserts, it would have been obvious that the solicited feedback is for one or more of the recommendations (the “inferred intent”) as presented on the page. *Id.* (citing Ex. 1002 ¶ 135). In other words, according to Petitioner, the ranking would relate to “whether the visitor found the recommendation page and/or its recommendations helpful/unhelpful, informative/uninformative, etc.”⁵ *Id.*

Petitioner argues that one of ordinary skill would have been motivated to add Nickerson’s feedback tool to Gregov in order “to collect valuable user feedback about webpages on the merchant website.” Pet. 44 (citing Ex. 1002 ¶¶ 137–138; Ex. 1007, 1:31–52, 4:35–47). According to Petitioner, in the context of Gregov’s recommendation page, “the feedback tool would have provided a distinct further benefit by allowing the administrator to use the feedback to assess whether visitors found item recommendations to be relevant and/or useful, and would have been motivated to do so in order to provide an improved user experience.” *Id.* at 44–45 (citing Ex. 1002 ¶ 137). Petitioner further asserts that one of ordinary

⁵ Petitioner further asserts that its mapping “is consistent with Patent Owner’s infringement allegations” in the parallel district court proceeding, which accuse Petitioner of “prompt[ing] the visitor to rank the webpage for inferred intent by, for example, reacting to the webpage or providing feedback.” Pet. 43 n.5 (citing Ex. 1013 ¶ 43).

skill would have had “every expectation of success” in adapting Gregov’s recommendation page to include Nickerson’s feedback tool, and that this adaptation “would have required nothing more than conventional and well-known programming techniques.” *Id.* at 45 (citing Ex. 1002 ¶¶ 134, 139; Ex. 1007, 2:30–36, 4:30–36, 6:16–28).

In its Preliminary Response, Patent Owner argued that the cited references do not disclose prompting a visitor to rank the webpage “for the inferred intent,” and that Nickerson only “discloses a technique for allowing visitors to rate a webpage **as a whole**,” because its rating scale “merely allows a user to record a ranking for the overall look and feel of the webpage and does not disclose any method of prompting a user to rank the webpage **specifically for the inferred intent**, as required by limitation 1[h].” Prelim. Resp. 21–22 (citing Ex. 1007, 15:24–34, Fig. 3).

In our Institution Decision, we preliminarily determined that Petitioner’s combination would have taught this limitation to one of ordinary skill in the art. Inst. Dec. 37–43. In determining the meaning of “prompting the visitor to rank the webpage for the inferred intent,” we considered the disclosures of the ’300 specification concerning ranking of webpages for inferred intent. *Id.* at 41–42. The ’300 specification shows the rating tool 33 in Figure 4, reproduced below.

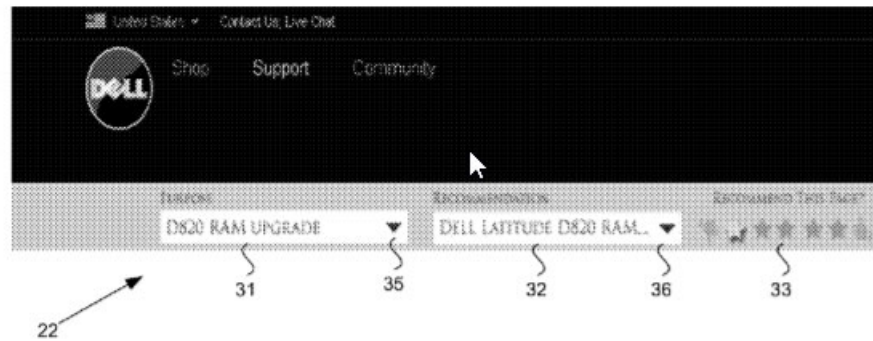


Figure 4

According to the '300 patent specification, the rating tool 33 in Figure 4 (reproduced above) allows the visitor “to indicate a rating of the webpage for the current intent.” Ex. 1001, 6:34–38. This rating tool as shown includes “a 7-point scale . . . using which the visitor may rate pages via a simple thumbs-up and thumbs-down to indicate Success (6) or Failure (0), or they may choose to give the page 1 to 5 stars to indicate degrees of Success.” *Id.* at 6:38–44. The specification further states that “[t]he visitor does not have to fully understand the ‘Success’ paradigm or the nature of the 7-point scale,” and “may simply interact with familiar concepts, thumbs-up/down and a range of stars, as they see fit.” *Id.* at 6:49–52.

In our Institution Decision, we preliminarily found that, in view of these disclosures in the specification, “prompting the visitor to rank the webpage for the inferred intent” does not require the system to explicitly tell the visitor that the ranking is for the purpose of determining how closely the webpage matches what the user is intending to find. Inst. Dec. 41–42. Rather, we explained, it was sufficient if the system provides a more general ranking system that allows the visitor to provide a ranking for the page, such as “thumbs-up/down” or “a range of stars” that may relate in some respect to

how closely the webpage matches what the visitor is seeking. *Id.* at 42 (citing Ex. 1001, 6:49–52).

Given this understanding, we preliminarily determined that this limitation is met by the combination of Nickerson’s page rating scale with Gregov’s recommendations page. Inst. Dec. 42. In this combination, we determined that a rating for the recommendations page may consider how well the recommendations on the page (the “inferred intents”) match what the visitor intends to find (the visitor’s intent). *Id.* For example, if the recommendations in Gregov’s Figure 5 are not relevant to what the user is looking for, the user may give a low rating to the webpage. *Id.* Accordingly, we preliminarily found that the ranking in the Gregov/Nickerson combination is “for the inferred intent.” *Id.*

Patent Owner does not further address this limitation during the trial. Based on the complete trial record, we agree with Petitioner’s arguments and adhere to our preliminary findings in the Institution Decision. Consequently, Petitioner has demonstrated by a preponderance of the evidence that the proposed combination teaches limitation 1[h].

h) 1[i]: “receiving a rank from the web browser”

Petitioner argues that Nickerson discloses “receiving a rank from the web browser” when the user selects an appropriate ranking using the feedback measurement tool, which is then transmitted to a server for storage. Pet. 45 (citing Ex. 1001, 15:45–50). According to Petitioner, the user-provided rank would be received from the web browser when the browser transmits the rank to the server for Gregov’s merchant website. *Id.* (citing Ex. 1002 ¶ 140).

Patent Owner does not present arguments regarding this limitation.
See PO Resp.

We determine that, based, on the complete trial record, the proposed combination teaches this limitation.

- i) *1[j]*: “storing a datapoint comprising an identity of the webpage, the inferred intent and the received rank”

Petitioner argues that this limitation would have been obvious over the combination of Gregov, Nickerson, and Linden. Pet. 46–51. According to Petitioner, one of ordinary skill would have interpreted a “datapoint” as “requiring storage of the claimed pieces of information as data for a particular webpage that was ranked by a visitor, but not specifying any particular physical storage arrangement.” Pet. 46 (citing Ex. 1002 ¶ 142). Petitioner argues that Nickerson teaches collecting and storing a datapoint comprising at least the title and URL for the webpage (“an identity of the webpage”) and the rating provided by the user (“the received rank”). Pet. 47 (citing Ex. 1007, 15:45–59).

Petitioner acknowledges that Nickerson does not appear to disclose storage of “the inferred intent” but argues that it would have been obvious to do so. Pet. 48–51. Relying on Dr. Chatterjee, Petitioner contends that one of ordinary skill would have been motivated to adapt the Gregov/Nickerson combination to store, along with the identity and user-provided ranking for the recommendation page, one or more of the recommended items presented as results on that page. *Id.* at 49–50 (citing Ex. 1002 ¶¶ 149, 137–138). According to Petitioner and Dr. Chatterjee, creating a record of items actually recommended (the “at least one inferred intent”) along with the other information about the recommendation page “would have made that ranking data even more meaningful” and “provided more insight into the

cause of the visitor's rating" in order to "allow the administrator to analyze the relevance and quality of particular recommendations presented on the page." *Id.* at 50 (citing Ex. 1002 ¶ 142). Petitioner also points to Nickerson's disclosure that the stored feedback information for a webpage can additionally include "any other suitable information." *Id.* (citing Ex. 1007, 15:59).

Again relying on Dr. Chatterjee, Petitioner argues that Linden would have further motivated one of skill to store the items identified on the recommendation page in order to improve the quality of subsequent recommendations. Pet. 50 (citing Ex. 1002 ¶ 150). According to Petitioner, Linden teaches maintaining a record of search queries and the results of those queries presented to the user (Ex. 1005, 25:46–49, 25:67–26:4, 26:58–65) and using the results of prior searches when identifying and ranking items to recommend (*id.* at 30:27–30, 27:21–24). Pet. 49–50. Petitioner argues that:

By maintaining in Gregov a record of how often a given item is identified and displayed by the recommendation engine, along with user-provided feedback, the recommendation engine would have the ability to further determine: (a) that the item has a greater likelihood of having relevance to the visitor (and thus should be promoted and displayed more prominently), or (b) that the item is deemed irrelevant or repetitive (and thus should be excluded or displayed less prominently).

Pet. 50–51 (citing Ex. 1002 ¶ 150; Ex. 1005, 30:37–40). Petitioner contends that "[a]lthough Gregov does not describe the process of identifying recommended items as 'searching,' a skilled artisan would have understood Gregov's recommendation process to be analogous to identifying search results as described in Linden, and thus would have been motivated to

use the known technique of Linden to improve a similar process in Gregov, with a reasonable expectation of success.” *Id.* at 51 (citing Ex. 1002 ¶ 151).

Patent Owner argues that “Gregov teaches away from ‘storing a datapoint comprising an identity of the webpage, the inferred intent and the received rank’ because “Gregov states unequivocally that [because] ‘the resulting recommendations **are not predicated on a user profile maintained on the user**, the facility enables such recommendations to be specifically targeted to items of a particular type, without being diluted by other interests or purchases of the user.’” PO Resp. 24 (citing Ex. 2016 ¶ 79; Ex. 1003, 2:21–26). “Additionally,” Patent Owner asserts, “Gregov does not allow for receiving a rank for a webpage from a user,” which “is the rank that must be stored.” *Id.*

Patent Owner also argues that “none of the five references that make up [Petitioner’s] proposed obviousness combination discloses storing either an actual inferred intent or the links in Gregov that the Petition mischaracterizes as inferred intent.” PO Resp. 26–27. Patent Owner further contends that Petitioner’s obviousness rationale “is difficult to piece together from the Petition” and is based on improper “hindsight bias and purported ‘common sense’” of a person of ordinary skill. *Id.*

Petitioner responds that “Patent Owner appears to suggest that a skilled artisan would not have been motivated to adapt Gregov to store ‘the received rank’ because the Gregov recommendation system does not utilize a user profile to identify and present recommended items to the user.” Pet. Reply 17. “This argument,” according to Petitioner, “ignores the specific motivation to combine set forth in the Petition, *i.e.*, that collecting and storing the received rank would have provided valuable information [to] a

website administrator about user reactions to the recommendation webpage.” *Id.* at 17–18 (citing Pet. 44–45, 49–50; Ex. 1002 ¶ 149). Thus, Petitioner contends, “[b]ecause this motivation inures to the website administrator in Gregov, whether or not website visitors in Gregov have user profiles that are used in identifying item recommendations has no relevance.” *Id.* at 18 (citing Ex. 1023 ¶ 29).

Patent Owner responds that Petitioner provides “no explanation as to why the combination would have been obvious to a ‘website administrator,’ nor does [Petitioner] explain why the motivations of a ‘website administrator’ would be relevant to the motivations of a” person of ordinary skill in the art. PO Sur-reply 8. Patent Owner further asserts that “Petitioner’s expert did not opine that a ‘website administrator’ would be a person of ordinary skill in the art for the purposes of an obviousness analysis,” and that a “website administrator” does not appear in Gregov, Nickerson, or Linden. *Id.*

Based on the full trial record, we are persuaded that the proposed combination renders obvious limitation 1[j]. We agree with Petitioner that the Gregov/Nickerson combination teaches storing the identity of the webpage and the received rank. Ex. 1007, 15:45–59; Ex. 1002 ¶ 144. We further find that Petitioner has provided sufficient reasoning, supported with testimony from Dr. Chatterjee, to show that one of ordinary skill would have been motivated to store one or more recommended items along with the page identification and rank in order to provide further data to analyze the effectiveness of the webpage and facilitate improvements. *See* Ex. 1002 ¶¶ 147–150, 137–138; Ex. 1005, 25:46–49, 25:67–26:4, 26:58–65, 30:27–30, 27:21–24, 30:37–40. Because Petitioner has provided sufficient reasons and

evidence to show why a person of ordinary skill would have combined the references, we disagree with Patent Owner's allegations that the combination is based on improper hindsight bias and unsupported "common sense."

We disagree with Patent Owner's argument that Gregov teaches away from "storing a datapoint comprising an identity of the webpage, the inferred intent and the received rank" because Gregov states that "the resulting recommendations are not predicated on a user profile maintained on the user." *See* PO Resp. 24. This argument does not deal with the motivation set forth in the Petition, which is that collecting and storing this information would have provided valuable information to a website administrator about user reactions to the recommended webpage. *See* Pet. 44–45, 49–50; Pet. Reply 17–18; Ex. 1002 ¶ 149. We do not see, and Patent Owner does not explain, how Gregov's failure to predicate its recommendations on a user profile would impact the relevance of the stored information (webpage identity, inferred intent, and rank) to a website administrator.

Additionally, we disagree with Patent Owner's argument that the motivation of a website administrator is irrelevant because a website administrator would not be a person of ordinary skill in the art. *See* PO Sur-reply 8. As discussed in Section II.C above, we find that a person of ordinary skill in the art at the time of the alleged invention "would have possessed a bachelor's degree in software engineering, computer science, computer engineering, or electrical engineering, with at least two years of experience in web-based software application development (or equivalent degree or experience)." We agree with Petitioner that a person of ordinary skill designing a system for predicting user intent and recommending

webpages would have found relevant not only the immediate user experience of persons visiting the webpage, but also the ways in which data from user interactions could be stored to provide information to an administrator or others to allow the user experience and effectiveness of the system to be improved for future users. Pet. 44–45, 49–50; Pet. Reply 17–18. Therefore, we find that storing the data at issue here for use by a website administrator would have been well within the type of work that a person of ordinary skill would have been expected to perform.

Finally, we disagree with Patent Owner’s argument that none of the references individually discloses storing an inferred intent. Petitioner is arguing obviousness based on a combination of references, rather than anticipation based on one reference alone. Therefore, the fact that no one reference discloses all the elements of the claim is not dispositive. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (Where obviousness is based on a combinations of reference, one cannot show nonobviousness by attacking references individually.).

Consequently, based on the full trial record, Petitioner has proven by a preponderance of the evidence that the subject matter recited in limitation 1[j] would have been obvious over the prior art.

j) Summary for Claim 1

For the foregoing reasons, Petitioner has proven by a preponderance of the evidence that claim 1 would have been obvious over the proposed combination.

4. Dependent Claim 2

Claim 2 depends from claim 1 and further recites that “the at least one input parameter comprises an identity of the webpage.” Ex. 1001, 18:59–60.

Petitioner argues that “it would have been obvious that the request message triggered by button 420 [in Figure 4 of Gregov] would have included a URL” and “that the webpage shown in Figure 5 would be delivered in response to the server receiving an HTTP request message from the browser that includes a URL for the webpage.” Pet. 17 (citing Ex. 1001, 3:38–41; Ex. 1002 ¶ 81). Petitioner further contends that its argument is confirmed by Hartman, whose disclosures were incorporated into Gregov. *Id.* (citing Gregov 3:25–26 (incorporating Application No. 08/928,555, which issued as Hartman)). Specifically, Petitioner relies on the following disclosure in Hartman:

Each resource (e.g., computer or Web page) of the WWW is uniquely identifiable by a Uniform Resource Locator (“URL”). To view a specific Web page, a client computer system specifies the URL for that Web page in a request (e.g., a HyperText Transfer Protocol (“HTTP”) request). The request is forwarded to the Web server that supports that Web page. When that Web Server receives the request, it sends that Web page to the client computer system.

Ex. 1004, 1:29–37, *cited in* Pet. 17–18.

According to Petitioner, “[i]t thus would have been obvious to implement Gregov such that pressing button 420 resulted in transmission of a URL (e.g., URL identifying the recommendation page of Figure 5) to the server—thus providing one example of an ‘**input parameter**’ as claimed.” Pet. 18 (citing Ex. 1002 ¶ 82). Petitioner asserts that a person of ordinary skill “would have found it obvious that the request message generated by pressing button 420 can include additional or alternative ‘**input parameters**.’” *Id.* (citing Ex. 1002 ¶ 83).

Petitioner further argues that one of ordinary skill would have been motivated to implement Gregov such that the recommendations button 420

in Figure 4 causes transmission of at least one parameter (e.g., a URL) from the browser to the server because: (1) this was an accepted and industry standard HTTP technique for delivering webpage content in response to requests from web browsers; and (2) this standard technique would have ensured broad compatibility with existing server software and widely-used browsers. Pet. 18 (citing Ex. 1002 ¶¶ 81–85). According to Petitioner, the combinability of these references is further reinforced by the fact that both originate from the same applicant (Amazon) and describe aspects of a common system and that Gregov expressly incorporates Hartman. *Id.* at 19.

Patent Owner argues that Petitioner “ignores limitation 1[b], which requires that the same ‘input parameter’ be processed ‘in the intent engine to determine at least one inferred intent.’” PO Resp. 28–29. Patent Owner contends that Gregov does not disclose using a URL as an input parameter “to determine at least one inferred intent” and that the Petition provides no explanation for how Gregov’s recommendation engine could be modified to generate recommendations based on a URL instead of a subset of items. *Id.* at 29. Patent Owner further argues that Petitioner’s argument that Gregov could have been modified to transmit a URL relies on improper hindsight bias and purported “common sense.” *Id.* at 28. Patent Owner also repeats its arguments for limitations 1[a] and 1[b] that “Gregov does not explicitly state, or imply, that recommendation button 420 sends **anything** to the facility,” and that button 420 “is merely a retrieval button.” *Id.* at 29.

Petitioner responds that Patent Owner has misstated its theory, which is that “[t]he recommendation engine of Gregov under the proposed combination generates item recommendations based on **both** the URL for the recommendations webpage **and** the subset of items (the ‘seed items’) in

Gregov.” Pet. Reply 18. Petitioner contends, as it argued for claim 1[b], that “the URL received by the server in Gregov as a result of pressing recommendations button 420 would have directed the server to use the seed items to identify recommended items and deliver the recommendation webpage.” *Id.* at 18–19. According to Petitioner, “nothing in the claim requires that the ‘**at least one input parameter**’ physically include information used to actually generate recommended webpages (such as the ‘seed items’ in Gregov).” *Id.* at 19. Petitioner further argues that Gregov’s use of previously-presented search results as “seed items” is “directly analogous” to the ’300 patent’s use of “‘historical intent data’ that is not included in the input parameter or URL” to identify inferred intents. *Id.* (citing Ex. 1001, 3:37–45; Ex. 1023 ¶¶ 11–12, 32).

Based on the full trial record, we find that the combination of Gregov and Hartman teaches receiving into an intent engine an “input parameter” in the form of a URL, which “comprises an identity of the webpage.” We also find that Petitioner has set forth sufficient reasoning supported by evidence, including the testimony of Dr. Chatterjee, that one of ordinary skill would have been motivated to combine Gregov and Hartman because using a URL was an accepted and industry standard technique for delivering webpages in response to web browser requests, and that this standard technique would have ensured compatibility with existing server software and browsers. Ex. 1002 ¶¶ 81–85.

Additionally, it would have been obvious in the asserted combination to generate item recommendations based on both the seed items in Gregov’s Figure 4 and the URL generated in response to pressing the recommendations button 420. As we explained with respect to limitation

1[b], at least some of the recommended items in Figure 5 (items 530, 550, and 560) are generated after the recommendations button 420 is pressed based on the seed items. *See* § II.D.3.(b), *supra*. We also agree with Petitioner and Dr. Chatterjee that the claim language does not require that the information used to actually generate the recommended webpages must be included in the “at least one input parameter,” and that Gregov’s use of seed items to generate recommendations after pressing recommendations button 420 is analogous to the ’300 patent’s use of “historical intent data” not included in the input parameter or URL to generate inferred intents. Ex. 1023 ¶¶ 11–12, 32; Ex. 1001, 3:37–45.

Consequently, based on the full trial record, we find that Petitioner has proven by a preponderance of the evidence that claim 2 would have been obvious over the proposed combination.

5. Dependent Claims 3 and 4

Claim 3 depends on claim 1, and further requires that “processing the at least one input parameter comprises determining a ranked list of intents for the webpage.” Ex. 1001, 18:61–63. Claim 4 depends on claim 3, and further recites “selecting the highest ranked intent for the webpage; and causing at least the highest ranked intent to be displayed on the webpage in the web browser.” *Id.* at 18:64–67.

For claim 3, Petitioner relies on its argument for claim 1[b], asserting that “Gregov processes at least one input parameter from the button 420 request (from Figure 4) by determining a ranked list of item recommendations (‘**intents**’) to present to the user (as shown in Figure 5).” Pet. 53 (citing Ex. 1003, 2:55–59; Ex. 1002 ¶¶ 91–95). For claim 4, Petitioner additionally argues that the first item 510 in Figure 5 represents

“the highest ranked intent for the webpage” and that this item was selected as the highest rank because it was the top search result 411 previously presented in Figure 4. *Id.* at 54–55 (citing Ex. 1003, 3:21–31, 4:28–31). Thus, according to Petitioner, Gregov “teaches ‘**selecting the highest ranked intent for the webpage,**’ *i.e.*, the top ranked result.” *Id.* at 55.

Patent Owner asserts that the prior art does not teach the limitations of these claims, making arguments similar to those it made for claim 1. PO Resp. 30–32. Specifically, Patent Owner argues that Gregov’s “‘list of recommended items’ is not a ‘ranked list of intents for the webpage,’” but rather “is a list of items ‘specifically targeted to items of a particular type’” that “has nothing to do with intents.” *Id.* “Additionally,” Patent Owner contends, “Gregov does not disclose ‘a ranked list of **intents** for the webpage,’” but instead “only discloses a ranked list of **items**.” *Id.* at 31.

We agree with Petitioner that Gregov teaches the limitations of claims 3 and 4. For the reasons discussed in Section II.D.3(b) above, we find that the recommended items in Gregov’s Figure 5 are “inferred intents.” Figure 5 also discloses displaying these items as part of a ranked list of recommended items in a webpage, and the selection of item 510 as the highest ranked recommended item (“intent”). Ex. 1003, Fig. 5.

Consequently, based on the full trial record, we find that Petitioner has proven by a preponderance of the evidence that claims 3 and 4 would have been obvious over the proposed combination.

6. *Analysis of Independent Claim 11*

a) *11[pre]: “[a]n intent processing system”*

Petitioner asserts that, to the extent the preamble of claim 11 is limiting, Gregov teaches the subject matter of the preamble, referencing its

discussion of the limitations in the body of claim 11. Pet. 55. Patent Owner does not present arguments regarding the preamble. *See* PO Resp.

Based on the full trial record, we find that Gregov discloses the preamble of claim 11.⁶

- b) 11[a]: “an intent engine configured to display an intent tool in at least one webpage when the at least one webpage is loaded into a user browser, the intent tool comprising a plurality of display elements comprising one or more of: an intent field; a recommendation field; and a ranking tool”*

For this element, Petitioner references its argument for claim 1[a] concerning the “intent engine.” Pet. 56. Petitioner also contends that the “at least one webpage” corresponds to the recommendation webpage of Gregov as shown in Figures 5 and 6, which represent views of the same webpage. *Id.*

Referencing its argument for claim 1, Petitioner contends that the claimed “intent tool” corresponds to the content and functionality of the recommendation webpage in the Gregov/Nickerson combination. Pet. 57–58. Specifically, Petitioner contends that this content and functionality includes the following:

- (1) displaying at least one “inferred intent,” i.e., an initial list of recommended items in Figure 5 (citing Ex. 1001, 4:19–36, 3:17–31, Fig. 5);
- (2) allowing the user to confirm or declare his intent, i.e., by pressing “More like this” with respect to a particular item listed in Figure 5 (citing Ex. 1001, 4:37–42, 3:33–42);
- (3) displaying a further set of recommendations on the webpage based on and matching the declared intent, i.e., the set of

⁶ Because we are persuaded that Petitioner has shown that Gregov teaches the subject matter recited in the preamble, we need not decide whether the preamble is limiting.

recommendations shown in Figure 6 (citing Ex. 1001, 4:43–53, 3:40–44); and

- (4) allowing the user to rank the recommendation webpage using Nickerson’s user feedback tool, upon viewing either Figure 5 or 6 (citing Ex. 1007, 14:46–51, 15:45–50, Figs. 3–4).

Id. at 57–58.

Petitioner argues that this functionality is provided on the webpage through “a plurality of display elements comprising one or more of: an intent field; a recommendation field; and a ranking tool.” Pet. 58–63. According to Petitioner, the “intent field” includes the portion of the webpage shown in Figure 5 for presenting the initial set of item recommendations. *Id.* at 59. Petitioner contends that the plain and ordinary meaning of “field” in the context of the specification refers to a particular area in which a particular type of information is displayed. *Id.* at 59–60 (citing Ex. 1002 ¶¶ 164–165). Thus, Petitioner asserts, the particular area of Figure 5 that displays the product recommendations (the “inferred intents”) is an “intent field.” *Id.*

Petitioner next argues that the claimed “recommendation field” is met by Gregov’s list of recommended items in Figure 6 presented after the user confirmed his intent by pressing the “More like this” button next to an item in Figure 5. *Id.* at 60 (citing Ex. 1003, Fig. 6, 4:37–53). According to Petitioner, the area displaying this list is a “recommendation field” because it is a portion of the display in which recommendations are presented. *Id.* at 62 (citing Ex. 1002 ¶ 167). Petitioner also argues that the claim does not require that the “intent field” and “recommendation field” appear on the display at the same time, so the fact that Gregov’s “intent field” in Figure 5 and “recommendation field” in Figure 6 appear on the screen at different times does not take the reference out of the claim. *Id.* (citing Ex. 1001,

6:61–65 (“Some of the intent display elements may also be hidden within the page until activated or required by the visitor. For example, the recommendation field may be hidden until the visitor confirms their intent.”)).

Petitioner further argues that the Gregov/Nickerson combination includes a “ranking tool,” referencing Nickerson’s feedback measurement tool discussed with respect to claim elements 1[h]–1[j]. Pet. 63 (citing Ex. 1007, 15:30–59). According to Petitioner, the feedback measurement tool is a “ranking tool” because it allows the user to provide a ranking with respect to one or more webpages from Gregov’s merchant website, including the recommendation page as shown in Figures 5 and 6. *Id.* (citing Ex. 1002 ¶¶ 169, 133).

Patent Owner argues that Petitioner does not cite anything in Gregov that discloses that Figure 5 and 6 are the same webpage. PO Resp. 34 (citing Pet. 36). Patent Owner also contends that Petitioner’s argument is belied by its argument for limitation 1[f], which asserted that the underlining for the recommended items in Figure 6 indicates standard hyperlink behavior and combined this teaching with Hartman’s disclosure of an item detail webpage that provides further information about an item available on a merchant website. *Id.* at 34–35 (citing Pet. 32, 36; Ex. 1003, Fig. 6; Ex. 1002 ¶ 108). According to Patent Owner, if Hartman and Linden are Amazon patents that use the same Amazon website (as the Petition contends), one of ordinary skill “would expect the detail webpages would have the ‘same header and overall format, and differ mainly with respect to . . . its content.’” *Id.* at 35–36 (citing Pet. 36). “If that is true,” Patent Owner contends,

then either the detail webpages are not separate webpages, in which the combination of Gregov, Hartman, and Linden would

then fail to satisfy the requirements of element 1[f], **OR** the detail webpages are separate webpages, in which case Figures 5 and 6 are also separate webpages and the combination fails to satisfy element 11[a].

Id. at 36 (citing Ex. 2016 ¶ 100); *see* PO Sur-reply 9–10. Patent Owner asserts that one of ordinary skill would understand the second to be true, *i.e.*, that Figure 6 and the detail webpages are separate webpages, “because in normal website operations each webpage is a separate entity in and of itself and nothing in Gregov teaches otherwise.” PO Resp. 36 (citing Ex. 2016 ¶ 100). Patent Owner further argues that the Petition in IPR2021-00034 challenging different claims of the ’300 patent also refers to separate webpages. *Id.* (citing IPR2021-0034, Paper 2, at 10, 26).

“Moreover,” Patent Owner asserts “nothing in Gregov would lead a [person of ordinary skill in the art] to combine the system of Gregov with AJAX as described in Holzner” because “Gregov does not discuss simply updating a single page” but rather “discusses updating displays (web pages).” *Id.* at 36–37 (citing Ex. 2016 ¶ 101). “There is no motivation,” Patent Owner contends, “to take a system that works page by page and incorporate into it a system using only a single page.” *Id.* at 37. According to Patent Owner, “Gregov discloses multiple webpages as part of its core functionality,” and Ajax’s “ability to communicate with the backend server and change the information displayed on the webpage without causing the page to reload” “clashes with the multi-page approach of Gregov.” *Id.* at 49–51 (citing Ex. 1006, 10–12; Ex. 1003, Figs. 3–5). “Moreover,” Patent Owner asserts, “because AJAX existed at the time of Gregov, it would have made sense for Gregov to refer to such a system if in use.” *Id.* at 37.

Additionally, Patent Owner argues that “[t]he combination of Gregov and Nickerson also does not teach ‘the intent tool comprising a plurality of

display elements comprising one or more of . . . an intent field.” PO Resp. 37. Referencing its arguments for limitations 1[a], 1[b], and 1[c], Patent Owner argues that the recommended items shown in Gregov’s Figure 5 are not in “an intent field” because Figure 5 labels these items as “recommendations,” not “intents.” *Id.* at 39–40 (citing Pet. 61). Finally, Patent Owner argues that “for the same reasons given with respect to element 1[j], a [person of ordinary skill in the art] would not be motivated to combine Gregov and Nickerson because Gregov’s system teaches away from using past user experiences to influence recommending items.” *Id.* at 37.

Petitioner responds that “Patent Owner does not challenge that showing Figure 5 and 6 of Gregov in a single webpage would have been obvious in view of the AJAX disclosures of Holzner,” and “instead irrelevantly points to webpages *other than* the recommendation webpage, *i.e.*, the hyperlinked detail webpages for items shown on the recommendation webpage in Gregov.” Pet. Reply 20 (citing Pet. 38–40; PO Resp. 35–37; Ex. 1002 ¶¶ 122–129, 161, 168; Ex. 1023 ¶ 45). Petitioner contends that “there is no basis for Patent Owner’s assumption that, under the proposed combination, the AJAX techniques of Holzner must be applied across the entire merchant website in Gregov including to item detail pages.” *Id.* at 21. “Moreover,” according to Petitioner, “the specific benefits of presenting the recommendation displays in a single webpage in Gregov (*e.g.* Figs. 5–7) would not have extended to item detail webpages” because “[i]tem detail webpages are not specific to the recommendation feature—they can be accessed in multiple different ways and different places on the merchant website.” *Id.* (citing Ex. 1005, 6:48–51).

With respect to the combination of Gregov and Nickerson, Petitioner argues that Patent Owner’s characterization of Gregov is incorrect, as explained in Petitioner’s argument for limitation 1[f], and is also irrelevant because “Nickerson discloses a feedback collection tool that can be added to ‘any existing webpage.’” Pet. Reply 23 (citing Pet. 40–41). Finally, Petitioner argues that Patent Owner “does not explain why the display of initial recommendations in Figure 5 does not disclose an ‘intent field,’” and “[t]he fact that Gregov calls these items ‘recommendations’ does not mean that they do not qualify as intents as claimed.” *Id.* at 24 (citing Ex. 1023 ¶¶ 47–48).

Based on the full trial record, we find that Petitioner’s combination teaches limitation 11[a]. As we explained in connection with limitation 1[g], Petitioner has sufficiently established that, based on the teachings of Gregov and Holzner, one of ordinary skill would have found it obvious for Gregov’s Figures 5 and 6 to be implemented using the same webpage using the Ajax technology discussed in Holzner. *See* § II.D.3(f), *supra*. Specifically, we find that Petitioner has sufficiently shown that Holzner teaches that Ajax allows webpage content to be updated on the same page without having to refresh or reload the webpage or navigate to a different webpage, and provides an example of such updating using a search engine. Ex. 1006, 10–11; Ex. 1002 ¶¶ 122, 125. We also find that one of ordinary skill would have been motivated to use Holzner’s Ajax technique for updating a web page with Gregov’s Figures 5 and 6 in order to improve the user experience and increase efficiency by obviating the need to reload and redraw the entire web page, particularly because Figures 5 and 6 include many visual similarities. Ex. 1002 ¶¶ 127–128; Ex. 1006, 1, 10–11. We do not see

anything in Gregov that states that the use of separate webpages for Figures 5 and 6 is “part of its core functionality” (as Patent Owner contends), or that would teach away from using a single webpage that is refreshed or reloaded in response to user input for the functionality shown in these figures.

We also do not agree with Patent Owner that Petitioner’s argument for limitation 11[a] is inconsistent with its argument for limitation 1[f], which asserts that the items in Figure 6 include hyperlinks to separate item detail pages. PO Resp. 34. Rather, we agree with Petitioner that there is no reason why Holzner’s Ajax techniques had to be applied across the entire merchant website including the item detail pages. Pet. Reply 21. Indeed, Patent Owner’s expert, Dr. Golberg, testified that Ajax could have been deployed selectively to only certain webpages. Ex. 1024, 35:10–13 (“Q. So with an Ajax system, though, you understand that you can use Ajax on some webpages of a website and not on other webpages; correct? A. Yes.”).) We also credit Dr. Chatterjee’s testimony that it was common for website designers to selectively deploy Ajax to particular webpages of a website that could benefit from them, and that the Ajax techniques used on the recommendation page need not have been applied to other parts of the website. Ex. 1023 ¶ 40. Therefore, we see no inconsistency in applying Ajax to use the same webpage for Gregov’s Figures 5 and 6, while using a separate webpage for the item detail pages for recommended items.

Additionally, we disagree with Patent Owner’s argument that Gregov does not teach an “intent field” because Figure 5 labels these items as recommendations, not intents. PO Resp. 37. As discussed above with respect to limitation 1[b], we find that the recommended items in Gregov’s

Figure 5 are “inferred intents” as recited in the claims. *See* § II.D.3.(b), *supra*. We also disagree that Gregov’s system teaches away from using past user experience to influence recommendations, as discussed in Section II.D.3(e) above. Moreover, we agree with Petitioner that Nickerson discloses a feedback collection tool that can be added to any existing webpage, and it is that feedback tool, not other aspects of Nickerson, that Petitioner combines with Gregov. Pet. 40–41; Pet. Reply 23. We see nothing in either Gregov or Nickerson that teaches away from using such a feedback tool with Gregov’s web pages.

Consequently, Petitioner has shown by a preponderance of the evidence that the proposed combination teaches limitation 11[a].

c) 11[b]: “at least one database configured to store intent data”

Petitioner argues that the “at least one database” corresponds to one or more databases implemented in Gregov’s server system 150 for storing the user feedback information of Nickerson and the “click stream” information from Linden. Pet. 63 (citing Ex. 1003, 2:47–49 (referring to “a server computer system 150 hosting the facility”), Fig. 1). Referencing its argument for claim element 1[j], Petitioner contends that Nickerson discloses using a database to store feedback and related input from visitors. Pet. 63–64 (citing Ex. 1007, 15:45–50, 6:64–7:3). Relying on Dr. Chatterjee, Petitioner asserts that the claimed use of “at least one database” to store data is an implementation detail that would have been apparent and obvious to a person of ordinary skill. *Id.* at 64 (citing Ex. 1002 ¶ 170).

Petitioner asserts that claim 11 does not provide detail about the claimed “intent data,” but that the ’300 patent specification describes “an intent database 23 for storing various intent related data, such as page views,

intent candidates, recommendations for particular web pages, success data, etc.,” and defines “Success” as “a ‘thumbs-up’ rating of a page.” Pet. 64 (citing Ex. 1001, 3:29–33, 4:45–46). Relying on Dr. Chatterjee, Petitioner argues that a skilled artisan reading the specification would have understood “intent data” to be satisfied by data for one or more information categories identified as “various intent related data” from the specification, including “success data” (the user-provided rating of a page). *Id.* (citing Ex. 1002 ¶ 172). Petitioner further contends that this understanding is consistent with claim 11’s language reciting “at least one database configured to store intent data,” and “receiv[ing] ranking data from the ranking tool and stor[ing] the ranking data in the at least one database.” *Id.* at 64–65. Petitioner also asserts that this understanding is consistent with dependent claim 12’s language reciting storage in “the at least one database” of a datapoint that comprises “the received ranking” (as well as “a current intent indicated by the intent field” and “a current webpage loaded in the user browser”). *Id.* at 65. Accordingly, Petitioner argues, the “intent data” in claim 11 “would be satisfied by at least user-provided ratings or rankings of a page.” *Id.* (citing Ex. 1002 ¶ 173). Petitioner references its arguments for element 1[j] that it would have been obvious to implement the combination of Gregov, Nickerson, and Linden to store intent data in the form of ranking data in a database. *Id.*

Patent Owner argues that none of the references “disclose or suggest a database configured to store intent data,” referring to its argument for element 1[j]. PO Resp. 40–41. Element 1[j], however, does not use the term “intent data,” and Patent Owner does not indicate how it is interpreting that term or why it is not met by the references.

Based on the full trial record, we find that “intent data” includes feedback information on an item/webpage, and that it would have been obvious to store this information in a database, as discussed above with respect to element 1[j]. *See* § II.D.3(i), *supra*. Consequently, Petitioner has shown by a preponderance of the evidence that the proposed combination teaches limitation 11[b].

d) 11[c]: “wherein the intent engine is configured to: display at least one intent in the intent field; display at least one webpage recommendation in the recommendation field; and receive ranking data from the ranking tool and store the ranking data in the at least one database”

Petitioner argues that the webpage provided by Gregov’s “intent engine” is configured to display “at least one intent in the intent field” (the at least one initial item recommendation displayed in the “intent field” of Figure 5), and “at least one webpage recommendation in the recommendation field” (the at least one webpage recommendation displayed in the “recommendation field” of Figure 6). Pet. 67. Petitioner also argues that, in the proposed combination, the webpage is configured to “receive ranking data from the ranking tool” in the form of user feedback provided through Nickerson’s feedback measurement tool. *Id.* Petitioner further references its argument for element 11[b] that it would have been obvious to store the received ranking data in one or more databases in Gregov’s server system 150 (“the at least one database”). *Id.*

Patent Owner references its arguments for limitations 1[j], 11[a], and 11[b], and does not present additional argument for limitation 11[c]. PO Resp. 41–43.

Based on the full trial record, we find that the proposed combination teaches limitation 11[c] for the reasons discussed with respect to limitations 1[j], 11[a], and 11[b]. *See* §§ II.D.3(b), II.D.6(b), II.D.6(c).

e) Summary for Claim 11

For the foregoing reasons, Petitioner has proven by a preponderance of the evidence that claim 11 would have been obvious over the proposed combination.

7. Dependent Claim 12

Claim 12 depends on claim 11, and further requires that “the intent engine is configured to: receive a ranking of a page from the ranking tool; generate a datapoint comprising: a current intent indicated by the intent field; a current webpage loaded in the user browser; and the received ranking; and store the generated datapoint in the at least one database.” Ex. 1001, 20:15–21.

Petitioner argues that claim 12 would have been obvious for the reasons already provided for limitations 1[a]–[j] and 11[b]. Pet. 67–68. Patent Owner also relies on its arguments for limitation 1[j]. PO Resp. 43–44. For the reasons discussed above in Sections II.D.3 and II.D.6(c), we find that Petitioner has proven by a preponderance of the evidence that claim 12 would have been obvious over the proposed combination.

8. Dependent Claim 13

Claim 13 depends on claim 12 and further requires that “the intent engine is configured to process a plurality of the datapoints stored in the at least one database to determine a ranked list of webpages for an intent.” Ex. 1001, 20:23–26. Petitioner argues that “the ‘**plurality of datapoints**’ corresponds to two or more datapoints generated following previous

instances in which the Gregov recommendation webpage was presented.”

Pet. 68. Petitioner contends that claim 13 would have been obvious in view of Linden’s disclosure of “using the results of *multiple* prior searches to rank subsequent recommendations.” *Id.* at 69 (citing Ex. 1005, 30:27–29, 30:37–43). “Applying Linden’s teaching,” Petitioner argues, “the intent engine under the proposed combination would ‘**process a plurality of the datapoints**’ by using two or more ‘datapoints,’ each datapoint storing at least one item recommendation *previously* shown in the results on Gregov Figure 5, ‘**to determine a ranked list of webpages for an intent.**’” *Id.* (citing Ex. 1020 ¶ 184). According to Petitioner, “[t]he claim language simply refers to ‘**an intent**’ (no antecedent basis), which does not require that it be any previously-recited intent.” *Id.*

Additionally, Petitioner asserts that the motivation to combine Linden with Gregov would have been “further enhanced by the fact that the ‘datapoint’ according to claim 12 would also have included the **ranking** of the recommendation webpage, based on Nickerson,” and that “us[ing] that ranking, in conjunction with the one or more recommended items previously displayed on the page,” could have been used “to improve the quality of recommendations.” *Id.* at 70–71. “Using feedback from multiple prior presentations of the recommendation page,” according to Petitioner, “would have provided the recommendation system with a better sense as to whether the recommendation page, and the items previously presented on it, were deemed helpful or unhelpful, and thereby allow the system to adjust future rankings based on that information.” *Id.* at 71 (citing Ex. 1002 ¶ 186).

Patent Owner argues that Petitioner’s combination does not teach claim 13 because none of the references “disclose or suggest datapoints that

include intent data, and therefore do not teach or suggest processing ‘datapoints’ as that term is used in claims 13 and 15, much less processing such ‘datapoints’ to rank webpages ‘for an intent’ as required by claim 13.” PO Resp. 44 (citing Ex. 2016 ¶ 112).

We agree with Petitioner that it would have been obvious to modify Gregov to store and process a plurality of datapoints to determine a ranked list of item recommendations (corresponding to linked webpages) based on Linden’s disclosure of using the results of multiple prior art searches to rank subsequent recommendations. Ex. 1005, 30:27–29, 30:37–43. We also find that Petitioner has articulated sufficient motivation to combine the references. Pet. 70–71. We disagree with Patent Owner’s argument that none of the references “disclose or suggest datapoints that include intent data” for the reasons discussed above with respect to limitation 1[j]. See § II.D.3(i), *supra*. We also disagree with Patent Owner’s argument that the combination does not teach processing datapoints to rank webpages “for an intent” for the reasons discussed with respect to limitations 1[a] and 1[b]. See § II.D.3(b), *supra*.

Consequently, based on the full trial record, we find that Petitioner has proven by a preponderance of the evidence that claim 13 would have been obvious over the proposed combination.

9. Dependent Claim 14

Claim 14 depends on claim 13 and further requires that the intent engine is configured to: receive a confirmed intent from the intent field of a webpage loaded in the user browser; reference a ranked list of webpages for the confirmed intent to select at least one recommended webpage; and provide at least one link for the at least one recommended webpage to the

recommendation field of the intent tool displayed in the webpage loaded in the user browser.

Ex. 1001, 20:27–34.

Petitioner argues that, as explained for claim 11, “the ‘**intent field**’ corresponds to the area of the webpage showing the initial list of item recommendations (the ‘inferred intents’).” Pet. 71–72 (citing Ex. 1003, Fig. 5). Petitioner contends that “[t]he intent processing system is configured to ‘**receive a confirmed intent from the intent field of a webpage loaded into the user browser**’” because, as explained for limitation 1[e], “receipt of the ‘confirmed intent’ occurs after the visitor presses ‘**More like this**’ with respect to a particular item presented in Figure 5.” *Id.* at 72. “Upon receiving the confirmed intent,” according to Petitioner, “the server adds the corresponding item to the seed list and uses that ‘seed’ item to generate a new set of recommendations.” *Id.* at 73 (citing Ex. 1003, 2:55–59, 3:40–43).

Petitioner argues that

[i]t would have been obvious that Gregov’s intent engine would ‘**reference a ranked list of webpages for the confirmed intent to select at least one recommended webpage**’ when it references the ranked list of item recommendations returned by the recommendation engine (‘**ranked list of webpages for the confirmed intent**’) to select the top items that would be presented as hyperlinks to the user (‘**to select at least one recommended webpage**’), as shown in Figure 6.

Pet. 73–74. “When Gregov’s recommendation engine generates item recommendations based [on] ‘seed’ items,” according to Petitioner, “it can identify a longer list of items than what actually gets presented to the user.” *Id.* at 74 (citing Ex. 1003, 4:31–33).

Therefore, Petitioner asserts, it

would have been obvious that, as part of generating and providing the webpage content that includes the new list of recommendations, Gregov's intent engine (the combination of web merchant software **161** and web server software **164**) would reference the full ranked list of webpages returned by the recommendation engine, and select only the top results (*e.g.*, top five results as shown in Figure 6) to be formatted as webpage content and returned to the user's browser for display as hyperlinks.

Id. (citing Ex. 1002 ¶¶ 191–192).

Finally, Petitioner argues that “Gregov's intent engine ‘**provide[s] at least one link for the at least one recommended webpage to the recommendation field of the intent tool displayed in the webpage loaded in the user browser**’” because, “[a]s explained for claims 1[f]–[g], links to the at least one recommended webpage are presented on webpage shown in Gregov Figure 6.” *Id.* at 74–75.

Patent Owner argues that the proposed combination does not teach “receiv[ing] a confirmed intent from the intent field of a webpage loaded in the user browser” because, “[a]s detailed above with respect to limitations 1[d] and 1[e], neither Gregov, Hartman, Linden, Holzner, nor Nickerson, taken alone or in combination, disclose or suggest the concept of a confirmed intent, much less an intent engine configured to receive a confirmed intent.” PO Resp. 44–45 (citing Ex. 2016 ¶ 114).

We have reviewed Petitioner's arguments and the underlying evidence cited in support and are persuaded that Petitioner sufficiently establishes that the proposed combination teaches claim 14. In particular we agree with Petitioner that it would have been obvious for Gregov's intent engine to “reference a ranked list of webpages for the confirmed intent to select at least one recommended webpage” when it references the ranked list

of item recommendations to select the top items to present to the user. Pet. 73–74. We also agree that it would have been obvious for Gregov’s recommendation engine to identify a longer list of items than what is presented to the user, and to select only the top results from that longer list. *Id.* at 74. We disagree with Patent Owner’s argument that none of the references teach “receiv[ing] a confirmed intent from the intent field of a webpage loaded in the user browser” for the reasons discussed above with respect to limitations 1[d] and 1[e]. *See* § II.D.3(d), *supra*.

Consequently, based on the full trial record, we find that Petitioner has proven by a preponderance of the evidence that the proposed combination teaches claim 14.

10. Dependent Claim 15

Claim 15 depends on claim 12 and further requires that “the intent engine is configured to process a plurality of the datapoints received from a plurality of users to determine a ranked list of intents for a webpage.” Ex. 1001, 20:35–38.

Petitioner argues that, “[a]s explained for claim 13, the intent processing system is configured ‘to process a plurality of the datapoints,’ *i.e.*, datapoints created by previous presentation of the recommendation page of Gregov (Figures 5-6) to generate item recommendations.” Pet. 75. According to Petitioner, claim 15 “similarly recites processing a plurality of the datapoints, but requires that the datapoints were ‘**received from a plurality of users.**’” *Id.* (citing Ex. 1005, 11:13–15). Petitioner contends that this additional feature is rendered obvious by Linden, which “teaches using items appearing in [the] results of prior searches presented to *multiple* users in identifying items to recommend.” *Id.* at 76 (citing Ex. 1005, 11:13–

15, 11:24–28, 17:2–5, 17:10–14, 18:5–7, 18:23–25). According to Petitioner, Linden also teaches sorting (ranking) the recommended items from highest-to-lowest “based on, among other things, the number of times an item appeared on the search results of a plurality of users.” *Id.* (citing Ex. 1005, 19:12–14, 19:32–65, 19:58–59, Fig. 3B (step 312); Ex. 1002 ¶ 196).

Thus, Petitioner argues, when the recommendation page of Gregov appeared to two or more users, the “ranking tool” of claims 11 and 12 would have received a ranking of the recommendation webpage and a “datapoint” including the information specified in claim 12 would have been generated for each instance. Pet. 76–77 (citing Ex. 1002 ¶ 197). According to Petitioner, this would have “resulted in the recommendation system of Gregov processing datapoints **received from a plurality of users.**” *Id.* at 77. “Under this combination,” Petitioner argues, “determining a ranked list of intents for a webpage (*i.e.* item recommendations for the recommendation page as shown in either Figure 5 or 6 of Gregov) would be carried out by ‘**process[ing] a plurality of the datapoints received from a plurality of users.**’” *Id.* Petitioner further contends that, as explained earlier, “a skilled artisan would have been motivated to make this combination in order to improve the quality of the generated recommendations.” *Id.* (citing Ex. 1002 ¶¶ 197–199, 184–186).

As with claim 13, Patent Owner argues that Petitioner’s combination does not teach claim 15 because the references do not “disclose or suggest datapoints that include intent data, and therefore do not teach or suggest processing ‘datapoints’ as that term is used in claims 13 and 15, much less

processing such ‘datapoints’ to rank webpages ‘for an intent’ as required by claim 13.” PO Resp. 44 (citing Ex. 2016 ¶ 112).

We have reviewed Petitioner’s arguments and the underlying evidence cited in support and are persuaded that Petitioner sufficiently establishes that claim 15 would have been obvious based on the proposed combination.

More specifically, we agree that it would have been obvious for the datapoints that are processed to be “received from a plurality of users” based on Linden’s teaching of “using items appearing in the results of prior searches presented to multiple users in identifying items to recommend.” Pet. 76 (citing Ex. 1005, 11:13–15, 11:24–28, 17:2–5, 17:10–14, 18:5–7, 18:23–25). Based on this teaching, we agree that it would have been obvious that, when the recommendation page of Gregov appeared to two or more users, the “ranking tool” of claims 11 and 12 would have received a ranking of the recommendation webpage, and a “datapoint” including the information specified in claim 12 would have been generated for each instance, resulting in Gregov’s system processing datapoints received from a plurality of users. *Id.* at 77. As we explained with respect to claim 13, we disagree with Patent Owner’s argument that none of the references “disclose or suggest datapoints that include intent data” for the reasons discussed above with respect to limitation 1[j]. *See* § II.D.3(i), *supra*. We also disagree with Patent Owner’s argument that the combination does not teach processing datapoints to rank webpages “for an intent” for the reasons discussed with respect to limitations 1[a] and 1[b]. *See* § II.D.3(b), *supra*.

Consequently, based on the full trial record, we find that Petitioner has proven by a preponderance of the evidence that the proposed combination teaches claim 15.

11. Dependent Claim 16

Claim 16 depends on claim 11 and further requires that “the intent engine is configured to store a definition of a namespace in the at least one database, the definition of the namespace comprising a plurality of webpages, and wherein the at least one webpage recommendation is selected from the plurality of webpages of the namespace.” Ex. 1001, 20:39–44.

Petitioner relies on its discussion of limitation 1[f] for the requirement of a “namespace . . . comprising a plurality of webpages.” Pet. 77.

Petitioner additionally argues that “[i]t would have been obvious for Gregov’s ‘**intent engine . . . to store a definition of a namespace in the at least one database.**’” *Id.* at 78. According to Petitioner, “[t]he ’300 specification makes clear that storing a ‘**definition**’ of a namespace encompasses keeping track of the distinct URLs of the individual webpages that make up the namespace.” *Id.* (citing Ex. 1001, 12:10–14). “It would have been obvious,” Petitioner asserts, “that for the merchant website in Gregov to function, it would store the website content, including the collection of webpages that make up the website, in a database.” *Id.* (citing Ex. 1002 ¶ 203). “This is confirmed,” Petitioner contends, “by Linden, which explains that ‘[t]he Web server **32** accesses a database **36** of HTML (Hypertext Markup Language) content which includes product detail pages and other browsable information about the various products of the catalog.’” *Id.* (emphasis omitted) (citing Ex. 1005, 9:27–31, Fig. 1; Ex. 1002 ¶ 204).

Thus, according to Petitioner, it “would have been obvious that the database(s) in Gregov’s server system **150**, under the proposed combination, would also store a **definition** of the website namespace, *i.e.*, the URLs of the individual pages that make up the merchant website.” *Id.* “A skilled artisan,” Petitioner contends, “would have found it obvious that Gregov’s

recommendation server would keep track of URLs for individual item detail webpages, for example, in order to present them as hyperlinks on the recommendation page.” *Id.* (citing Ex. 1002 ¶ 204).

As for the requirement that the definition be stored “in the at least one database,” Petitioner argues that “[i]t would have been obvious to store the namespace definition in the same database or databases of Gregov’s server computer system **150** used to record intent and ranking information, as discussed for claim 11[b].” *Id.* at 79. According to Petitioner, “Nickerson already teaches using a database to store information about the webpages, including their URLs, titles, and other information relating to user-provided feedback.” *Id.* (citing Ex. 1007, 15:50–63; Ex. 1002 ¶ 206). Petitioner argues that “[i]t would thus have been natural and beneficial for namespace information (such as unique URLs for all products offered by the merchant website) to be stored alongside user-related intent and ranking information,” and that “[s]toring user feedback and responses in the same database(s) as information about individual item detail pages (such as their URLs) would thereby facilitate the selection and retrieval of individual items using previously collected feedback data when making subsequent recommendations.” *Id.* (citing Ex. 1002 ¶¶ 206–207).

Patent Owner relies on its argument for limitation 11[a] above that Petitioner presents inconsistent definitions of “a plurality of webpages.” PO Resp. 45–46. Patent Owner also relies on its argument for limitation 1[f] above that Gregov recommends, items, not webpages. *Id.* at 46–47.

We have reviewed Petitioner’s arguments and the underlying evidence cited in support and are persuaded that Petitioner sufficiently establishes that it would have been obvious to use a “namespace” (as discussed for

limitation 1[f]), and to store in a database information about the webpages in the namespace (a “definition “), such as URLs, titles, and other information about the webpages, based on Gregov and Nickerson. Pet. 78–79. We disagree with Patent Owner’s arguments for the reasons previously discussed with respect to limitations 1[f] and 11[a]. See §§ II.D.3(e), II.D.6(b), *supra*.

Consequently, based on the full trial record, we find that Petitioner has proven by a preponderance of the evidence that claim 16 would have been obvious based on the proposed combination.

E. Ground 2: Obviousness of Claim 17

Claim 17 is dependent on claim 11 and recites that the “intent tool comprises a configurable widget.” Ex. 1001, 20:45–46.

Petitioner argues that “[t]he term ‘**widget**’ is often used to refer to a user interface component that can be incorporated into another web page or web application.” Pet. 80 (citing Ex. 1002 ¶ 208). According to Petitioner, Sriver explains that “[a] widget is a programmable graphical user interface (GUI) element that displays or receives information,” which “is consistent with the way in which ‘widget’ is used in the ’300 patent and by persons of ordinary skill.” *Id.* (citing Ex. 1009 ¶ 25; Ex. 1002 ¶ 209). Petitioner argues that, “[f]or purposes of claim 17, the ‘**configurable widget**’ corresponds to the feedback measurement tool in Nickerson (the claimed ‘**ranking tool**’), implemented as a configurable ‘widget’ based on Sriver.” *Id.*

According to Petitioner, “Sriver describes a widget similar to the feedback measurement tool in Nickerson.” Pet. 80. Petitioner points to Sriver’s example that “a widget can be a five-start [sic; star] rating widget added to a webpage allowing visitors to rate the content in the webpage.”

Id. (citing Ex. 1009 ¶¶ 16, 25, 45, Fig. 2B). Thus, Petitioner contends, Sriver “teaches a feedback measurement tool implemented as a widget.” *Id.*

Petitioner argues that Sriver provides “an express motivation to combine” its teachings with the other references “by explaining that ‘[a] web 2.0 webpage may provide widgets allowing for greater site interactivity, usability, and functionality,’ and specifically identif[ying] the 5-star rating widget as one example.” Pet. 81 (citing Ex. 1009 ¶ 3; Ex. 1002 ¶ 213). According to Petitioner, a “skilled artisan would have further recognized that implementing Nickerson’s feedback measurement tool as a ‘**widget**’ would allow for a more portable and reusable implementation of the tool,” because “[o]ne known advantage of widgets was their reusability, *i.e.*, the ability to easily incorporate a user interface component into many different websites and/or webpages.” *Id.* (citing Ex. 1002 ¶ 214). “This reusability and ease of incorporation,” Petitioner contends, “would have provided a distinct benefit to Nickerson’s tool (as implemented in the context of Gregov merchant website),” because the tool could “be incorporated and reused across multiple pages of the merchant website in a manner that maintains a uniform look and feel.” *Id.* at 81–82 (citing Ex. 1002 ¶¶ 214–215).

With respect to the requirement of a “configurable” widget, Petitioner argues that “Nickerson’s feedback measurement tool is configurable by the website owner, for example, specifying ‘the color of the icon, or any other suitable characteristic of the icon.’” Pet. 82 (citing Ex. 1007, 8:21–43, 27:50–66). According to Petitioner, “[i]mplementing the feedback measurement tool as a ‘configurable’ widget would have provided more flexibility with respect to its display and behavior.” *Id.* (citing Ex. 1002 ¶ 216). Petitioner further argues that one of ordinary skill “would have had

every expectation of success” in incorporating a configurable widget into Gregov based on the teachings of Nickerson and Sriver. *Id.* (citing Ex. 1002 ¶¶ 217–220; Ex. 1007, 6:12–29).

Patent Owner relies on its arguments for claim 11 for claim 17, and does not present additional argument for this claim. PO Resp. 47.

We have reviewed Petitioner’s arguments and the underlying evidence cited in support and are persuaded that Petitioner sufficiently establishes that Sriver teaches a “widget” similar to Nickerson’s feedback measurement tool, and that it would have been obvious to use such a widget for this feedback measurement tool in the proposed combination to allow for more portable and reusable implementation of the tool. Pet. 80–81. We also find that it would have been obvious for the widget to be “configurable” based on Nickerson’s disclosure of a feedback measurement tool that is configurable by the website owner. Pet. 82.

Based on the full trial record, we find that Petitioner has proven by a preponderance of the evidence that the proposed combination teaches claim 17.

F. Patent Owner’s “Issues With the Petition Itself”

Patent Owner argues that the granting of the Petition “violates 35 U.S.C. § 311(a) and the Director’s statutory authority” because “[n]othing in 35 U.S.C. § 311(a) authorizes that a single party may file more than one petition against a single patent” or “such multiple filing using the same prior art for two separate petitions.” PO Resp. 7. Patent Owner also argues that the Petition is deficient because it does not “present evidence and argument that a person of ordinary skill would have been motivated to operate [the prior art combination] in a manner that satisfied the [claimed]

limitation” under *ParkerVision, Inc. v. Qualcomm Inc.*, 903 F.3d 1354, 1363 (Fed. Cir. 2018). *Id.* According to Patent Owner, “Petitioner’s expert declaration does not discuss ‘motivat[ion] to operate’ as required by *Parker[]Vision*,” and the Petition fails to set forth such evidence in the Petition itself. *Id.* at 8.

Petitioner responds that “Patent Owner cites no authority for the proposition that the Board cannot, in its discretion, institute two IPR petitions against the same patent in appropriate circumstances” and “does not address the specific findings made by the Board in finding the filing of a second IPR petition justified.” Pet. Reply 1. Petitioner also argues that *ParkerVision* is distinguishable because, in that case, the Federal Circuit found that the prior art “could satisfy the claim ‘only under certain conditions,’ based on particular inputs,” and “the challenger did not present evidence that a skilled artisan would have been motivated to operate the prior art with inputs causing the prior art to perform the limitations.” *Id.* at 1–2. By contrast, according to Petitioner, it “did not merely show that the prior art was *capable* of satisfying the challenged claims,” but instead provided “extensive analysis in the Petition as to why a skilled artisan would [have] been motivated to combine the prior art to *actually* perform each step of the claimed methods.” *Id.* at 2.

We do not agree with Patent Owner’s argument that the language of 35 U.S.C. § 311(a) prohibits a party from filing more than one petition against a single patent. PO Resp. 7; 35 U.S.C. § 311(a). As we found in the Institution Decision, Petitioner made a reasonable showing that two petitions were appropriate under the circumstances here. Inst. Dec. 17–18. As for Patent Owner’s argument based on *ParkerVision*, we do not agree with

Patent Owner’s blanket assertion that Petitioner did not “present evidence and argument that a person of ordinary skill would have been motivated to operate [the prior art combination] in a manner that satisfied the [claimed] limitation.” PO Resp. 7–8. We have considered the parties’ arguments and evidence on a claim-by-claim and limitation-by-limitation basis and have set forth our findings and analysis in the preceding sections.

III. CONCLUSION⁷

For the reasons discussed above, Petitioner has proven, by a preponderance of the evidence, that the challenged claims are unpatentable, as summarized in the following table:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–4, 11–16	103(a)	Gregov, Harman, Linden, Holzner, Nickerson	1–4, 11–16	
17	103(a)	Gregov, Harman, Linden, Holzner, Nickerson	17	
Overall Outcome			1–4, 11–17	

⁷ 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).

IV. ORDER

Accordingly, it is

ORDERED that claims 1–4 and 11–17 of the '300 patent have been shown to be unpatentable; and

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

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