

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE COMMUNICATIONS, LLC,
Petitioner

v.

VEVEO, INC.,
Patent Owner

Case IPR2017-00933
Patent 8,122,034

**PATENT OWNER'S PRELIMINARY RESPONSE
UNDER 37 C.F.R. § 42.107**

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. THE '034 PATENT AND PROSECUTION HISTORY	4
A. The '034 Patent.....	4
B. Prosecution History	7
III. CLAIM CONSTRUCTION.....	10
A. “Subspace Category(ies)” Refer to Terms, not Items.....	11
B. The Claimed “Relevance Bias Value” Requires a Discrete Value for Relative, Scalable Weighting of Subspace Categories.....	11
C. “Adjusting . . . Based on the Count” Requires Adjustment of Relevance Values Based on the Number of Characters Typed	15
D. “Relevance Values” and “Popularity Values” Must be Distinct Values	16
E. Petitioner’s Remaining Constructions are Unnecessary for Institution Purposes	16
IV. PETITIONER FAILS TO MEET ITS BURDEN OF SHOWING THAT OBVIOUSNESS IS MORE LIKELY THAN NOT	17
A. Petitioner Fails to Meet its Burden of Showing That Any Prior Art Discloses Adjusting the Relevance Values Assigned to Terms Based on the Count of the Number of Text Characters Received.....	17
B. Petitioner Fails to Meet its Burden of Showing That Any Prior Art Discloses a “Relevance Bias Value” Consistent With the Specification	21
C. Petitioner Fails to Meet its Burden of Showing That Any Prior Art Discloses Determining a Ranking Order Based on Both a “Popularity Value” of an Item and a “Relevance Value” of a Term	24

D.	Petitioner Fails to Meet its Burden of Showing That Any Prior Art Discloses Retrieving Relevance Values	27
E.	Petitioner Fails to Demonstrate that the Proposed Combinations Together Meet the Limitations of Any Claim of the '034 Patent.....	28
F.	Petitioner Fails to Explain with Particularity How the Prior Art Discloses Limitations in Dependent Claims.....	32
1.	Claims 2 and 17	32
2.	Claims 12 and 27	34
3.	Claims 13 and 28	36
V.	PETITIONER’S EXPERT DECLARATION SHOULD BE REJECTED OR ENTITLED TO LITTLE OR NO WEIGHT	37
A.	Petitioner Improperly Incorporates Large Sections of Dr. Fox’s Declaration and Forces the Board to Embark on an Archeological Dig for Support	37
B.	In Other Passages, Dr. Fox’s Declaration Simply Parrots and “Expertizes” the Petition.....	38
VII.	CONSTITUTIONALITY OF <i>INTER PARTES</i> REVIEW.....	41
VIII.	CONCLUSION	41

TABLE OF AUTHORITIES

	Page(s)
CASES	
<i>Arendi S.A.R.L. v. Apple Inc.</i> , 832 F.3d 1355 (Fed. Cir. 2016)	20
<i>Chi. Bd. Options Exch., Inc. v. Int’l Sec. Exch., LLC</i> , 677 F.3d 1361 (Fed. Cir. 2012)	11
<i>Cisco Sys. Inc. v. C-Cation Techs., LLC</i> , IPR2014-00454, Paper 12 (Aug. 29, 2014)	37
<i>Ferrum Ferro Capital, LLC v. Allergan Sales, LLC</i> , No. IPR2015-00858, slip op. (PTAB Sept. 21, 2015)	10
<i>InfoBionic, Inc. v. Braemer Mfg., LLC</i> , IPR2015-01704, slip op. (PTAB Feb. 16, 2016)	39
<i>InfoBionic Inc. v. Cardionet, LLC</i> , IPR2015-01705, slip op. (PTAB Feb. 16, 2016)	29, 30, 31
<i>In re Suitco Surface, Inc.</i> , 603 F.3d 1255 (Fed. Cir. 2010)	10
<i>Kinetic Techs., Inc. v. Skyworks Solutions, Inc.</i> , IPR2014-00529, slip op. (PTAB Sept. 23, 2014)	38
<i>Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co.</i> , CBM2012-00003, slip op. (PTAB Oct. 25, 2012)	29, 30
<i>MCM Portfolio v. Hewlett-Packard Co.</i> , 812 F.3d 1284, 1288-92 (Fed. Cir. 2015), cert. denied, 137 S. Ct. 292	41
<i>Oil States Energy Servs., LLC v. Greene’s Energy Grp, LLC</i> , 2017 WL 2507340 (U.S. June 12, 2017)	41
<i>Par Pharm., Inc. v. TWI Pharms., Inc.</i> , 773 F.3d 1186 (Fed. Cir. 2014)	20
<i>Personal Web Techs., LLC v. Apple, Inc.</i> , 848 F.3d 987 (Fed. Cir. 2017)	29

<i>TRW Auto. US LLC v. Magna Elecs., Inc.</i> , IPR2014-00258, slip op. (PTAB Aug. 27, 2014)	38
<i>ZTE (USA), Inc. v. Elecs. & Telecommc'ns Research Inst.</i> , IPR2015-00029, Paper 12 (Mar. 20, 2015)	37

OTHER AUTHORITIES

35 U.S.C.	
§ 314.....	2, 4, 41
37 C.F.R.	
§ 42.6(a)(3)	37, 38
§ 42.65(a)	3, 39
§ 42.104(b)(4)	5
§ 42.107.....	1
§ 42.108(c)	4
§ 42.120.....	2, 10
§ 42.300 (b).....	10
77 Fed. Reg.	
48,680 (Aug. 14, 2012).....	4
48,756 (Aug. 14, 2012).....	10

EXHIBIT LIST

Exhibit	Description
Ex. 2101	Joint Claim Terms Chart, ECF No. 268, Case No. 1:16-cv-09278-JPO (S.D.N.Y.)
Ex. 2102	U.S. Pat. Pub. No. 2005/0283468 A1 (“Kamvar”)
Ex. 2103	Declaration of Michael Gershoni
Ex. 2104	File History of U.S. Patent No. 8,122,034

Pursuant to § 42.107,¹ Patent Owner submits this Preliminary Response to the above-captioned Petition for *Inter Partes* Review of U.S. Patent No. 8,122,034 (“Petition,” Paper 2), which should be denied in its entirety for failure to show a reasonable likelihood of prevailing on any asserted ground.

I. INTRODUCTION

The ’034 patent claims novel methods of performing progressive searches in a detailed and efficient way, using specific—and in some cases, adjustable—numerical “values” for popularity and relevance to optimize search results on a character-by-character basis. In particular, the specification notes the pre-existing problem of identifying the best search results with as few user-entered characters as possible: “The relevance ordering of results . . . should be such that the user sees the desired results with the entry of the first few characters. . . . The correct relevance of ordering is important in this case to avoid the user from having to scroll down to see additional results.” Ex. 1101 at 2:22-31.

Petitioner argues, without merit, that the ’034 patent claims would have been obvious over Morgan as modified by Edlund, Lowles, and De Mes. But Petitioner’s submission suffers from fundamental failures of proof, both procedural and substantive, each independently requiring that Comcast’s Petition be denied

¹ Section cites are to 35 U.S.C. or 37 C.F.R., and emphasis is added unless noted.

institution under § 314.²

First, Petitioner fails to construe claim terms properly. Petitioner's constructions for key terms contradict the '034 patent's specification and prosecution history, and lead to misapplication of the cited prior art. Indeed, Petitioner's arguments regarding the cited references show that Petitioner has implicitly applied incorrect constructions that render Grounds 1-3 legally deficient. Properly construed, the challenged claims are not obvious in light of the art identified in the Petition. As an example, the claims all require a "relevance bias value," which is properly understood to mean a quantifiable characteristic that allows for the dynamic, scalable weighting of subspace categories and does not include a binary choice as Petitioner suggests. But based on its faulty construction, Petitioner relies on prior art that merely discloses the *selection* and *de-selection* of entire content categories. This interpretation conflicts directly with the '034 patent's disclosure and is fatal to Petitioner's challenge.

Second, Petitioner fails to meet its burden of explaining how the cited art

² If the Board nonetheless institutes trial on any of the challenged claims, Patent Owner will address in detail in its § 42.120 Response the numerous substantive errors and shortcomings that underlie Petitioner's arguments and its purported evidence, together with expert support.

discloses all limitations of any challenged claim. The '034 patent claims specific ways of performing progressive searches for TV programs using the claimed “values.” In contrast, *none* of the cited prior art references (Morgan, Edlund, Lowles, and De Mes) discloses use of the specific claimed “values” necessary to perform dynamic searches—instead, those references merely disclose, at most, generic searches that are wholly dissimilar from the claimed invention and that do not render the claims obvious.

Third, Petitioner relies on conclusory statements by its expert, Dr. Fox, who repeatedly fails to provide support for his opinions, as required by § 42.65(a). Dr. Fox’s “opinions” are often nothing more than simple restatements of conclusory attorney assertions from the Petition, without further elaboration. Accordingly, his testimony should be accorded no weight. The Petition also improperly incorporates lengthy passages from Dr. Fox’s declaration.

Fourth, the Petition is redundant of both prior art overcome during prosecution and of the grounds asserted in a co-pending Petition filed against the '034 patent (IPR2017-00932). The Petition here relies on the same teachings and arguments overcome during prosecution of the '034 patent. Applicants successfully distinguished references that teach the same features taught in Petitioner’s cited art, making these new challenges redundant. Furthermore, Petitioner relies on two of the same references (Morgan and Edlund) in a co-

pending IPR against the '034 patent. In fact, Petitioner relies on the same disclosures from Morgan in both Petitions to allegedly render obvious the same limitation. *Compare* Pet. at 32 (“Morgan discloses determining a count of the number of characters of text received from the user.”), *with* IPR2017-00932 Pet. at 29 (“Regardless of whether Sanders determines a count of the number of characters received, Morgan does.”). Similarly, Petitioner relies on the same disclosures from Edlund in both Petitions to allegedly render obvious the same limitation. *Compare* Pet. at 21 (“If Morgan arguably does not expressly teach assigning popularity values to items, Edlund teaches it.”), *with* IPR2017-00932 Pet. at 20 (“Regardless of whether Sanders is considered not to assign popularity values to items, Edlund does.”).

To justify institution of an *inter partes* review, Petitioner’s papers must make a *prima facie* showing that, as a factual and legal matter for each asserted ground, Petitioner has a reasonable likelihood of proving at least one challenged claim unpatentable. *See, e.g.*, § 42.108(c); § 314; 77 Fed. Reg. 48,680, 48,694 (Aug. 14, 2012). Because the Petition fails to do so for *any* ground and *any* claim, it must be denied, and no *inter partes* review should be instituted.

II. THE '034 PATENT AND PROSECUTION HISTORY

A. The '034 Patent

The '034 patent, titled “Method and System for Incremental Search with

Reduced Text Entry Where the Relevance of Results is a Dynamically Computed Function of User Input Search String Character Count,” properly claims priority to a provisional application filed on June 30, 2005. Petitioner does not contest the ’034 patent’s priority date.

The independent claims (1 and 16) each recite specific details for performing the claimed search steps. Among other elements, each claim requires:

- a “set of **items**, the items having assigned popularity values”;
- a “set of **terms**,” describing items, with a “relevance value for each term”;
- searchable “**subspace categories**,” each having a “relevance bias value.”

See, e.g., Ex. 1101 at 10:33-11:25. In other words, the claims require three distinct data sets: “**items**,” “**terms**,” and “**subspace categories**.”

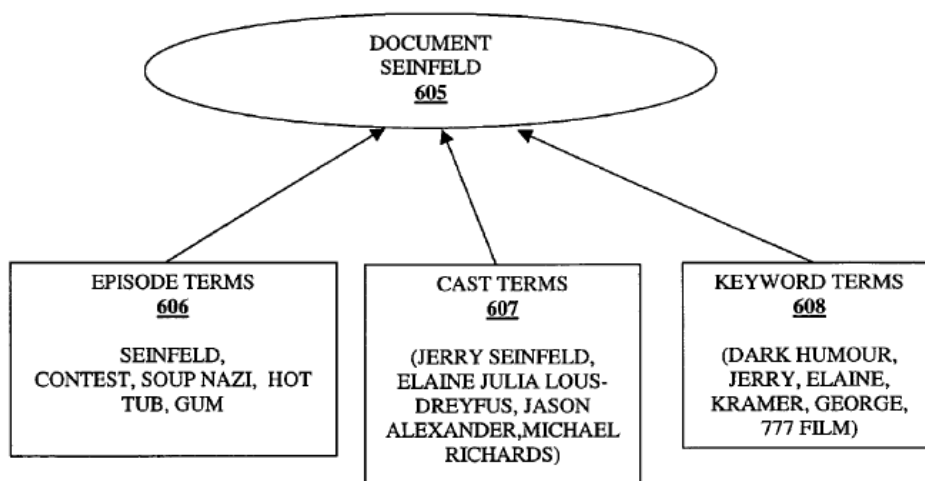
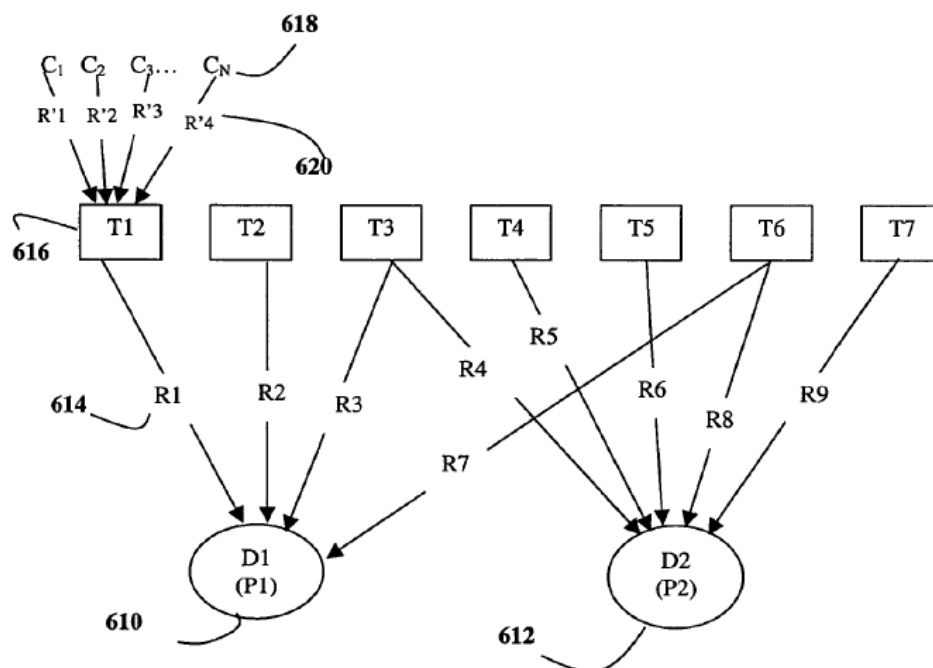


FIG. 6A

Id. Fig. 6A, 7:42-49 (showing item 605 and terms 606, 607, and 608 in separate subspaces). And each of these data sets is associated with a different, distinct

value: “popularity values” for items, “relevance values” for terms, and “relevance bias values” for subspace categories.



Id. Fig. 6B (showing relevance values 614 and popularity values D1 and D2). Each value operates in a different way to optimize presentation of a short list of search results as a user types each character.

Part of the novelty of the claimed invention is its use of the count of the number of characters input by the user to update the specific values used for the search to optimize the short list of results that appears during a search. For example, claim 1 requires “adjusting the relevance value assigned to at least one of the terms . . . based on the *count of the number of text characters* received from the user.” *Id.* at 11:7-12.

B. Prosecution History

During original prosecution of the '034 patent, applicants distinguished references disclosing the same concepts upon which Petitioner relies in these proceedings.³ In particular, applicants stressed that prior art disclosing the mere updating of search results does not disclose the claimed invention, and fails to solve the problem of presenting the most important results to the user via a non-intrusive display, and based on limited text input by the user.

For example, in a January 23, 2008 office action, the Examiner rejected the pending claims based on two references: Kamvar⁴ and Dostie. In their May 13, 2008 response, applicants noted that their invention involves more than simply updating search results, as the prior art discusses: “However, Kamvar merely describes that as more characters are included in the partial search query, the number of results matching the partial search query may change. See Kamvar at ¶ 45.” Ex. 2104 at 218-19. Applicants added new claims and argued that the cited art failed to disclose adjusting relevance values based on the number of characters input by the user: “Kamvar does not disclose adjusting the relevance weights of descriptive items associated with the search results based on the number of text

³ Petitioner filed another Petition, in IPR2017-00932, challenging the same patent and claims.

⁴ U.S. Appl. Pub. No. 2005/0283468 A1, Ex. 2102.

characters received from the user and reordering at least a portion of the search results presented to the user based on the adjusted relevance weights.” *Id.* They further emphasized that the invention “calls for reordering the documents and associated actions based on a number of text characters received from the user.” *Id.* (emphasis in original).

Furthermore, applicants noted that their search methods depend upon both popularity and relevance, as “ordering the search results based only on their popularities causes highly popular results to monopolize the most desirable positions in the presentation order, thereby ‘occluding’ less popular results.” *Id.* at 219-20. By typing more characters, the user has indicated that she is not interested in the most popular results on a character-by-character basis: “the user has been presented with the popular results, has elected not to select the popular results, and continues to enter additional characters in the search text.” *Id.*

After the Examiner maintained a rejection based on Kamvar, applicants filed a Request for Continued Examination (RCE) on June 2, 2009. In that RCE, applicants again noted the importance of adjusting relevance values: “Kamvar is not concerned with a method of adjusting relevance values assigned to terms associated with items based on the number of text characters received from the user and then ordering and presenting items in a particular order based at least in part on the adjusted relevance values.” *Id.* at 308 (emphasis in original). Once

again, applicants pointed out that Kamvar's disclosure of updated search results as the user types more characters (such as "Bri" to "Britney") does not teach or suggest the claimed invention, because "while the results matching the query string change as more characters are entered, this is merely due to the fact that some portion of the results matching 'Bri' are disqualified as those results no longer match 'Britney'." *Id.*

Later, in an August 6, 2010 RCE, applicants again emphasized that "[t]he relevance values are adjusted based on a count of the number of characters received from the user." *Id.* at 404. Accordingly, the invention updates search results based not just on the *content* of the search string, but on the count of characters: "In other words, it is not result filtering due to the additional entered characters alone that causes the order of the items to change." *Id.* Moreover, applicants specifically distinguished Kamvar on this basis. While Kamvar teaches a search system that "identifies and sends a portion of the query as a partial query to the search engine" and "creates a set of predicted queries" (*id.* at ¶ 5), applicants explained that "Kamvar is not concerned with a method of adjusting relevance values assigned to terms associated with items based on a count of the number of text characters received from the user." *Id.* at 408.

On October 19, 2011, the Examiner issued a Notice of Allowance, with proposed amendments, noting that "[t]he combination, as claimed in the

independent claims, are not deemed taught, disclosed, or fairly suggested by the prior art of record.” *Id.* at 479. Applicants agreed with the amendments, and the ’034 patent issued on February 21, 2012. *See id.* at 513.

III. CLAIM CONSTRUCTION

For purposes of *inter partes* review, “[a] claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears.” *See* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012); § 42.300 (b). “Claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure.” *Ferrum Ferro Capital, LLC v. Allergan Sales, LLC*, IPR2015-00858, slip op. at 5 (PTAB Sept. 21, 2015) (Paper 10). The construction must be read in light of the specification as it would be interpreted by one of ordinary skill in the art. *See, e.g., In re Suitco Surface, Inc.*, 603 F.3d 1255, 1260 (Fed. Cir. 2010).

Petitioner fails to construe the challenged claims properly, resulting in complete misapplication of the cited prior art. Patent Owner highlights below, as a preliminary matter, some of Petitioner’s more egregious violations of these basic principles of claim construction and reserves further discussion of claim construction as may be appropriate for its § 42.120 Patent Owner Response, if any trial is instituted.

A. “Subspace Category(ies)” Refer to Terms, not Items

Petitioner proposes that “subspace categories” means “a category, for part of a search space, associated with an item.” Pet. at 13. To the extent this construction requires that subspace categories contain *items* themselves, this contradicts the plain language of the claims, which refer to “the *terms* associated with the items being organized into searchable subspace categories”—they are thus distinct. As explained above, the claims separately recite “items,” “terms,” and “subspace categories.” See *Chi. Bd. Options Exch., Inc. v. Int’l Sec. Exch., LLC*, 677 F.3d 1361, 1369 (Fed. Cir. 2012) (noting “the presumption that different terms have different meanings”).

Moreover, the claims state that it is the “*terms* associated with the items” that are sorted into subspace categories, not *items*. Indeed, in co-pending litigation, Comcast requested that “subspace categories” be construed to mean “categories of *terms*, such as TV channel terms, TV show terms, TV cast terms, movie name terms, and movie cast terms.” Ex. 2101 at 16. Petitioner’s construction therefore contradicts both the straightforward claim language and its own proposed litigation construction, showing that it confuses “items” and “terms”—a mistake common to its application of the cited prior art.

B. The Claimed “Relevance Bias Value” Requires a Discrete Value for Relative, Scalable Weighting of Subspace Categories

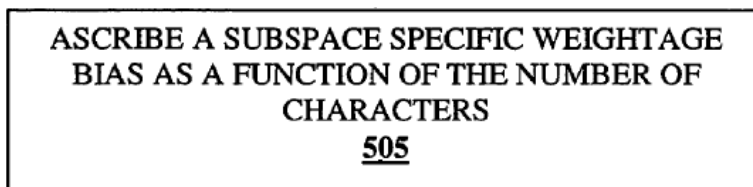
Independent claims 1 and 16 recite use of “relevance bias values,” with

“each subspace category having a relevance bias value,” and a ranking order “further based on the relevance bias values of the subspace categories.”

Petitioner urges that this term be construed as “a weighting or measure that gives preference over another. A ‘relevance bias value’ can be a binary value, a real number value, or a constrained real number (e.g., a probability).” Pet. at 14. Petitioner’s construction and arguments about this construction are flawed. Petitioner claims that a relevance bias value can be “binary” in an attempt to apply prior art references that teach only *selection and de-selection* of an entire content category (discussed in detail below). That reading, however, conflicts directly with the ’034 patent’s disclosure and the plain claim language, which requires a discrete and *scalable* “value.” Simply put, mere selection or de-selection is not enough to meet the claim limitations.

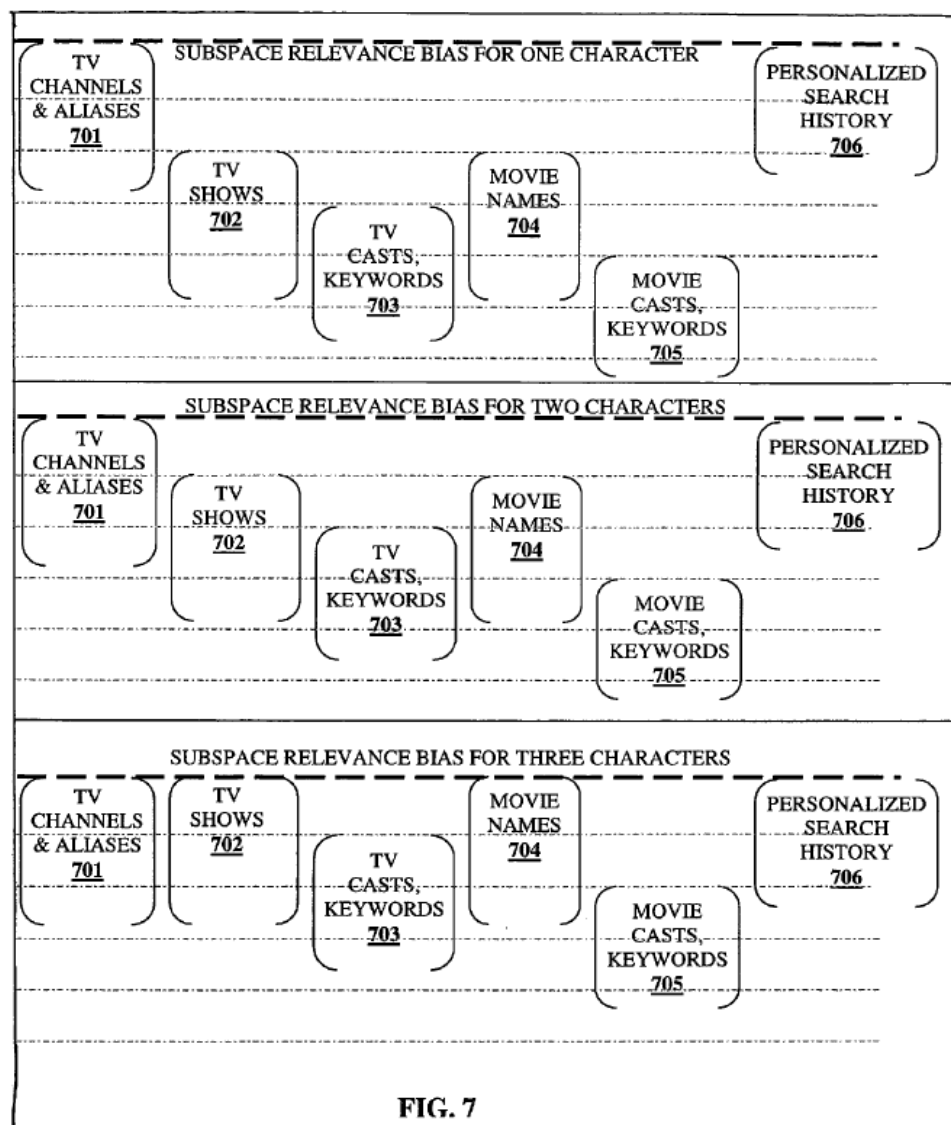
The specification shows unequivocally that a relevance bias value must be an actual quantifiable characteristic, such as a number, that allows for scalable, relative weighting of subspace categories. Applicants explained that the relevance bias value allows for “biasing” of subspace categories, such that “the biasing of one subspace over another refers to the *relative preferential positioning* of subspaces by boosting or suppression.” Ex. 1101 at 8:30-32. Furthermore, “[t]he character-based relevance biasing of subspaces provides the flexibility in controlling what is displayed in an easily configurable *and scalable* manner.” *Id.*

at 8:27-29. Figure 5 also refers to a “weightage bias” for subspaces:



Id. FIG. 5.

Figure 7 provides an example of relevance bias values, showing that the subspace categories have different, scalable weightings (not simply a binary selection or de-selection) relative to each other, and that those weightings can change as a user types:



Id. FIG. 7. For example, the “TV SHOWS” subspace (702) changes relevance bias relative to multiple other subspaces as the user types more characters. The specification further explains that “FIG. 7 illustrates this *selective biasing* of different subspaces,” and “the bias value of a subspace is the output of a *nonlinear function*.” *Id.* at 7:63-66. The relative subspace weightings can also equalize gradually as the user’s character count increases. *Id.* at 9:4-15.

The dependent claims further confirm these characteristics of relevance bias values. Claim 2 recites: “wherein the relevance bias values are based on the count of the number of text characters received from the user.” Claim 4 also refers to a method where search results are “limited to items having associated terms of one or more selected subspace categories.” Accordingly, applying relevance bias values to subspace categories must refer to more than simply selecting and de-selecting certain subspace categories—in other words, simply removing certain content categories from a search pool altogether is not an application of the claimed relevance bias values.

Taken as a whole, the claims and specification establish that “relevance bias value” must be a quantifiable characteristic, and must allow for scalable weighting of subspace categories, including as the number of characters changes.

C. “Adjusting . . . Based on the Count” Requires Adjustment of Relevance Values Based on the Number of Characters Typed

The plain language of claims 1 and 16 requires “adjusting the relevance value . . . based on the count of the number of text characters received from the user.” The specification further confirms adjusting the value as a function of the number of characters. *See, e.g.*, Ex. 1101 at 3:4-15. And as detailed above, the prosecution history also shows that applicants repeatedly distinguished prior art by explaining that the claimed invention requires adjustment of relevance values

based on the changing count of characters in the search query. *See* Ex. 2104 at 218. Accordingly, “adjusting . . . based on the count” requires adjustment of relevance values based on the number of characters typed. Properly construed, Petitioner cannot meet its burden to show that the art cited in the Petition performs the “adjusting” step as specifically claimed.

D. “Relevance Values” and “Popularity Values” Must be Distinct Values

The claims separately recite “relevance values” associated with terms, and “popularity values” associated with content items. Therefore, these are distinct values associated with different data sets. Further, any construction of “relevance values” and “popularity values” as non-distinct values would render each term superfluous. For example, claim 1 recites, in part:

determining a first ranking order of items found in the first incremental find based at least in part on the *retrieved relevance values* **and** the *assigned popularity* values of the items found in the first incremental find

Ex. 1101 at 10:57-60. Accordingly, “relevance values” and “popularity values” must be distinct values. As explained below, Petitioner fails to show that the art cited in the Petition discloses use of both values.

E. Petitioner’s Remaining Constructions are Unnecessary for Institution Purposes

Although Petitioner urges construction of additional terms (*see* Pet. at 10-14),

Petitioner provides only conclusory statements for these constructions and does not explain why constructions other than plain meaning are required. Those constructions should be disregarded for purposes of determining whether to institute.

IV. PETITIONER FAILS TO MEET ITS BURDEN OF SHOWING THAT OBVIOUSNESS IS MORE LIKELY THAN NOT

A. Petitioner Fails to Meet its Burden of Showing That Any Prior Art Discloses Adjusting the Relevance Values Assigned to Terms Based on the Count of the Number of Text Characters Received

The independent claims require adjustment of relevance values based on the count of characters that the user enters. *See* Ex. 1101 at 11:7-12 (“adjusting the relevance value assigned to at least one of the terms . . . wherein the adjusting of the relevance value is based on the count of the number of characters received from the user”), 12:55-61 (“adjusted relevance values . . . , the relevance values of the terms associated with the items being adjusted in response to the count of the number of text characters received from the user”). Accordingly, each claim involves adjustment of discrete relevance values assigned to terms (not items, which are separate and distinct), based at least in part on the character count. In other words, the ’034 patent orders items based not only on their popularity or the relevance of the user’s partial query to the items, but also on the number of characters entered by the user. *See id.* at 2:63-3:4. This “enables the rendering of results from multiple subspaces as a flat linear list without visible subspace

partitioning, empowering the user to search and retrieve results across several subspaces without having to either explicitly specify in advance a particular subspace of interest or navigate different subspaces while viewing results.” *Id.* at 3:4-15.

For this claim element, Petitioner relies primarily on Morgan (Ex. 1102). Morgan generally relates to “dynamically updated” searches that provide a “quick match list” of items that match the characters entered by the user. *See* Ex. 1102 at 3:32-47. As explained below, Morgan does not address the claimed step of adjusting relevance values assigned to terms. Specifically, Morgan discloses no more than populating search results with an entire or partial list of articles, media, titles, etc. in response to a purely logical construct; *i.e.*, whether a pre-determined number of characters is entered. *Id.* at 12:47-52.

The Petition errs in relying on Fig. 5 of Morgan, which shows “a step 250 counts the number of characters entered.” Ex. 1102 Fig. 5, 12:44-46. Petitioner fails to identify any relevance values in Fig. 5, or in any other figure or passage of Morgan. In particular, Morgan does not disclose adjusting the relevance values of terms based on the number of text characters received from the user. Rather, Morgan teaches using the count only as a *threshold* for deciding whether to display all search results or only “quick matches.” Morgan explains:

If the count obtained in step 250 is not less than (*i.e.*, is greater than or

equal to) a predefined minimum in a decision step 252, a step 254 populates the *quick matches list* of the minifind window with a subset listing of articles, media, titles, etc. having *words that start with the characters currently input by the user*.

Id. at 12:47-52. In an English-language search, for example, “the predefined minimum is three” characters. *Id.* at 12:52-54. Thus, Morgan checks only if the character count exceeds three, and then restricts search results. There is no disclosure of relevance values associated with individual terms, nor any adjustment based on character count.

In contrast, Morgan teaches something that the '034 patent applicants expressly distinguished: finding search results using only “words that start with the characters currently input.” Indeed, applicants noted during prosecution that this approach is less efficient than the claimed methods. *See* Ex. 2104 at 218-19. For example, Kamvar (one of the main references that applicants distinguished) discloses a search engine that takes the user’s “partial query” and “creates a set of predicted queries” (Ex. 2103 ¶ 5), but applicants explained (and the Examiner ultimately agreed) that Kamvar does not disclose use of a character count to adjust relevance values, as required by the claims. *See* Ex. 2104 at 218-19 (“Kamvar merely describes that as more characters are included in the partial search query, the number of results matching the partial search query may change.”).

Petitioner’s reliance on Dr. Fox for this limitation is unhelpful as he also

fails to identify any disclosure in Morgan of a “relevance value” or “adjustment,” as properly construed. Dr. Fox points to step 250 in Morgan as disclosing counting characters, and asserts:

In other words, while the count of the number of text characters received from the user is below a certain threshold, Morgan assigns the same relevance value to the listings in the quick match field. Once the count of the number of text characters received from the user exceeds a certain threshold, Morgan adjusts the relevance value assigned to at least one of the terms associated with one or more of the items retrieved.

Ex. 1107 ¶ 148. Notably, Dr. Fox fails to identify what, in the prior art, constitutes the claimed “relevance value” and how it is adjusted. Instead, Dr. Fox simply assumes the presence of a relevance value in Morgan and assumes that the relevance value gets adjusted, solely because Morgan’s search results change. This assumption is wholly unwarranted and unsupported by Morgan’s disclosure. Dr. Fox’s assumptions about the prior art cannot be fill in the gaps in Morgan’s disclosure and should be rejected accordingly. *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362-63 (Fed. Cir. 2016) (warning against using an expert’s conjecture to supply a missing limitation). To the extent Petitioner suggests that adjustment of relevance values is inherent in Morgan, Petitioner completely fails to show that such an operation is necessarily present. *See Par Pharm., Inc. v. TWI*

Pharms., Inc., 773 F.3d 1186, 1195-96 (Fed. Cir. 2014) (noting that the “high standard in order to rely on inherency to establish the existence of a claim limitation in the prior art in an obviousness analysis” requires “the limitation at issue necessarily must be present”).

Moreover, even assuming that Morgan includes a “relevance value” and that the relevance value is adjusted once when the threshold is exceeded for the first time, Petitioner and Dr. Fox still fail to explain how Morgan’s disclosure meets the requirements of “adjusted . . . based on the count” under the proper claim construction. Additionally, Morgan checks only whether the character count exceeds a threshold—for example, Morgan’s method returns quick matches, whether the count of characters is 3 or 300.

Accordingly, Petitioner fails to meet its burden for this claim element because Morgan (1) does not disclose use of relevance values (2) that are associated with terms (not items), and (3) does not teach using character count to adjust those values.

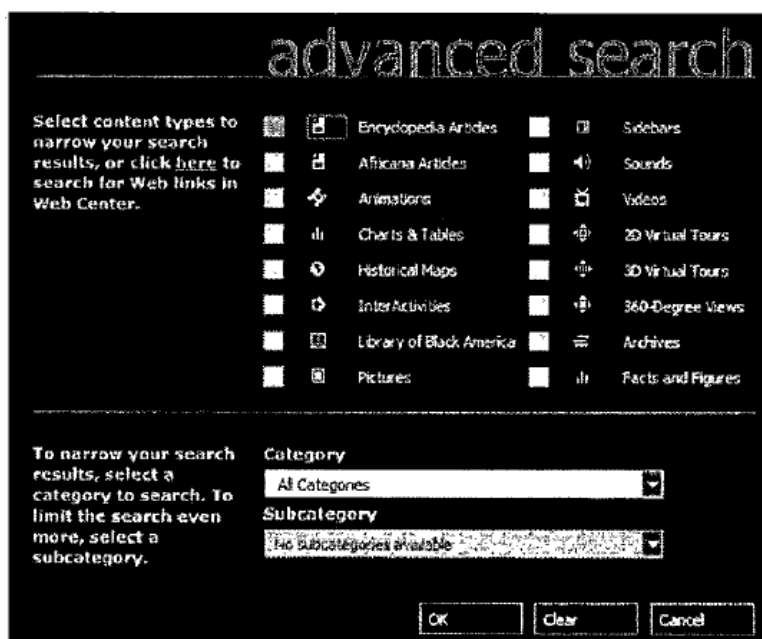
B. Petitioner Fails to Meet its Burden of Showing That Any Prior Art Discloses a “Relevance Bias Value” Consistent With the Specification

As discussed above, the claimed “relevance bias value” must be an actual quantifiable characteristic, and must allow for the scalable weighting of subspace categories. *See* Ex. 1101 at 10:45-46 (“each subspace category having a relevance

bias value”); *id.* at 12:23-24 (same); § III.B, *supra*. Petitioner argues that Morgan discloses this element. *See* Pet. at 26, 46-47. But as also discussed above, Petitioner relies on an improper construction of the term “relevance bias value,” which is evident in its application of Morgan with respect to this limitation. *Id.* The Petition’s assertions that Morgan teaches this claim element or renders it obvious are incorrect for several reasons.

As noted above, Morgan generally relates to “dynamically updated” searches that provide a “quick match list” of items that match the characters entered by the user. *See* Ex. 1102 at 3:32-47. Morgan, however, does not disclose a “relevance bias value.”

First, Petition argues, based on its improper construction, that “Morgan teaches providing a list of subspace categories that can be selected to narrow the search results” and therefore “the subspace categories initially have a common subspace category relevance bias value.” Pet. at 25. In other words, Petitioner relies on Morgan’s disclosure of the *selection and de-selection* of entire content categories, such as the manual checking or unchecking of boxes before a search (“Select content types”):



380

FIG. 10

37

Ex. 1102 Fig. 10. This conflicts directly with the '034 patent's disclosure and the plain claim language, which require a specific, discrete "value" for relative category weightings, not mere exclusion of categories by the user. *See, e.g.*, Ex. 1101 Fig. 7. Petitioner fails to explain how the exclusion of a category would constitute a specific, discrete "value."

Second, Petitioner's reliance on conclusory expert testimony that a POSITA would equate the ability to select and de-select categories or subcategories of content items with the scalable weighting disclosed in the '034 patent is insufficient (discussed in § VI, *infra.*). Dr. Fox's testimony is conclusory and fails to identify any "relevance bias value."

Accordingly, Petitioner fails to meet its burden for this claim element

because Morgan does not disclose use of “relevance bias values” as claimed in the ’034 patent.

C. Petitioner Fails to Meet its Burden of Showing That Any Prior Art Discloses Determining a Ranking Order Based on Both a “Popularity Value” of an Item and a “Relevance Value” of a Term

The independent claims require determining a ranking order based on both a (1) popularity value of an item and (2) relevance value of a term. *See* Ex. 1101 at 10:54-55 (“retrieve the relevance values for the one or more user-entered prefixes matching terms associated with items; ... determining a first ranking order of items ... based at least in part on the retrieved relevance values and the assigned popularity values of items found”), *id.* at 12:37-44 (“[the] ranking order ... being based on the assigned popularity values of the items and being based on the retrieved relevance values for the one or more user-entered prefixes matching terms associated with the items”). Accordingly, this limitation necessarily requires two elements: (1) the existence of two distinct values—a popularity value of an item and a relevance value of a term—and (2) the use of both distinct values to determine a ranking order for presentation of results to the user.

Here, Petitioner relies on Morgan and Edlund (Ex. 1103) in addressing this claim element, but Petitioner fails to meet its burden. As explained above, Morgan generally relates to “dynamically updated” searches that provide a “quick match

list” of items that match the characters entered by the user. *See* Ex. 1102 at 3:32-47. Edlund generally relates to a “metadata search results ranking system” that refers to relevancy and popularity. *See* Ex. 1103 at Abstract, 3:43-53. Neither reference teaches or suggests ranking search results using both popularity values of items *and* relevance values of terms.

Petitioner asserts that Morgan teaches these claim elements, but fails—for several reasons—to identify in Morgan any disclosure of both separate relevance values for terms and popularity values for items, and of a ranking order determined based on those retrieved values.

First, Morgan is silent as to popularity values. Rather, Morgan discloses only ordering search results based on relevance. *See* Ex. 1102 at 12:31-36 (“[T]he logic proceeds to a step 212, which orders the strategies in the list by rank, with the higher priority strategies (i.e., the most likely intended strategies) moved near the top of the list and the lower priority strategies moved nearer the bottom of the list.”).

Second, even if Morgan had disclosed popularity values (it does not), Petitioner fails to identify any disclosure of popularity values *of items* in Morgan. Rather, Petitioner and Dr. Fox mistakenly conflate content items with “search strategies.” Pet. at 29; *compare* Ex. 1102 at 3:40-42 (“An exemplary search strategy might be, ‘find the [character that was input] in an atlas.’”), *with* Ex. 1101

at 6:66-7:1 (“The content item (also referred to herein as a document, e.g., a particular movie is itself assigned a popularity value 502.”). But Petitioner and its expert entirely fail to address why a POSITA would have understood popularity as applied to “search strategies” to be a disclosure of popularity values of specific items.

Third, even if Morgan had disclosed both popularity values of items and relevance values of terms (it discloses neither), Petitioner also fails to identify any disclosure of determining a ranking order based on *both* of those values, as required by the claims. In fact, the Petition, as well as Morgan, is silent as to determining a ranking order based on *both* relevance values of terms and popularity values of items. *See* Pet. at 47-48; Ex. 1103 at 9:19-27.

Fourth, Petitioner further fails to identify in Edlund any disclosure of separate relevance values of terms and popularity values of items, or a ranking order determined based on both of those retrieved values. *See* Pet. at 47-48. Although Edlund arguably teaches assigning popularity values to items, Petitioner does not identify any assignment of distinct relevance values of terms in Edlund. *Id.* Accordingly, neither Edlund nor Morgan discloses relevance values associated with terms, which is explicitly required in claims 1 and 16.

Because Morgan and Edlund do not disclose either of separate relevance values of terms and popularity values of items, or of a ranking order determined

based on both of those retrieved values, Petitioner fails to meet its burden for this claim element, and the Petition should be denied.

D. Petitioner Fails to Meet its Burden of Showing That Any Prior Art Discloses Retrieving Relevance Values

The independent claims require the retrieval of relevance values for the one or more user-entered prefixes matching terms associated with items. *See* Ex. 1101 at 11:2-4 (“to retrieve the relevance values for said one or more user-entered prefixes matching terms associated with the items”); *id.* at 12:42-44 (“retrieved relevance values for the one or more user-entered prefixes matching terms associated with the items”). Here, Petitioner admits that “Morgan may not expressly disclose a process for actually retrieving ‘relevance values for the one or more user-entered prefixes matching terms associated with the items[.]’” Pet. at 28. Accordingly, Petitioner asserts that Edlund teaches retrieving relevance values. *Id.* However, Petitioner’s argument is flawed.

Specifically, Petitioner fails to address the plain language of the claims. For example, Petitioner contends without explanation that Edlund discloses a “content relevance” to a document, but does not show where Edlund discloses retrieving that value. Further, Petitioner refers to the relevance value of a content item, but not for a term associated with the item, as claimed. *E.g.*, Pet. at 28 (“Edlund also

discloses a data flow utilized to search for items based on a combination of each item's relevance value and popularity value.").

Recognizing Morgan and Edlund's silence with respect to retrieving relevance values for terms associated with items, Petitioner attempts to fill the gaps by relying on conclusory testimony from Dr. Fox. Dr. Fox, however, commits the same error and improperly conflates relevance values of items and relevance values of terms associated with items. *See* Ex. 1107 ¶ 121 ("[I]t would have been obvious to modify Morgan with the teachings of Edlund to assign relevance values to the search strategies and quick matches (i.e., items) of Morgan[.]"). Because this testimony from Dr. Fox fails to address the claim requirements that relevance values be associated with terms, and that such relevance values be retrieved, this testimony should be disregarded.

Accordingly, Petitioner cannot meet its burden of showing a reasonable likelihood that the claims are obvious because the Petition fails to identify relevance values associated with terms or the retrieval of relevance values associated with terms.

E. Petitioner Fails to Demonstrate that the Proposed Combinations Together Meet the Limitations of Any Claim of the '034 Patent

As an initial matter, by relying on three-way combinations, Petitioner implicitly admits that no single reference (or combination of two references) meets

the limitations of the challenged claims. Moreover, Petitioner fails to address how Morgan, Edlund, Lowles, and De Mes would all have been combined and how those combined systems would meet the claimed limitations of the '034 patent. This is fatal to its challenge. *See, e.g., Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017) (remanding Board decision that “nowhere clearly explained, or cited evidence showing, how the combination of the two references was supposed to work.”); *Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co.*, CBM2012-00003, slip op. at 14 (PTAB Oct. 25, 2012) (Paper 8); *InfoBionic Inc. v. Cardionet, LLC*, IPR2015-01705, slip op. at 10-11 (PTAB Feb. 16, 2016) (Paper 11).

Here, Petitioner cites disparate evidence from each asserted prior art reference without any argument that a POSITA would be motivated to combine all three references in that specific way. For example, Petitioner never offers any argument or evidence that a POSITA would be motivated to combine all three references. Because “a finding of obviousness ‘cannot be predicated on the mere identification in [the prior art] of individual components of claimed limitations[,]’” Petitioner fails to show that obviousness is more likely than not in Grounds 2 and 3. *See Personal Web Techs.*, 848 F.3d at 991 (quoting *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000)).

Petitioner also fails to explain **how** a POSITA would have combined all three references into a single system. *See, e.g., id.* at 994 (remanding Board decision that “nowhere clearly explained, or cited evidence showing, how the combination of the two references was supposed to work.”); *Liberty Mut.*, CBM2012-00003, slip op. at 14 (“[W]e will address only the basis, rationale, and reasoning put forth by the Petitioner in the petition, and resolve all vagueness and ambiguity in Petitioner’s arguments against the Petitioner. . . . It would be unfair to expect the Patent Owner to conjure up arguments against its own patent and just as inappropriate for the Board to take the side of the Petitioner to salvage an inadequately expressed ground proposing an alternative rationale.”); *InfoBionic Inc.*, IPR2015-01705, slip op. at 10-11 (denying institution where “Petitioner does not explain how Petitioner’s proposal results in the respective features of the claimed invention” and where “Petitioner, at most, has identified where certain features of the claimed invention are disclosed in the prior art [but] we are left to speculate as to how Petitioner’s combination of the references teachings would render obvious” the challenged claims). Rather, the Petitioner improperly leaves it to the Board and Patent Owner to guess how the combined system might operate to allegedly render the claims obvious.

As an example, in each ground, Petitioner argues that a POSITA would have been motivated to combine Morgan with Edlund to yield the claimed invention of

the '034 patent. But Petitioner fails to articulate **how** the two references are to be combined, requiring speculation for how the proposed combination allegedly renders obvious the challenged claims. *See InfoBionic, Inc.*, IPR2015-01705, slip op. at 10-11 (denying institution where “Petitioner does not explain how Petitioner’s proposal results in the respective features of the claimed invention” and where “Petitioner, at most, has identified where certain features of the claimed invention are disclosed in the prior art [but] we are left to speculate as to how Petitioner’s combination of the references teachings would render obvious” the challenged claims). Specifically, Petitioner argues that a POSITA would have been motivated to assign popularity values to quick matches because Edlund teaches assigning popularity values to Web documents. *See* Pet. at 21. However, Morgan teaches a different strategy than assigning popularity values to quick matches. Instead, Morgan navigates to results based on the results’ resemblance to the search query only. *See* Ex. 1102 at 12:49-53 (“[A] step 254 populates the quick matches list of the minifind window with a subset listing of articles, media, titles, etc. having words that start with the characters currently input by the user.”), 12:65-13:2 (“[A] step 258 populates the quick matches list with the entire list Next, the logic in step 260 scrolls through the list to the first prefix match (or closest available match).”). The Petition ignores this entirely.

Accordingly, Petitioner cannot meet its burden of proving that a POSITA would be motivated to combine Morgan, Edlund, and Lowles (Ground 2), and Morgan, Edlund, and De Mes (Ground 3), or that those combinations into a single system would render the claims obvious.

F. Petitioner Fails to Explain with Particularity How the Prior Art Discloses Limitations in Dependent Claims

1. Claims 2 and 17

Petitioner also fails to meet its burden with respect to the requirement of dependent claims 2 and 17 that “the relevance bias values are based on the count of the number of text characters received from the user.” As explained above, Petitioner fails to demonstrate that the art discloses relevance bias values as described in the ’034 patent, and certainly not basing those values on the count of characters. *See* § IV.A, *supra*.

For this dependent limitation, Petitioner relies on Morgan and Lowles (Ex. 1104). Lowles is an international patent application that generally addresses “building and using custom word lists,” or collecting “text items” for use by various computer programs. *See* Ex. 1104 at Abstract. Lowles refers to weighting certain text items in a custom word list. *See id.* at 15:30-16:23. However, neither Morgan nor Lowles discloses basing any relevance bias values on the count of characters.

In addition, Petitioner's arguments here regarding Morgan are expressly contradicted by Petitioner's own statements in the co-pending Petition against the '034 patent. There, Petitioner claims that "Morgan's search methodology utilizes a character count to determine the relevance of a term to a search result." IPR2017-00932 Pet. at 37. Here, however, Petitioner admits that Morgan does not teach this limitation: "Morgan does not expressly disclose that the relevance bias values or selected subspace categories are based on a count of the number of text characters received." *Id.* at 53. As explained above, Morgan simply does not teach relevance bias values as claimed.

Petitioner next claims that "Lowles discloses relevance bias values of subspace categories that are based on the count of the number of text characters received from the user." *Id.* This assertion is unsupported. In particular, Petitioner relies on an example from Lowles where "words in an acronym category are accessed when a user inputs two uppercase letters in sequence." Ex. 1104 at 17:10-12. But here, Lowles discloses checking when uppercase characters appear *in sequence* and looks for results in an "acronym category." The other examples in Lowles immediately after this quoted sentence—which Petitioner fails to address (*see* Pet. at 54; Ex. 1107 ¶ 218)—confirm that the *sequence* of characters, not the *count* of those characters, affects chosen categories: "words in a name category are accessed when a user inputs an uppercase letter *that is not preceded by a period*,

words in an email address category when a user input of an '@' symbol *is not preceded by a space....*” Ex. 1104 at 17:12-16. Indeed, Petitioner has not identified any “counting” of characters in Lowles, nor does the term “count” appear anywhere in Lowles. Thus, the cited example does not disclose relevance bias values. Dr. Fox cites another portion of Lowles in his declaration (Ex. 1107 ¶ 218), but that is a different “variation” than the acronym example (Ex. 1104 at 17:17-18).

Furthermore, Petitioner again confuses “items” and “terms,” as claimed in the '034 patent. Lowles refers to categories of content items, such as an “acronym category” that contains potential search results (desired words). However, as explained above in § III.A., the claimed “subspace categories” contain “terms” that describe “items,” not the items themselves. Thus, Lowles does not disclose the claimed subspace categories, or relevance bias values associated with those categories. Accordingly, Petitioner does not identify any disclosure that “relevance bias values are based on the count of the number of text characters received from the user.”

2. Claims 12 and 27

Petitioner similarly fails to meet its burden with respect to the requirement of dependent claims 12 and 27 that popularity values be “based on a temporal relevance of the items or a location relevance of the items.” Petitioner fails to

demonstrate that the art discloses popularity values based on temporal relevance as disclosed in the '034 patent.

Petitioner errs in contending that Morgan discloses this limitation because a user may “initially limit[] the search to data maintained in an atlas database” or select an advanced search button including the “Historical Maps” category of Fig. 10. *See* Pet. at 37, 40. These references to geographic content items do not reflect location relevance. *Compare* Ex. 1101 at 6:25-29 (“[W]hen a user is searching for a restaurant using a phone or Personal Digital Assistant (PDA) with GPS capabilities, the listings are ordered in descending order of the most popular restaurants in that area.”), *with* Ex. 1102 at 2:26-30 (“[A] user might selectively make a search for a geographic location by initially limiting the search to data maintained in an atlas database.”). Petitioner relies on Morgan’s disclosure of searching in a database of geographic content (such as an atlas) as meeting this limitation, but “location relevance” refers to proximity to the user and not a geographic item. *See* Ex. 1101 at 6:24-29 (referring to “GPS capabilities” and “the most popular restaurants *in that area*”). In other words, searching for a location in an atlas does not disclose using a location associated with an item and the user to determine relevance. Moreover, Petitioner notably does not identify any form of “temporal” relevance in any cited art. At a minimum, institution should be denied for these dependent claims.

3. Claims 13 and 28

Petitioner similarly fails to meet its burden with respect to the requirement of dependent claims 13 and 28 that at least one ranking order “based on the number of prefixes of the received text” be determined. Here, Petitioner does not meet its burden of identifying any disclosure of ranking orders “based on the number of prefixes of the received text” as required under § 42.104(b)(4).

Specifically, Petitioner conflates prefixes and words in identifying an alleged disclosure of this limitation in Morgan. Pet. at 41 (“Morgan discloses the search strategies varying based on the number of prefixes (or words) entered by the user.”), (“For example, the Search Strategy will vary depending on whether the user types just “Canada” or “map of Canada.”). Again, Petitioner does not identify where Morgan discloses counting the number of prefixes and determining a ranking order based on the count. Instead, Petitioner points only to Morgan adjusting results based on *different search strings*; e.g., “Canada” vs. “map of Canada.” The mere fact that search results in Morgan change when more words are entered fails to show that prefixes are *counted* and used to affect ranking order. Nowhere does Petitioner identify the use of the number of prefixes in any cited reference to determine ranking orders.

**V. PETITIONER’S EXPERT DECLARATION SHOULD BE
REJECTED OR ENTITLED TO LITTLE OR NO WEIGHT**

**A. Petitioner Improperly Incorporates Large Sections of Dr. Fox’s
Declaration and Forces the Board to Embark on an Archeological
Dig for Support**

The Petition repeatedly and improperly incorporates by reference materials in expert’s declaration. *See* 37 C.F.R. § 42.6(a)(3); *Cisco Sys. Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12 at 8 (“The practice, here, of using footnotes to cite large portions of another document, without sufficient explanation of those portions, amounts to incorporation by reference.”); *id.* at 9 (“Further, the Petition includes citations to the Declaration to support conclusory statements for which the Petition does not otherwise provide an argument or explanation. . . . This practice of citing the Declaration to support conclusory statements that are not otherwise supported in the Petition also amounts to incorporation by reference.”); *id.* (“‘A brief must make all arguments accessible to the judges, rather than ask them to play archeologist with the record.’ Accordingly, we do not consider arguments not made in the Petition itself.”). *See also* Pet. at 14 (“The knowledge and skillset of such a person is reflected in the state of the art discussed in the Declaration of Edward A. Fox, PhD. *Id.*, ¶¶48-60 (citing Ex.-1107).”).

The Board has consistently held that “citations to ‘large portions of another document, without sufficient explanation of those portions, amounts to incorporation by reference.’” *ZTE (USA), Inc. v. Elecs. & Telecommc’ns Res.*

Inst., IPR2015-00029, Paper 12 at 6 (quoting *Cisco, Inc.*, IPR2014-00454, slip op. at 8; “Such incorporation by reference is improper: ‘[a]rguments must not be incorporated by reference from one document into another document.’ 37 C.F.R. § 42.6(a)(3)”). Accordingly, this Board should consider only arguments made in the Petition itself.

B. In Other Passages, Dr. Fox’s Declaration Simply Parrots and “Expertizes” the Petition

Dr. Fox also often improperly parrots the language of the Petition without identifying any basis for his conclusions. As the Board has repeatedly found, a petitioner’s attempt to “expertize” its petition arguments by having them repeated by a witness purporting to give expert testimony cannot satisfy its evidentiary burden, or justify proceeding to trial. *See Kinetic Techs., Inc. v. Skyworks Solutions, Inc.*, IPR2014-00529, slip op. at 15-16 (PTAB Sept. 23, 2014) (Paper 8) (noting that “[m]erely repeating an argument from the Petition in the declaration of a proposed expert does not give that argument enhanced probative value,” and finding that a petitioner cannot move forward to trial based upon such “mere conclusory statements”) (*citing In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); *TRW Auto. US LLC v. Magna Elecs., Inc.*, IPR2014-00258, slip op. at 10-11 (PTAB Aug. 27, 2014) (Paper 18) (giving little to no weight to expert testimony that “did not elaborate on [Petitioner’s] position because it simply repeated

[Petitioner’s] conclusory statements verbatim.”); *InfoBionic, Inc. v. Braemer Mfg., LLC*, IPR2015-01704, slip op. at 6 (PTAB Feb. 16, 2016) (denying institution where Board “d[id] not find the testimony of Petitioner’s expert to be persuasive or helpful as it repeats the Petitioner’s arguments and offers little or no elaboration”); *see also* § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”).

Examples of Dr. Fox simply repeating or re-phrasing the Petition can be seen in the following table:

Petition	Fox Declaration
Both Edlund and Morgan relate to searching for content based on user input search strings. Ex. 1107, ¶111. At a minimum, as discussed above, Morgan discloses using popularity (i.e., the most likely intended strategies) to perform ranking. A POSA would know from Edlund that assigning popularity values to both the search strategies and the quick matches may be utilized as a tool	Edlund and Morgan both relate to searching for content based on user input search strings. Morgan discloses using popularity (i.e., the most likely intended strategies) as part of a ranking methodology. It is therefore my opinion that a POSA would know that ranking of search strategies or quick matches according to popularity could be achieved by assigning popularity values

Petition	Fox Declaration
to rank the search strategies and the quick matches according to popularity. <i>Id.</i> , ¶¶111-13. (Pet. at 21-22)	to the search strategies and quick matches as disclosed in Edlund. (Ex. 1107 ¶ 111)
Similarly, with respect to search strategies, when the user enters “Turk,” and then later enters “ey,” the relevance of search strategies identified in the first ordered ranking will be different than the relevance of the search strategies in the second ordered ranking. <i>Id.</i> , ¶149. (Pet. at 33-34)	For example, when the user enters “Turk,” and then later enters “ey” (Ex. 1102, 10:33-58), the relevancy of search strategies identified in the first ordered ranking will be different than the relevancy of the search strategies in the second ordered ranking. (Ex. 1107 ¶ 149)
Morgan discloses that search results can be narrowed after the search strategies and quick matches are generated. Ex.- 1107, ¶156. However, because there are a limited number of options (i.e., before or after), it would have been readily apparent to a POSA to modify Morgan	While Morgan discloses that search results can be narrowed (i.e., <i>after</i> the search strategies and quick matches are generated), it would have been a matter of design choice to modify Morgan to allow for selecting subspace categories <i>before</i> the search strategies

Petition	Fox Declaration
to allow for selecting subspace categories prior to generating the search strategies and quick matches. <i>Id.</i> (Pet. at 36)	and quick matches are generated. The selection would happen either before or after the item lists are generated. (Ex. 1107 ¶ 156)

These conclusory and parroted “opinions” should be stricken.

VII. CONSTITUTIONALITY OF *INTER PARTES* REVIEW

The Federal Circuit has held IPRs are constitutional. *MCM Portfolio v. Hewlett-Packard Co.*, 812 F.3d 1284, 1288-92 (Fed. Cir. 2015), *cert. denied*, 137 S. Ct. 292. In light of the Supreme Court’s grant of *certiorari* as to this issue in *Oil States Energy Services, LLC v. Greene’s Energy Group, LLC*, 2017 WL 2507340 (U.S. June 12, 2017), and to the extent Federal Circuit precedent is overturned, Patent Owner reserves its right to raise these constitutional issues.

VIII. CONCLUSION

Because the Petition fails to show that there is a reasonable likelihood that Petitioner will prevail in proving any challenged claim unpatentable, the Petition should be denied, and, pursuant to § 314, no *inter partes* review should be instituted.

Dated: June 15, 2017

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

The undersigned certifies that the foregoing PATENT OWNER's PRELIMINARY RESPONSE UNDER 37 C.F.R. § 42.107 complies with the type-volume limitation in 37 C.F.R. § 42.24. According to the word-processing system's word count, the brief contains 8,697 words, excluding the parts of the brief exempted by 37 C.F.R § 42.24(a)(1).

Dated: June 15, 2017

Respectfully submitted,

By / Henry Huang /
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CERTIFICATE OF SERVICE

The undersigned hereby certifies that this PATENT OWNER'S PRELIMINARY RESPONSE UNDER 37 C.F.R. § 42.107 was served by filing this document through the Patent Trial and Appeal Board End to End (PTAB E2E) as well as providing a courtesy copy via e-mail to the following attorneys of record for the Petitioner listed below:

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