

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

PERSONALIZED USER MODEL, L.L.P.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	C.A. No. 09-525-LPS
	)	
GOOGLE INC.,	)	<b>JURY TRIAL DEMANDED</b>
	)	
Defendant.	)	

**DEFENDANT GOOGLE'S OPENING BRIEF ON CLAIM CONSTRUCTION**

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### **NOTE ON CITATIONS**

1. Exhibits referenced herein are contained in the Appendix in Support of Defendant Google's Opening Brief on Claim Construction filed herewith.
2. U.S. Patent No. 6,981,040 (the "040 patent") is attached as Exhibit A. References to the patent-in-suit are indicated by column and line number, or by claim number. A reference to "3:15" therefore means column 3, line 15 of the patent.
3. U.S. Patent No. 7,685,276 (the "276 patent") is attached as Exhibit B.
4. The prosecution history of U.S. Patent No. 6,981,040 is attached as Exhibit C .
5. Other exhibits are attached as Exhibits D-F.

## **Introduction**

Plaintiff Personalized User Model ("PUM") seeks to use claim construction as an opportunity to redefine—and inappropriately broaden—the scope of its patents. At best, the patents describe a very particular type of learning machine-based personalization in which personalization services are provided by creating user models and machine learning programs specific to each individual user. Instead of focusing on the patents-in-suit, PUM's constructions purposely depart from the patents in an improper attempt to ensnare Google's accused systems. For example, the patents make clear that the "User Model specific to the user" and the "user specific learning machine" must be specific to each individual user. Yet, PUM seeks to interpret these and other terms to attempt to cover systems that do not have user models or learning machines that are specific to each user. PUM also violates basic claim construction principles by unnecessarily and confusingly repeating constructions of some terms in the construction of other terms, and by failing to acknowledge the clear antecedent basis for several terms that define their meaning. Google's constructions should be adopted and PUM's constructions rejected.

## **Factual Background**

### **I. OVERVIEW OF THE ASSERTED PATENTS.**

PUM alleges infringement of the '040 patent and the '276 patent, both entitled "Automatic, Personalized Online Information and Product Services." PUM asserts infringement of claims 1, 11, 21, 22, and 34 of the '040 patent and claims 1, 3, 5, 6, 7, 14, 21, 22, 23, and 24 of the '276 patent.

Independent claims 1 and 32 of the '040 patent disclose methods for providing personalized information services to a user. For example, claim 1 of the '040 patent recites:

1. A computer-implemented method for providing automatic, personalized information services to a user u, the method comprising:
  - a) transparently monitoring user interactions with data while the user is engaged in normal use of a computer;

- b) updating user-specific data files, wherein the user-specific data files comprise the monitored user interactions with the data and a set of documents associated with the user;
- c) estimating parameters of a learning machine, wherein the parameters define a User Model specific to the user and wherein the parameters are estimated in part from the user-specific data files;
- d) analyzing a document  $d$  to identify properties of the document;
- e) estimating a probability  $P(u|d)$  that an unseen document  $d$  is of interest to the user  $u$ , wherein the probability  $P(u|d)$  is estimated by applying the identified properties of the document to the learning machine having the parameters defined by the User Model; and
- f) using the estimated probability to provide automatic, personalized information services to the user.

The dependent claims of the '040 patent recite steps such as estimating "posterior" probabilities that a document is of interest to the user and analyzing multiple distinct media types.

The asserted '276 patent has similar steps to the '040 patent, but more specifically claims monitoring user interactions while using a browser. For example, claim 1 recites:<sup>1</sup>

1. A computer-implemented method for providing personalized information services to a user, the method comprising:
  - a) transparently monitoring user interactions with data while the user is engaged in normal use of a browser program running on the computer;
  - b) analyzing the monitored data to determine documents of interest to the user;
  - c) estimating parameters of a user-specific learning machine based at least in part on the documents of interest to the user;
  - d) receiving a search query from the user;
  - e) retrieving a plurality of documents based on the search query;

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<sup>1</sup> Claims 1 and 23 of the '276 patent do not identify the steps of the method claim by letter. For ease of reference, the steps are referred to herein as letters (i.e. step (a), step (b), step (c) . . .), with step (a) corresponding to the first paragraph of the claim, step (b) corresponding to the second paragraph, and so on.



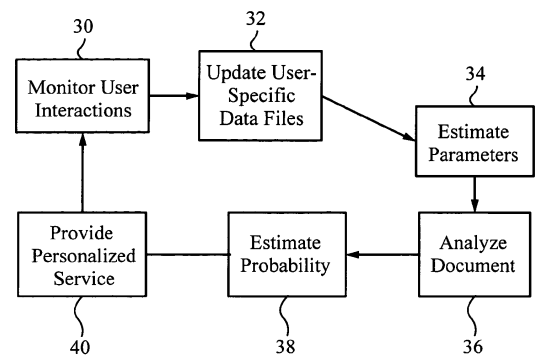
- f) for each retrieved document of said plurality of retrieved documents: identifying properties of the retrieved document, and applying the identified properties of the retrieved document to the user-specific learning machine to estimate a probability that the retrieved document is of interest to the user; and
- g) using the estimated probabilities for the respective plurality of retrieved documents to present at least a portion of the retrieved documents to the user.

The dependent claims of the '276 patent recite further ways to monitor and analyze user interactions.

**II. THE SPECIFICATION DESCRIBES PROVIDING PERSONALIZED SERVICES USING DATA FILES AND MODELS SPECIFIC TO EACH USER.**

The specification describes that the "present invention, referred to as Personal Web, provides automatic, personalized information and product services to a computer network user." (Ex. A,<sup>2</sup> 7:4-6.) The "Background of the Invention" notes that "[a] variety of techniques have been developed to organize, filter, and search for information of interest to a particular user." (*Id.*, 1:22-29.) The specification also notes that machine learning was well known in the art at the time of the invention. (*Id.*, 8:44-46.) Thus, the basic concepts of the inventions in the '040 and '276 patents – personalization and machine learning – existed in the prior art; the inventors did not invent these concepts, or even the use of machine learning for personalization.

Rather, the core purported invention is the concept of using "learning machines," "User Models," and "data files" that are specific to each individual user. Generally, the invention "stores for each user a User Model 13 that is continuously and transparently updated based on the user's interaction with the network." (Ex. A, 7:27-30) The steps



**Fig. 2**

of the claimed methods are summarized in Figure 2, shown on the right. (*Id.*, 8:56-9:2-6, Fig. 2.)

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<sup>2</sup> As the specifications of the asserted patents are identical in content, for brevity and consistency Google cites the specification of the '040 patent only.

First, "User interactions with network data are transparently monitored while the user is engaged in normal use of his or her computer." (*Id.*, 8:59-62, 21:64-66.) The method then updates "user-specific data files" that "include a set of documents and products associated with the user, and monitored user interactions with data." (*Id.*, 8:67-9:2) The data files are then used to update the parameters that define the User Model. (*Id.*, 8:64-67.) Next, an analysis of "unseen" documents is done to determine the probability of the user's interest in the document. (*Id.*, 9:2-5.) Finally, personalized services are provided to the user based on the estimated user interest. (*Id.*, 9:2-6)

### **III. THE PATENTEES SOUGHT TO DISTINGUISH THE PRIOR ART IN REPRESENTATIONS TO THE PTO AND BY AMENDING THE CLAIMS OF THE '040 PATENT.**

The claims of the '040 patent were repeatedly rejected and then amended during prosecution. (Ex. C, at PUM0067777-789, PUM0067748-64, PUM0067712-36, PUM0067664-95, PUM0067625-54, PUM0067579-92.) Following the rejection in November 2004, the applicants submitted written remarks and amended independent claims 1 and 32 of the '040 patent to limit them to calculating a probability of the user's interest in "unseen" documents. (*Id.*, at PUM0067596-619.) In written remarks, the applicants distinguished Gerace, which discloses looking to whether other users in a category to which a user belonged were interested in the document to gauge whether the user would be interested in that document, based on the addition of the "unseen" document limitation. (*Id.*, at PUM0067575.) The applicants argued that unlike Gerace, the '040 patent allows an estimate of interest to be made as to documents that have not been seen by any user. (*Id.*) Only after the applicants added the "unseen" document limitation were the claims allowed.

### **IV. THE ACCUSED TECHNOLOGY**

PUM accuses several disparate Google products and services of infringing the patents-in-suit, including Google Search, AdWords and AdSense for Content. All of the accused systems are fundamentally different from the claimed invention of the patents. For example, while Google does

use machine learning in some aspects of the accused advertising products, machine learning is not performed with models or learning machines specific to any user. Rather, Google uses machine learning and creates models that are applied to all users. In an attempt to ensnare Google's use of machine learning, however, PUM seeks to improperly stretch the meaning of several terms to eliminate any need for user models or learning machines specific to individual users.

**Argument**

**I. LEARNING MACHINE AND RELATED TERMS.**

**A. Learning Machine.**

<i>Term/Phrase</i>	<i>Google's Construction</i>	<i>Plaintiff's Construction</i>
learning machine ('040 patent, claims 1 and 32; '276 patent, claims 1, 5 and 23).	program that contains parameters used to calculate a probability, and where the predictive ability of the program improves over time with the addition of new data	a model and/or mathematical function that is used to make a prediction or intelligent decision that attempts to improve performance in part by altering the values/weights given to its variables depending upon past observations or experiences.

While the parties agree that a "learning machine" must "learn" by improving its abilities over time, they disagree how the "learning" is accomplished and what "abilities" are improved. Google's construction clearly defines the term in a manner consistent with the intrinsic evidence and should be adopted. PUM's lengthy and vague construction should be rejected.

**1. Google's construction is supported by the intrinsic evidence.**

Google's construction takes into account the patent's uniform disclosure that "learning" occurs through the improved ability to make predictions by calculating probabilities as the learning machine is exposed to additional data over time. For example, the claims of the '040 patent show a learning machine contains parameters (1(c)) and uses those parameters to calculate a probability (1(e)), as Google's construction provides. The parameters of the learning machine are estimated in part from user-specific data files (1(c)), which are updated with monitored user interactions with data

(1(b)). The '276 patent similarly recites the learning machine has parameters (1(c)) and that identified properties of a retrieved document are applied to the learning machine to calculate a probability (1(f)). *See Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) ("the context in which a term is used in the asserted claim can be highly instructive")

That the learning machine and its parameters calculate probabilities is also highlighted in the "Summary of Invention." (Ex. A, 4:26-34 ("Parameters of a learning machine, . . . are estimated from the user-specific data files. . . . The parameters are used to estimate a probability P(u|d) that a document is of interest to the user."); 4:35-36 ("The probability is estimated by analyzing properties of the document and applying them to the learning machine."); 5:48-52 ("A variety of personalized information services are provided using the estimated probabilities. In one application, network documents are crawled and parsed for links, and probable interest of the user in the links is calculated using the learning machine.") Because these statements appear in the "Summary of the Invention," they are "not limited to describing a preferred embodiment, but more broadly describe the overall inventions." *Microsoft Corp. v. Multi-Tech Sys.*, 357 F.3d 1340, 1348 (Fed. Cir. 2004), *cert. denied*, 543 U.S. 821 (2004). This ability to calculate probabilities through the parameters of the learning machine improves by exposure to new data—i.e. the monitored user interactions—just as Google's construction provides. (*See* Ex. A, 8:46-50 (" . . .the parameters are continually updated based on monitored user interactions while the user is engaged in normal use of a computer.") (emphasis added)). *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) ("the specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term").

## 2. PUM's vague construction should be rejected.

PUM's proposed construction suffers from several fundamental flaws. First, improved predictive performance through exposure to new data is the hallmark of a learning machine as that term is used in the patents-in-suit. PUM's construction, however, does not require making predictions at all. Instead, PUM's construction provides that the learning machine makes a "prediction or intelligent decision." The phrase "intelligent decision" is never used in the patent. Nor does it make any sense in the context of the claims, which deal exclusively with making predictions by estimating probabilities, not "intelligent decisions." *Phillips*, 415 F.3d at 1314 ("the context in which a term is used in the asserted claim can be highly instructive").

It also is unclear what the phrase "intelligent decision" even means. If a person makes a decision based upon memorized information, is that an "intelligent decision"? What about if a computer does so? If it is, that is contrary to PUM's attempt to distinguish the machine learning claimed in the patent from the prior art that taught "memorization." After stating, "the present application **does not teach memorization**" (emphasis in original), the applicants noted that in memorization, an "agent can easily learn that 'When I see A, I should do B.'" (Ex. C, 3/8/04 Remarks, at PUM0067703; 12/28/04 Remarks, at PUM0067617-18.) But—doing B when seeing A—could be regarded as an "intelligent decision," thus including as a "learning machine" the same prior art "memorization" the applicants specifically disclaimed during prosecution to avoid the prior art. (*See id.*, at PUM0067617-18.) A patentee may not "adopt a position contradictory to that adopted before the PTO and expect to be believed." *TorPham, Inc. v. Ranbaxy Pharmaceuticals*, 336 F.3d 1322, 1329 (Fed. Cir. 2003); *Seachange Int'l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1372-73 (Fed. Cir. 2005); *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995). While PUM likely seeks to inject the "intelligent decision" language to attempt to manufacture an infringement argument, that is obviously improper. *White v. Dunbar*, 119 U.S. 47, 51-52 (1886)

(patent claim is not a "nose of wax" to be twisted one way to preserve a patent's validity and another way to catch an alleged infringer).

PUM's proposed construction also inappropriately provides that a learning machine is a "model and/or mathematical function." But the "User Model" is a separate limitation from that of "learning machine" as that term is used in the '040 patent. The specification also makes clear that it is the "User Model," not the "learning machine," that is a "mathematical function." (*See e.g.*, Ex. A, 8:32-35 ("The User Model 13 is a function that is developed and updated . . . "); 9:40 ("In strict mathematical terms, given a user *u* and a document *d*, the User Model 13 estimates the probability  $P(u|d)$ "))(emphasis added).

Finally, PUM's proposed construction, which provides "the values/weights given to [the model and/or mathematical function's] variables" are altered "depending upon past observations or experiences," does not make clear that the predictive ability of the program improves over time based on the addition of new data based on monitored user data. Rather, PUM's construction would seem to allow "past observations or experiences" to be a one-time input rather than an ongoing process. For these reasons, Google's proposed construction should be adopted.

**B. User Model Specific to the User**

<i><b>Term/Phrase</b></i>	<i><b>Google's Construction</b></i>	<i><b>Plaintiff's Construction</b></i>
User Model specific to the user ('040 patent, claims 1, 21, and 32)	model unique to the user, that is created and updated by the learning machine and stored in a data structure	an implementation of a learning machine updated in part by data specific to the user

The dispute here is two-fold: (1) how to describe what the "User Model" actually is, and (2) how to define the phrase "specific to the user." Google's construction, which is taken from the intrinsic evidence, takes into account both what it means for the User Model to be "specific to the user," and that the model is created and updated by the learning machine. PUM's proposed

construction departs from the intrinsic evidence and renders the "specific to the user" in the claim meaningless.

1. **The intrinsic evidence shows the "User Model" is specific to – i.e. unique to – each individual user.**

The "specific to the user" language in the claim itself makes clear that there is a User Model that is specific to each individual user—i.e. "unique to the user"—as Google's construction provides. (See *American Heritage College Dictionary*, **specific**: "4a. Intended for, applying to, or acting on a particular thing. b. Concerned particularly with the subject specified" (Ex. D); *Phillips*, 415 F.3d at 1318 (dictionaries are "among the many tools that can assist the court in determining the meaning of particular terminology to those of skill in the art of the invention").

The specification unambiguously explains that the "Personal Web," which the specification explains is the "present invention" (7:4), "stores parameters that define a User Model for each user." (Ex. A, 8:46-50; see also *id.*, 7:27-28 ("Personal Web 12 stores for each user a User Model") (emphasis added)); see *Honeywell Int'l Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1318-19 (Fed. Cir. 2006) (finding that the use of the terms "this invention" and "the present invention" established that the patentee intended to limit the meaning of a term to that disclosed in the specification).

The remainder of the specification also emphasizes that each individual user has a User Model that is specific to that user alone. (Ex. A, 19:38-41 ("The User Model of each user is applied to the documents to obtain a probability of interest of each user in each document in the set"); 9:35-38 ("[t]he User Model represents the user interest in a document independent of any specific user information need. This estimating is unique to each user") (emphasis added); see *Kinetic Concepts, Inc. v. Blue Sky Med. Group, Inc.*, 554 F.3d 1010, 1018-19 (Fed. Cir. 2009) (construing the term "wound" as limited to skin wounds because "[a]ll of the examples described in the specification involve skin wounds") (citations omitted); *SafeTCare Mfg., Inc. Tele-Made, Inc.*, 497 F.3d 1262,

1270 (Fed. Cir. 2007) (same); *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1324 (Fed. Cir. 2008) ("The claims of the patent must be read in light of the specification's consistent emphasis on this fundamental feature of the invention"); *Inventio AG v. Thyssenkrupp Elevator Americas Corp.*, 2010 WL 2404173, \*14 (D. Del. June 15, 2010) ("the prevalence of the use of the term 'modernization' as a preamble throughout the Patents-in-Suit renders it a fundamental characteristic of the invention, such that is [sic] must be construed as a claim limitation").

Although PUM's construction copies the "specific to the user" language verbatim, PUM's construction does not require the "User Model" need be "specific to the user" at all. Instead, PUM's construction provides that it is the "data," by which the learning machine is "updated in part," that is "specific to the user." But that flatly contradicts the plain meaning of the phrase at issue requiring that the User Model itself be "specific to the user."

PUM seeks this construction in an attempt to ensnare Google's accused products that do not use models "specific to the user," such as Google's Smart Ads system. Smart Ads uses machine learning to generate a generic "Smart Ads model." When an end user runs a search query, the same Smart Ads model is used in determining the ads to display (if any) in response to all the users' queries. In other words, Smart Ads does not have a separate model for each individual user, but uses the same model for all users. This is why PUM is inappropriately attempting to stretch the meaning of this term – and consequently the breadth of its patents – to include as infringing the situation where information about a specific user is applied to a generalized model despite the clear language of the patent requiring a User Model specific to each individual user. PUM's attempt to manufacture an infringement argument in a manner contrary to the claims and specification should be rejected, and the Court should resolve the dispute by making clear that "User Model" requires a model that is "unique to the user."



## 2. Google's construction properly defines "User Model."

That the User Model is "created and updated by the learning machine," as Google's construction provides, is required because the parameters of the learning machine "define" the User Model. (Ex. A, claims 1(c), 32(c) ("estimating parameters of a learning machine, wherein the parameters define a User Model specific to the user . . .")). The specification similarly explains the invention "stores parameters that define a User Model for each user, and the parameters are continually updated . . ." (*Id.*, 8:46-50) (emphasis added). It further provides the "Personal Web [the invention] operates in the dynamic learning mode to transparently monitor user interactions with data and update the User Model . . ." (*Id.*, 8:59-64) (emphasis added); see *Honeywell*, 452 F.3d at 1318-19. Further, although no particular form of structure is required, it is evident from the patent that the User Model is "stored in a data structure." (Ex. A, 10:29-33 ("the User Model is a function that may be implemented with any desired data structure . . .") (emphasis added); 17:13-15 ("The User Model is initialized offline using characterizations of user behavior and/or a set of documents associated with the user. Each data structure described above is created during initialization."); see *Kinetic Concepts*, 554 F.3d at 1018-19.

PUM's construction vaguely provides that a "User Model" is an "implementation of a learning machine." PUM presumably takes the "implementation" language from the portion of the specification that says "the User Model, with its associated representations, is an implementation of a learning machine." (Ex. A, 8:43-45.) But that language is not definitional. Indeed, there are various other places where the specification says what the User Model "is." (*Id.*, 8:32-33 ("the User Model is a function . . ."); 21:63-64 ("The User Model is a dynamic entity that is refined and updated based on all user actions")) (emphasis added)). Nor is it clear what it means to be an "implementation" of a learning machine.

PUM apparently intends to use this vague "implementation" language to again argue that using the generic Smart Ads Model that is applied to all users in connection with delivering ads along with a single user's search results is an "implementation" of that generic Model that is not "specific to the user." Here too, PUM's attempt to avoid the clear requirement of the claims that the "User Model" itself be "specific to the user" should be rejected.

**C. User Specific Learning Machine.**

<b><i>Term/Phrase</i></b>	<b><i>Google's Construction</i></b>	<b><i>Plaintiff's Construction</i></b>
User specific learning machine ('276 patent, claims 1, 5, and 23)	Learning machine unique to the user	a model and/or mathematical function that is used to make a prediction or intelligent decision that attempts to improve performance in part by altering the values/weights given to its variables depending upon past observations or experiences specific to the user

The parties have offered a separate construction for "learning machine" so there is no need to redefine that term in the context of "user specific learning machine." Yet, PUM's construction repeats verbatim its construction of "learning machine." This unnecessary and confusing repetition should be rejected. *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1119 (Fed. Cir. 2004) ("[u]nless otherwise compelled, when different claims of a patent use the same language, we give that language the same effect in each claim").

The actual dispute to be resolved here is what it means for the learning machine to be "user specific." As with "User Model specific to the user," the plain meaning of the phrase "user specific learning machine," and the consistent disclosures of "the invention" in the specification, require that the learning machine must be specific to an individual user—i.e. "unique to the user," as Google's construction provides. *Kinetic Concepts*, 554 F.3d at 1018-19; *Honeywell*, 452 F.3d at 1318-19.

Here again, PUM recursively tags on the words "specific to the user" at the end of its construction, just as it did with "User Model specific to the user." But here too, PUM's construction

fails to resolve the parties' dispute regarding what it means to be "user-specific." It is also unclear just what in PUM's definition is intended to be "specific to the user." Is it the "model and/or mathematical function?" Is it the "prediction or intelligent decision?" Is it "the past observations or experiences?" Again, this ambiguity in PUM's construction is likely intentional to manufacture the same type of infringement argument discussed in the prior section.

**D. Parameters of a [User Specific] Learning Machine**

<b><i>Term/Phrase</i></b>	<b><i>Google's Construction</i></b>	<b><i>Plaintiff's Construction</i></b>
parameters of a [user specific] learning machine ('040 patent, claims 1 and 32; '276 patent, claims 1, 5, and 23)	variables, having a value or weight, that are used by the [user specific] learning machine to calculate a probability	values or weights of the variables of a [user-specific] learning machine
estimating parameters of [user specific] a learning machine ('040 patent, claims 1 and 32; '276 patent, claims 1, 5, and 23)	estimating a value or weight of each of the variables that are used by the [user specific] learning machine to calculate a probability	estimating values or weights of the variables of a [user-specific] learning machine

Claim 1(e) of the '040 patent discloses: "estimating a probability  $P(u|d)$  that an unseen document  $d$  is of interest to the user  $u$ , wherein the probability is estimated by applying the identified properties of the document to the learning machine having the parameters defined by the User Model." (Ex. A, claim 1) (emphasis added). The Summary of the Invention specification similarly states: "The parameters are used to estimate a probability  $P(uld)$  that a document is of interest to the user ). Thus, it is clear that the parameters are used by the learning machine to calculate the probability. *Phillips*, 415 F.3d at 1314-15; *see also Praxair*, 543 F.3d at 1324. PUM's proposed constructions, however, fail to properly acknowledge this.

Additionally, although both parties agree that it is the values or weights of variables that are estimated (*see parties' proposed construction of "estimating parameters . . ."*), PUM's proposed constructions suggests that the parameters are the "values or weights of the variables . . ." whereas

Google's construction makes clear that the parameters are "variables, having a value or weight . . ." Google's construction makes more sense in the context of the patent. (*See e.g.*, Ex. A, 11:48-12:24 ("In this embodiment of the informative measure, two indicator variables are defined.  $I_w$ , has a value of 1 when the word  $w$  appears in a web document and 0 when it does not, and  $I_u$ , has a value of 1 when a web document is of interest to the user  $u$  and 0 when it does not. . . .")) In this example, the variables are  $I_w$  and  $I_u$ , not 1 and 0 which are the values or weights. (*Id.*) The variables, having those values or weights, are what are used to calculate a probability. (*Id.*) Thus, it is the variables that are parameters, and PUM's suggestion otherwise should be rejected.

## II. USER-SPECIFIC DATA FILES

<i>Term/Phrase</i>	<i>Google's Construction</i>	<i>Plaintiff's Construction</i>
user-specific data files ('040 patent, claims 1, 32)	data files unique to the user	the monitored user interactions with data and a set of documents associated with the user

Google asserts this term means what it says—that "data files" are "files" and that they are unique to a user – i.e. "user-specific." In addition to the plain language in the claims, as with the phrases "User Model specific to the user" and "user specific learning machine," the patent fully supports that there is a "user specific data file" for each individual user – i.e. a file "unique to the user," as Google's construction provides. (*See* §§ I.B, I.C., *infra.*) The specification further supports that the "user-specific data files" are in fact "data files." (Ex. A, 8:64-66 ("This updating is performed by updating a set of user-specific data files in step 32, and then using the data files to update the parameters of the User Model 13 in step 34."))

PUM's construction, however, does not reflect that "user-specific data files" are both "user-specific" and "data files." This omission is deliberate. When the parties met and conferred on claim construction, PUM's counsel expressly stated that "user-specific data files" do not need to be "files" and that a user specific data file may contain data for several distinct users. Rather, PUM's

construction merely repeats – word-for-word – the remaining language of element 1(b), that recites what the "user-specific data files" "comprise":

b) updating user-specific data files, wherein the user-specific data files comprise the monitored user interactions with the data and a set of documents associated with the user; ← Plaintiff's construction

PUM's construction that eliminates the plain meaning of the phrase at issue and replaces it with the remaining language in element 1(b) should be rejected. *Innova*, 381 F.3d at 1119 ("all claim terms are presumed to have meaning in a claim"); *Primos, Inc. v. Hunter's Specialties, Inc.*, 451 F.3d 841, 848 (Fed. Cir. 2006) (terms both expressed in a claim "cannot mean the same thing . . . if it did, one of the terms would be superfluous"); *Cross Med Prods. v. Medtronic Sofamor Darek, Inc.*, 424 F.3d 1293, 1307 (Fed. Cir. 2005) (refusing to enter a construction that would render other claim language redundant).<sup>3</sup>

### III. PROBABILITY TERMS

<i>Term/Phrase</i>	<i>Google's Construction</i>	<i>Plaintiff's Construction</i>
probability ('040 patent, claims 1, 11,32; '276 patent, claim 1, 21, 23)	percentage chance	the degree of likelihood or belief
estimating probability P(u d) that an unseen document d is of interest to the user u ('040 patent claims 1, 32)	calculating the percentage chance that an unseen document d is of interest to the user u given the information that is known about the unseen document	approximating or roughly calculating the degree of belief or likelihood that an unseen document d is of interest to the user u given the information that is known about the unseen document

<sup>3</sup> PUM also requests the Court construe "monitored user interactions with data." The "monitored user interactions with data" are tied to the "monitoring" steps 1(a) and 32(a) of the '040 patent. Thus, Google proposes the term be construed as "user interactions with data obtained from the monitoring of step 1(a) [32(a)]." PUM's proposed construction referring to "the collected information" has no antecedent basis and should be rejected. PUM also seeks to construe "set of documents associated with the user." The parties, however, agree that "set" is a "group or collection." And "document" and "user" are separately discussed below and need not additionally be construed as part of this phrase. *Innova*, 381 F.3d at 1119.

<b>Term/Phrase</b>	<b>Google's Construction</b>	<b>Plaintiff's Construction</b>
estimating posterior probability $P(u d,q)$ that a document $d$ is of interest to the user $u$ given a query $q$ submitted by the user ('040 patent, claim 11)	calculating the percentage chance of the user $u$ being interested, taking into account what is previously known about that user's interests in general, given new knowledge of the document $d$ the user is considering and a search query $q$ submitted by the user	approximating or roughly calculating the degree of belief or likelihood that a document $d$ is of interest to the user $u$ given the information that is known about the document, and given a query $q$

The patent clearly discusses calculating or estimating probabilities in a statistical context. (Ex. A, 8:35-37 ("The underlying mathematical framework of the modeling and training algorithms discussed below is based on Bayesian statistics"). "Percentage chance" is the appropriate construction of "probability" in this context. For example, the *American Heritage College Dictionary* defines probability in the context of "Statistics," as "the ratio of the number of actual occurrences of a specific event to the total number of possible occurrences," which can be stated more simply as a "percentage chance." (Ex. D.) This construction based on statistics is more appropriate than PUM's imprecise and unscientific "belief or likelihood," which has no support in the patent language. *Free Motion Fitness, Inc. v. Cybex Intern., Inc.*, 423 F.3d 1343, 1348-49 (Fed. Cir. 2005) ("in those circumstances where reference to dictionaries is appropriate, the task is to scrutinize the intrinsic evidence in order to determine the most appropriate definition").

Similarly, in the statistics context in which the patent discloses estimating probabilities, "estimated" clearly means "calculating," as construed by Google. The specification repeatedly references calculating probabilities. (See e.g., Ex. A, 5:39-42 ("In addition, the probability  $P(u|d,con)$  that the document is of interest to the user during a current interaction session can be calculated"); 5:49-52 ("In one application, network documents are crawled and parsed for links, and probable interest of the user in the links is calculated using the learning machine") (emphasis

added). Indeed, the specification uses "estimating" and "calculating" interchangeably. (*See* Ex. A, 5:34-39 ("A number of other probabilities can be calculated, such as a posterior probability  $P(u|d,q)$  that the document is of interest to the user, given a search query submitted by the user. Estimating the posterior probability includes estimating a probability that the query is expressed by the user with an information need contained in the document.") (emphasis added). Thus, the patents make clear estimation is done by making calculations using mathematical formulas, not just hazarding a ballpark guess as PUM's approximation or rough calculation language suggests. Tellingly, "roughly calculating" never appears in the patent and approximating is never used in the context of probabilities. This Court should accordingly adopt Google's construction of "estimating."

The Court should also adopt Google's construction of "posterior probability  $P(u|d,q)$  that a document  $d$  is of interest to the user  $u$  given a query  $q$  submitted by the user." As explained in the treatise *Foundations of Statistical Natural Language Processing*, "[t]he probability of an event before we consider our additional knowledge is called the *prior probability* of the event, while the new probability that results from using our additional knowledge is referred to as the *posterior probability* of the event." (Ex. E.) Applying this concept of "posterior probability" to the phrase in dispute, the document  $d$  and query  $q$  are the additional knowledge-i.e. "new knowledge," and the "prior" knowledge is what is "previously known about the user's interest," just as Google's construction provides. In contrast, PUM's construction does not incorporate or account for what it means to be "posterior probability" at all and should be rejected.<sup>4</sup>

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<sup>4</sup> PUM insists that the notations "probability  $P(u|d)$ " and "posterior probability  $P(u|d,q)$ " be separately construed, but PUM does not actually offer separate constructions for these notations.

#### IV. USER

<i>Term/Phrase</i>	<i>Google's Construction</i>	<i>Plaintiff's Construction</i>
"user" / "user [u]" (passim)	person operating a computer	a person operating a computer as represented by a tag or identifier

That a "user" is a person as Google's construction provides comports with how the term is uniformly used in the patent. Each of the asserted claims recite methods for providing automatic, "personalized information services to a user." As a matter of common sense, personalization services are provided to persons.

The same is true with the use of the term "user" in the specification. (Ex. A, 7:4-6 (The invention provides "automatic, personalized information and product services to a computer network user"); 7:6-8 ("Personal Web is a user-controlled, web-centric service that creates for each user, a personalized perspective . . ."); 31:58-59 ("Products that are of high interest to the user are suggested to him or her for purchase"); 23:55-57 ("If the user feels that the User Model is not an adequate representation of him or her, the user may submit user modification requests")) (emphasis added). Thus, it is clear the "user" is a person. *See Praxair*, 543 F.3d at 1324.

At first glance, PUM's proposal appears to be similar to Google's. It is not. PUM's proposal is that the "user" is "a person operating a computer as represented by a tag or identifier." (emphasis added.) Thus, according to PUM, the user is not "a person operating a computer" but is, in fact, a "tag or identifier." Because the personalization services of the invention, however, are provided to a person—not a "representation" of that person, PUM's "represented by a tag or identifier" terminology has no support from the claims or specification. It has been dropped in out of nowhere. This alone shows it should be rejected.<sup>5</sup> *Phillips*, 415 F.3d at 1314-15.

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<sup>5</sup> In the parties' meet and confer, PUM asserted that "tag or identifier" should be included in the construction because the '040 patent uses the phrase "user u," and "u" is the "tag or identifier." There



V. **DOCUMENT**

<i>Term/Phrase</i>	<i>Google's Construction</i>	<i>Plaintiff's Construction</i>
Document ( <i>passim</i> )	an electronic file	text or any type of media

The parties' dispute regarding "document" is whether it is "an electronic file," as Google asserts, or whether it can be "text or any type of media," as PUM suggests.

A. **Google's Construction Comports with the Intrinsic Evidence.**

There are several examples in the claims where the term "document" does not make sense unless it is an "electronic file." For example, the claims reference linking to a document (Ex. A, claim 7(g) ("a list of documents linked to the document d"), claims 6, 20, 26, 37, 38(g)); Ex. B, claims 6, 14, 15, 16, 17, 22); identifying properties of a document (Ex. A, claims 1(d), 7(e) and (f) ("an author of a document"; "an age of a document"), 32(d), 38(e) and (f); '276 patent, claims 22, 23); "documents having multiple distinct media types" (Ex. A, claims 3, 34); "crawling network documents" (*id.*, claims 6, 37); the number of users "accessing" or "saving" a document (*id.*, claim 7(i) and (j), 38(i) and (j)); and selecting documents from a group of files ('276 patent, claim 13 ("wherein said initial documents are selected from the group of files consisting of favorites, bookmarks, cached files, temporary Internet files, and browsing history"). The term "document" only makes sense if it is an "electronic file" because no other meaning would allow for all these actions to be taken in reference to a document. *See Phillips*, 415 F.3d at 1314 ("because claim terms

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is nothing in the claims or specification, however, suggesting that this is the case. Rather, it is evident that "u" is used as a short-hand to reference the "user" in the equations referenced in the patent: "[t]he user and his or her associated representation are denoted with u, a user query with q, a document with d . . ." (Ex. A, 9:10-14). Indeed, this language in the specification makes clear "the user" is something separate from any "representation" of the user.

are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims").

The specification further supports Google's construction. For example, Figure 13, annotated here, depicts how user documents are

analyzed. First, the format of documents is identified (step 82). (Ex. A, 17:54-55.) In the next step, "documents are parsed and separated into text, images and other non-text media, and formatting" (step 84). (*Id.*, 17:55-57.) One of the things that is "parsed and analyzed" is "words and phrases" (step 86). (*Id.*,

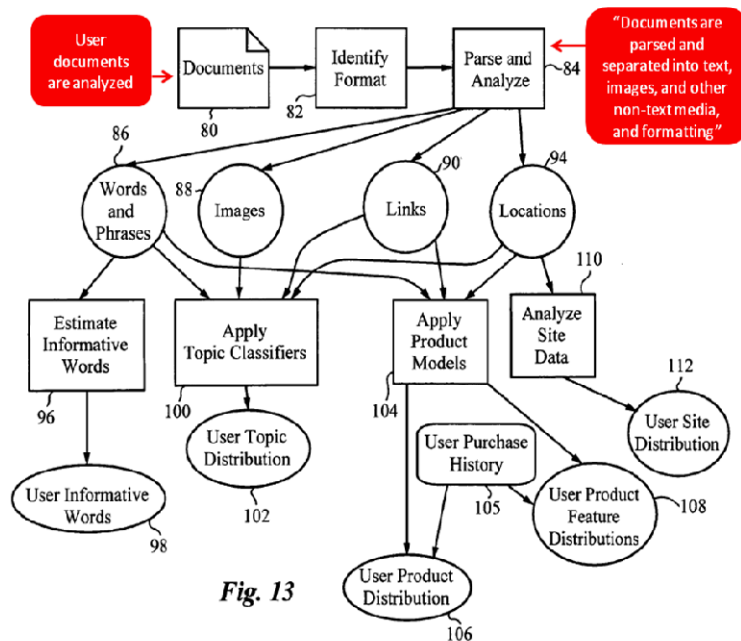


Fig. 13

Fig. 13.) The documents may also be analyzed for their "images," "links," and "locations." (*Id.*) Figure 18 similarly depicts the "Personal Search" application of the invention in a manner that only makes sense if the "linked," "identified," "scored," and "extracted" document is an electronic file. (*Id.*, Fig. 18, 27:20-38.) This consistent use of "document" in the specification in a manner in which it can only be an "electronic file," supports Google's construction. *Kinetic Concepts*, 554 F.3d 1010 at 1018-19; *SafeTCare Mfg.*, 497 F.3d at 1270.

**B. PUM's Construction Has No Support in the Patent.**

PUM's construction does not make sense in the context of the claims. If a document can simply be "text or any type of media," a single word would be a "document." This means that a web page with 500 words would be 500 "documents," and also a single "document." This same web page would be a "set of documents" in elements 1(b) and 32(b) and also be one "document."

Nor would all the actions done in relation to "documents" as discussed above be possible or make sense if a document could simply be a single word as PUM's construction allows. For example, how would the system identify the author or age of a document, as disclosed in claim 7(e) and (f), if the document is a word in the English language? (Ex. A, claim 7.) Would each word in the document have a separate author and age if the document was written by several people over time? Plainly, construing "document" as "text or any type of media" does not clearly "define the invention to which the patentee is entitled the right to exclude." *Phillips*, 415 F.3d at 1312.

PUM likely bases its construction on the following: "[t]he term 'document' includes not just text, but any type of media including, but not limited to, hypertext, database, spreadsheet, image, sound, and video." (Ex. A, 9:14-17). This statement merely demonstrates that a document can take many forms (e.g., a video file or a spreadsheet). Although a document may include "text or any type of media," that does not define what a document is. *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1344-45 (Fed. Cir. 2003) ("Comprising . . . means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim. The word "include" means the same thing.") (emphasis added).

## **VI. UNSEEN DOCUMENT**

<b><i>Term/Phrase</i></b>	<b><i>Google's Construction</i></b>	<b><i>Plaintiff's Construction</i></b>
unseen document ('040 patent, claims 1, 32)	document not previously seen by any user	document not previously seen by the user

With respect to "unseen document," the parties' disagreement is whether the document is unseen "by any user" or "by the user." Google's construction is fully supported by the specification and required by the patentee's representations to the PTO that contradict PUM's construction.

The specification asserts one of the drawbacks of prior art collaborative filtering systems is that "an item that has never been rated cannot be recommended or evaluated." (Ex. A, 3:9-12.) If a

document was unseen by any users, prior art collaborative filtering methods could not evaluate it, because they depended on feedback about the document from other users. (*Id.*, 3:37-44.) The patent goes so far as to state that "none of the existing prior art methods . . . can make recommendations for items or documents that have never been evaluated." (*Id.*, 3:38-44.) The invention sought to improve upon that prior art "so that a product can be recommended even if it has never been purchased or evaluated previously." (*Id.*, 4:12-16) (emphasis added). Google's construction is thus consistent with the representations in the specification. *See SafeTCare Mfg.*, 497 F.3d at 1270.

The applicants made the same distinction as the patent during prosecution. After the PTO rejected the application, to distinguish the application from the prior art, the patentee amended the claims to require estimating the probability that "unseen documents" are of interest to user. (Ex. C, PUM0067596-615.) The application was rejected again in light of Gerace, which allowed user interest in a document to be determined based on whether other users in a category to which a user belonged were interested in the document. (*Id.* at PUM0067580-82.) In response, the applicants distinguished Gerace by adding that, due to the "unseen" document limitation, unlike Gerace, user interest could be determined whether or not any of the "existing users" had seen the document:

*Gerace's teaching is concerned with*

finding similar user(s), among the existing set of users with a fixed set of categories. By having a set of users that clicked or viewed an Ad that was served to them *Gerace* finds similar users (i.e. user(s) that like similar categories within the fixed set of categories) to serve them that Ad. If the AD or document belongs to a category X that is not listed or not part of the set of existing users, then *Gerace's* system has to present this Ad or unseen document to a random set of users until sufficient statistics about the users that like this has emerged. In other words, it is not taught nor is it suggested how the first set of users or the first user are/is presented with an unseen document or an unseen Ad. *Gerace* has no answer to that problem!

(*Id.* at PUM0067575) (highlighting added) Because the applicants distinguished the prior art by arguing it could not analyze properties of documents unseen by any user, "unseen document" must

be interpreted consistent with the applicant's representations. *Phillips*, 415 F.3d at 1317 ("the prosecution history can often inform . . . whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be"); *Inventio*, 2010 WL 2404173 at \*16 (limitation proper based on applicant distinguishing the prior art to the PTO).

If "unseen document" is construed as PUM suggests, such that it only means unseen by "the user," then the '040 patent would not improve upon the prior art in the manner the applicants asserted both in the specification and during prosecution. Indeed, in the quote above, the applicants acknowledged that Gerace could gauge user interest in a document even if the user had not seen the document by looking to "similar users." (Ex. C, at PUM0067575.) Again, PUM cannot now seek a construction that contradicts the applicants' statements to the PTO in which they sought to distinguish the prior art and "expect to be believed." *TorPham*, 336 F.3d at 1329; *White*, 119 U.S. at 51-52; *Seachange Int'l*, 413 F.3d at 1372-73; *Southwall Techs.*, 54 F.3d at 1576. Accordingly, this Court should construe "unseen document" as a "document not previously seen by any user."

**VII. DOCUMENTS [NOT] OF INTEREST TO THE USER**

<b><i>Term/Phrase</i></b>	<b><i>Google's Construction</i></b>	<b><i>Plaintiff's Construction</i></b>
documents of interest to the user/ documents [that are] not of interest to the user ('276 patent, claims 1, 5, 14, 21, 23)	Indefinite	text or media for which the user has a positive response" / "text or media for which the user has a negative response or has ignored

These limitations are indefinite because whether a document is "of interest" or not "of interest" is purely a subjective question. The patent does not define the boundaries between documents that would be "of interest" and those that are "not of interest." Nothing in the intrinsic record provides an objective basis to determine whether a document is "of interest" or "not of interest." *See Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1350 (Fed. Cir. 2005) ("The scope of claim language cannot depend solely on the unrestrained, subjective opinion of a

particular individual purportedly practicing the invention.... Some objective standard must be provided in order to allow the public to determine the scope of the claimed invention."). Instead, whether a document is "of interest" or not "of interest" is purely a subjective question.

The relevant dictionary definitions for "interest" establish it is a personal quality, and not amenable to an objective measure. (See, e.g., Ex. F - *The Concise Oxford Dictionary Of Current English*) ("**interest** . . . **1** a concern; curiosity (*have no interest in fishing*).) Thus, whether a document is "of interest" lies in the eye of the beholder, and the claims including this term are indefinite. See *Datamize*, 417 F.3d at 1352-53 ("[T]he definition of 'aesthetically pleasing' cannot depend on the undefined views of unnamed persons . . . Thus, the written description does not provide any reasonable, definite construction of 'aesthetically pleasing.'").

PUM is likely to cite to the specification, which references "positive" and "negative" actions of users in relation to these terms, in support of its construction using this language:

Through his or her actions, the user creates positive and negative patterns. Positive examples are documents of interest to a user: search results that are visited following a search query, documents saved in the user favorites or bookmarks file, web sites that the user visits independently of search queries, etc. Negative examples are documents that are not of interest to the user, and include search results that are ignored although appear at the top of the search result, deleted bookmarks, and ignored pushed news or email.

(Ex. B, 21:53-22:3) (emphasis added.) But, the specification does not resolve the ambiguity in the patent as to the meaning of the "of interest" terms; it simply repeats it – explicitly. It explains "positive" examples are "documents of interest to the user" and negative examples are "documents not of interest to the user." (*Id.*) Accordingly, the Court should find that these phrases are indefinite.

### **VIII. ANTECEDENT BASIS TERMS**

There are several terms in the '040 and '276 patents that are first introduced with "a," such as "a user u," and then later referenced with "the," such as "the user." As a matter of common sense, where these terms are first introduced with "a," and then later used with "the," the latter term must be

referring to the former term, as set forth in Google's proposed construction. Indeed, these terms would lack a proper antecedent basis unless construed in this manner.

For example, claim 1 of the '040 patent begins: "A computer-implemented method for providing automatic, personalized information services to a user u, the method comprising: a) transparently monitoring user interactions with data while the user is engaged in normal use of a computer . . ." (Ex. A, claim 1) (emphasis added). By implication, "the user" must refer to "a user u." If it does not, then "the user" lacks a proper antecedent basis. *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1249 (Fed. Cir. 2008) (explaining a claim could be indefinite "if a term does not have proper antecedent basis where such basis is not otherwise present by implication or the meaning is not readily ascertainable"); *Energizer Holdings, Inc. v. ITC*, 435 F.3d 1366, 1370-71 (Fed. Cir. 2006) (finding "anode gel" is by implication the antecedent basis for "said zinc anode"); *see also* 35 U.S.C. § 112, ¶ 2. The same is true of the other terms in the chart attached as Appendix B. Based on the context here: "a user u" and "the user" or "the user u" refer to the same user; "a document d" and "the document" refer to the same document; and so on. (*See* Appendix C.)

PUM refused to explain why it disagrees. PUM states the meaning of the terms is "clear," without saying what that meaning is.<sup>6</sup> This Court should resolve the dispute and adopt Google's constructions. *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361-62 (Fed. Cir. 2008) (construction required "when reliance on a term's 'ordinary' meaning does not resolve the parties' dispute.").

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<sup>6</sup> The only one of these terms PUM took issue with was "document." PUM stated the "document" in the '040 patent was not necessarily the same document as in the '276 patent. (*Id.*) In response, Google listed each patent's use of the term separately. (*Id.*) PUM did not subsequently identify any other concerns with Google's proposals. (*Id.*)

## IX. ORDER OF STEPS

<i>Term/ Phrase</i>	<i>Google's Construction</i>	<i>Plaintiff's Construction</i>
order of steps  ( '040 patent, claims 1 and 32, '276 patent, claims 1 and 23)	<p><u>'040 Patent, claims 1 and 32</u>: Steps (a), (b), and (c) must be performed in that order and before steps (e) and (f); step (d) must be performed before steps (e) and (f); and step (e) must be performed before step (f).</p> <p><u>'276 Patent, claim 1</u>: steps (a), (b), and (c) in that order; step (d) before step (e); step (f) must be performed after steps (c) and (e); and step (g) must be performed after step (f).</p> <p><u>276 Patent, claim 23</u>: step (a), (b), (c), (d), (e), and (f) in that order</p>	<p>No construction necessary, or</p> <p>The steps may be performed in a consecutive manner, in an overlapping manner, or a combination of the two, except that the documents must be analyzed (at least once) to identify properties (step (d) of claims 1 and 32 of the '040 patent) before those identified properties are applied to the learning machine (step (e) of claims 1 and 32 of the '040 patent). And for claim 1 of the '276 patent, the search query is received (step (d)) before documents are retrieved based on the search query (step (e)), such that documents are retrieved before their identified properties can be applied to the user-specific learning machine to estimate a probability that the retrieved document is of interest to the user (portion of step (f)), and that the probability must be estimated before it can be used in step (g).</p>

The asserted claims disclose steps in a method. (Ex. A, claim 1: "a computer-implemented method . . .;" claim 32: "a program storage device . . . to perform method steps . . ."; Ex. B, claim 1: "a computer-implemented method . . .;" claim 23: "a computer-implemented method . . .") A method claim must be construed so the steps are performed in the order recited "if, as a matter of logic or grammar, [the steps] must be performed in the order written." *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369 (Fed. Cir. 2003); *see also Interactive Gift Exp., Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1342 (Fed. Cir. 2001) (method claims performed in recited order "when the method steps implicitly require that they be performed in the order written," such as when "each subsequent step reference[s] something logically indicating the prior step has been performed.")

That is precisely the case here. For example, in claim 1 of the '040 patent, as shown with annotations below, logically, step (b), user-specific data files "compris[ing] the monitored user interactions," cannot be performed until after user interactions are monitored as in step (a).



1. A computer-implemented method for providing automatic, personalized information services to a user *u*, the method comprising:

- a) transparently monitoring user interactions with data while the user is engaged in normal use of a computer;
- b) updating user-specific data files, wherein the user-specific data files comprise the monitored user interactions with the data and a set of documents associated with the user;
- c) estimating parameters of a learning machine, wherein the parameters define a User Model specific to the user and wherein the parameters are estimated in part from the user-specific data files;
- d) analyzing a document *d* to identify properties of the document;
- e) estimating a probability  $P(uld)$  that an unseen document *d* is of interest to the user *u*, wherein the probability  $P(uld)$  is estimated by applying the identified properties of the document to the learning machine having the parameters defined by the User Model; and
- f) using the estimated probability to provide automatic, personalized information services to the user.

"properties of the document" are identified in step (d); applying the identified properties of the document "to the learning machine having parameters defined by the User Model" in step (e), cannot be performed until after "parameters of a learning machine" are estimated in step (c); and "using the estimated probability" in step (f) cannot be performed until the probability is estimated in step (e). (Ex. A, claim 1.) In other words, steps (a), (b), and (c) must be performed in that order before steps (e) and (f); step (d) must also be performed before steps (e) and (f); and step (e) must be performed before step (f). (*Id.*) The same is true of the method steps in claim 32. (*Id.*, claim 32; *see also id.*, Fig. 2.)

This is also true of the asserted method claims in the '276 patent (on the right). Claim 1 must logically be performed in the following order: steps (a), (b), and (c) in that order; step (d) before step (e); step (f) after steps (c) and (e); and step (g) after step (f). (Ex. B, claim 1) (annotations added). Claim 23 must also logically be performed in the order set forth in the claim: step (a), (b), (c), (d),

Likewise, estimating parameters from "the user-specific data files" in step (c), cannot be performed until user-specific data files are updated in step (b); estimating a probability "by applying the identified properties of the document" in step (e), cannot be performed until

1. A computer-implemented method for providing personalized information services to a user, the method comprising:
  - a. transparently monitoring user interactions with data while the user is engaged in normal use of a browser program running on the computer;
  - b. analyzing the monitored data to determine documents of interest to the user;
  - c. estimating parameters of a user-specific learning machine, based at least in part on the documents of interest to the user;
  - d. receiving a search query from the user;
  - e. retrieving a plurality of documents based on the search query;
  - f. for each retrieved document of said plurality of retrieved documents: identifying properties of the retrieved document, and applying the identified properties of the retrieved document to the user-specific learning machine to estimate a probability that the retrieved document is of interest to the user; and
  - g. using the estimated probabilities for the respective plurality of retrieved documents to present at least a portion of the retrieved documents to the user.

(e), and (f).<sup>7</sup> (*Id.*, claim 23, Fig. 2); (*See* Appendix D.)

Although it previously contended these claims may be performed in any order, the day before this brief was due, PUM informed Google of an "alternative" position shown in the chart above. Then, the day the brief was due, PUM stated that it did not believe any construction was needed. But there is a dispute regarding this issue that needs to be resolved. *O2 Micro*, 521 F.3d at 1361-62.

Google has not had time to meaningfully consider PUM's substantially changed proposal, but that it should be rejected is clear on the face of the proposal. Initially, PUM suggests the steps can be performed "in a consecutive manner, in an overlapping manner, or a combination of the two," but then provides steps 1(d) and 32(d) of the '040 patent must be performed before steps 1(e) and 32(e), step 1(d) of the '276 patent must be performed before step 1(e) and a portion of step 1(f), and step 1(f) of the '276 patent must be performed before step 1(g). PUM's construction that the steps need not be performed in order, but then providing just the opposite is confusing and unhelpful to the jury.

Further, PUM's position is not supported by the claims or applicable law. Again, method claims must be construed so that the steps are performed in the order recited "if, as a matter of logic or grammar, [the steps] must be performed in the order written" and also when "each subsequent step reference[s] something logically indicating the prior step has been performed." *Altiris*, 318 F.3d at 1369; *Interactive Gift*, 256 F.3d at 1342. PUM's "alternative" construction acknowledges that both

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<sup>7</sup> As it was the only objection PUM ever actually presented to Google's proposal on the order of steps before its recent alternative construction discussed below, Google agreed to alter its previous construction that all the steps be performed in order, to allow for elements 1(d) and 32(d) of the '040 patent and element 1(d) of the '276 patent to be performed before the prior steps. In actuality, there is no embodiment in the specification in which these steps are not performed in order. Thus, a construction that all steps be performed in order would be appropriate as well. *See Respironics, Inc. v. Invacare Corp.*, 303 Fed. Appx. 865, 871 (Fed. Cir. 2008) (construing the term "selected higher and lower pressure magnitudes" to require the pressure magnitudes to be previously selected because "[t]he preselection of higher and lower pressure magnitudes is not merely a preferred embodiment; it is the patents' only embodiment.").

are true as to the asserted claims. Nevertheless, PUM contends some steps need to be performed in their logical order, but others do not. PUM's construction particularly breaks down when PUM acknowledges that part of a claimed step must be performed before a subsequent step, but then tries to exclude some other part of the same step from that required ordering. For example, PUM agrees that that step 1(d) of the '276 patent must be performed before step 1(e) and at least a portion of step 1(f). Yet, PUM contends that the remainder of step 1(f) need not be performed after step 1(d) or step 1(e). There is no basis for PUM's creative parsing of the claims and division of steps in this manner. Accordingly, the Court should construe these claims so that the steps are performed in the logical order set forth by Google's constructions.

**X. PRESENT/PRESENTING**

<i>Term/Phrase</i>	<i>Google's Construction</i>	<i>Plaintiff's Construction</i>
present or presenting ('276 patent, claims 1, 21, 23)	display[ing]	to provide or make available

The claims use "presenting" according to its ordinary meaning. (*See* Ex. D – *American Heritage College Dictionary*) (defining "present" as to "show or display"). The '276 patent discloses presenting retrieved documents or portions thereof to the user. Claim 1 of the '276 patent discloses personalization in the context of searching in a web browser. (Ex. B, claim 1) (" . . . receiving a search query from the user; retrieving a plurality of documents based on the search query;. . . to present at least a portion of the retrieved documents to the user"). It is common sense that a browser *displays* content to a user. Accordingly, the specification describes the "personal browsing and navigation" application, and uses the word "display" repeatedly to describes how content is shown to the user. (*Id.*, 28:52-54 (" . . . only one [article] that is most interesting to the user is displayed"); 28:58-62 (" . . . only those [articles] meeting the user's information needs are displayed"); 29:37-39

("The most likely site navigation from the viewed site, based on the behavior of the cluster members, is displayed to user upon request").

To manufacture an infringement argument, PUM's construction tries to expand this claim to include a process in which no actual display to a user need ever be performed. This simply makes no sense and cannot stand given the clear language of the claims and specification.

**XI. USER INTEREST INFORMATION DERIVED FROM THE USER MODEL**

<i>Term/Phrase</i>	<i>Google's Construction</i>	<i>Plaintiff's Construction</i>
user interest information derived from the User Model ('040 patent, claim 21)	Indefinite	interests or other information inferred from the User Model

This phrase appears in dependent claim 21: "The method of claim 1 further comprising sending to a third party web server user interest information derived from the User Model, whereby the third party web server may customize its interaction with the user." (Ex. A, claim 21) (emphasis added). There is no explanation in the patent of what "user interest information" is. Is it whether or not a document is of interest to a user? Is it something entirely different? The patent does not say. Nor is it clear what "derived from the User Model" means.

PUM's construction is no more clear than the phrase itself. It is not clear what "interests or other information" means. Also the "inferred from the User Model" language suffers the same ambiguity as the "derived from a User Model" language in the disputed phrase. As this phrase does not "clearly distinguish what is claimed from what went before in the art and clearly circumscribe what is foreclosed from future enterprise," it is insolubly ambiguous and indefinite. *Halliburton*, 514 F.3d at 1249 (quoting *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236 (1942)).

**Conclusion**

For these reasons, this Court should adopt Google's constructions of the disputed terms.

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