

EXHIBIT 2

ACTION CLOSING PROSECUTION (37 CFR 1.949)	Control No.	Patent Under Reexamination
	95/001,569	6981040
	Examiner	Art Unit
	MAJID A. BANANKHAH	3992

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

Responsive to the communication(s) filed by:

Patent Owner on 27 July, 2011

Third Party(ies) on 26 August, 2011

Patent owner may once file a submission under 37 CFR 1.951(a) within 1 month(s) from the mailing date of this Office action. Where a submission is filed, third party requester may file responsive comments under 37 CFR 1.951(b) within 30-days (not extendable- 35 U.S.C. § 314(b)(2)) from the date of service of the initial submission on the requester. **Appeal cannot be taken from this action.** Appeal can only be taken from a Right of Appeal Notice under 37 CFR 1.953.

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

PART I. THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. Notice of References Cited by Examiner, PTO-892
2. Information Disclosure Citation, PTO/SB/08
3. _____

PART II. SUMMARY OF ACTION:

- 1a. Claims 1,11,21,22,32 and 34 are subject to reexamination.
- 1b. Claims _____ are not subject to reexamination.
2. Claims _____ have been canceled.
3. Claims _____ are confirmed. [Unamended patent claims]
4. Claims 1,11,21,22,32, and 34 are patentable. [Amended or new claims]
5. Claims _____ are rejected.
6. Claims _____ are objected to.
7. The drawings filed on _____ are acceptable are not acceptable.
8. The drawing correction request filed on _____ is: approved. disapproved.
9. Acknowledgment is made of the claim for priority under 35 U.S.C. 119 (a)-(d). The certified copy has:
 - been received. not been received. been filed in Application/Control No _____
10. Other _____

ACTION CLOSING PROSECUTION

I. INTRODUCTION

This Office Action is in response to the Patent Owner's submission filed on 07/27/2011 and the Third Party Requester's Comments filed on 09/02/2011. This Office Action Addresses claims 1, 11, 21, 22, 32 and 34 of the United States Patent No. 6,981,040 (hereinafter '040 Patent).

II. STATUS OF CLAIMS

Claims 1, 11, 21, 22, 32 and 34 are presented without amendment in the form as issued in US Patent 6981040 (hereinafter, the "'040 Patent"). No new claims are being added by the Patent Owner.

III. CLAIM INTERPRETATION

A. Claim Interpretation during Reexamination

USPTO personnel are to give claims their broadest reasonable interpretation "in light of" the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997).

During examination, "claims... are to be given their broadest reasonable interpretation consistent with the specification, and, claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art." *In re Bond*, 910 F.2d 831,833 (Fed. Cir. 1990); accord *Bass*, 314 F.3d at 577 ("[T]he PTO must apply the broadest reasonable meaning to the claim language, taking into account any definitions presented in the specification."); *In re Cortright*, 165 F.3d 1353, 1358 (Fed. Cir. 1999) ("Although the PTO must give claims their broadest reasonable interpretation; this interpretation must be consistent with the one that those skilled in the art would reach."); *Hyatt*, 211 F.3d at 1372. The "broadest reasonable construction" rule applies to reexaminations as well as initial examinations. See *In re Hiniker Co.*, 150 F.3d 1362, 1368 (Fed. Cir. 1998); *In re Yamamoto*, 740 F.2d 1569, 1571 (Fed. Cir. 1984). Giving claims their broadest reasonable construction "serves the public interest by reducing the possibility that claims, finally allowed, will be given broader scope than is

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justified.” *Yamamoto*, 740 F.2d at 1571; *accordHyatt*, 211 F.3d at 1372 367 F.3d at 1364 (emphasis added).

The Patent and Trademark Office (“PTO”) determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364[, 70 USPQ2d 1827] (Fed. Cir. 2004). Indeed, the rules of the PTO require that application claims must “conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.” 37 CFR 1.75(d)(1).

IV. SUMMARY OF PROPOSED GROUNDS OF REJECTIONS (ADOPTED, OR WITHDRAWN)

The following is a summary of the grounds of rejections proposed by the Requester that was adopted, not adopted or **withdrawn** in this Office Action.

1. Mladenic

Issue #1	<i>Mladenic</i> (EXHIBIT CC-A)
Claims 1, 11, 32, and 34 are anticipated by <i>Mladenic</i> under 35 U.S.C. § 102(a).	Adopted essentially as proposed and maintained.
Issue #2	<i>Mladenic</i> (EXHIBIT CC-A)
Claim 11 is obvious over <i>Mladenic</i> in view of <i>Culliss</i> under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.
Issue #3	<i>Mladenic</i> (EXHIBIT CC-A)
Claims 1, 11, 32 and 34 are obvious over <i>Mladenic</i> in view of <i>Yang</i> under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.
Issue #4	<i>Mladenic</i> (EXHIBIT CC-A)
Claim 21 is obvious over <i>Mladenic</i> in view of <i>Refuah</i> under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.
Issue #5	<i>Mladenic</i> (EXHIBIT CC-A)
Claim 22 is obvious over <i>Mladenic</i> in view of <i>Culliss</i> under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.

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Issue #6	<i>Mladenic</i> (EXHIBIT CC-A)
Claim 34 is obvious over <i>Mladenic</i> in view of <i>Culliss</i> under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.

2. Wasfi

Issue #7	<i>Mladenic</i> (EXHIBIT CC-B)
Claims 1, 21, 22, and 32 are anticipated by <i>Wasfi</i> under 35 U.S.C. § 102(a).	Adopted essentially as proposed and maintained.
Issue #8	<i>Mladenic</i> (EXHIBIT CC-B)
Claim 11 is obvious over <i>Wasfi</i> in view of <i>Culliss</i> under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.
Issue #9	<i>Mladenic</i> (EXHIBIT CC-B)
Claim 22 is obvious over <i>Wasfi</i> in view of <i>Culliss</i> under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.
Issue #10	<i>Mladenic</i> (EXHIBIT CC-B)
Claim 34 is obvious over <i>Wasfi</i> in view of <i>Culliss</i> under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.

3. Refuah

Issue #11	<i>Mladenic</i> (EXHIBIT CC-C)
Claims 1, 11, 21, 22, 32 and 34 are anticipated by <i>Refuah</i> under 35 U.S.C. § 102(e).	Adopted essentially as proposed and maintained.
Issue #12	<i>Mladenic</i> (EXHIBIT CC-C)
Claims 1, 11, 21, 22, 32 and 34 is obvious over <i>Refuah</i> in view of <i>Mladenic</i> under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.

4. Culliss

Issue #13	<i>Mladenic</i> (EXHIBIT CC-D)
Claims 1, 21, 22, and 32 are anticipated by <i>Culliss</i> under 35 U.S.C. § 102(e).	Adopted essentially as proposed and maintained.
Issue #14	<i>Mladenic</i> (EXHIBIT CC-D)

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Claim 11 is obvious over Culliss in view of Mladenic under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.
Issue #15	<i>Mladenic</i> (EXHIBIT CC-D)
Claim 22 is obvious over Culliss in view of Refuah under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.
Issue #16	<i>Mladenic</i> (EXHIBIT CC-D)
Claim 34 is obvious over Culliss in view of Mladenic and Refuah under 35 U.S.C. § 103(a).	Adopted essentially as proposed and maintained.

V. STATUTORY BASIS FOR GROUNDS OF REJECTIONS

A. Statutory Basis for Grounds of Rejections under 35 USC § 102

- The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

B. Statutory Basis for Grounds of Rejections under 35 USC § 103

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all discussion of obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject

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matter pertains. Patentability shall not be negated by the manner in which the invention was made.

VI. REJECTIONS

A. Primary Reference, Mladenic

1. Proposed Rejection #1

Claims 1, 11, 32, and 34 are rejected under 35 U.S.C. §§ 102(a) and (b) as being anticipated by Mladenic.

(a) Mladenic anticipates claim 1

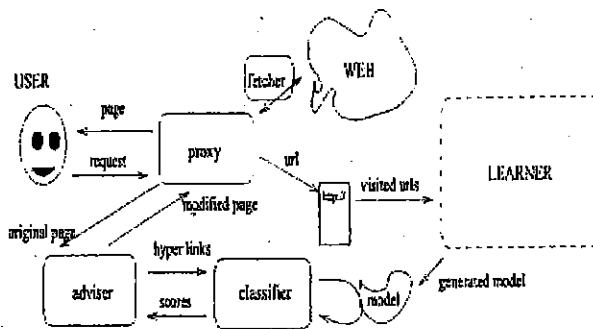
(i) A computer-implemented method for providing automatic, personalized information services to a user u, the method comprising:

Mladenic discloses "Personal Web Watcher," a system that is "structured to specialize for a particular user, modeling his/her interests." *See*, Mladenic at 3. It "records the addresses of pages requested by the user and highlights hyperlinks that it believes will be of interest." *Id.*

The system disclosed by Mladenic employs various methods for providing personalized information services. *See generally id.* at 3-7 (disclosing the algorithms and other methods used by Personal Web Watcher to provide personalized information services.)

Mladenic, pp. 2 ("Personal Web Watcher is a system that observes users of the WWW and suggests pages they might be interested in. It learns user interests from pages requested by the user. The learned model of user interests is then used to suggest hyperlinks on new HTML-pages requested by and presented to the user via Web browser [sic] that enables connection to 'proxy' e.g. Netscape.");

p. 8, Figure 2:



(ii) transparently monitoring user interactions with data while the user is engaged in normal use of a computer;

Mladenic, pp. 2: ("WebWatcher can be described as an agent that assists users in locating information on the WWW. It learns by observing a user on her/his way through the WWW and suggests interesting hyperlinks whenever it is confident enough."); 3: ("Unlike WebWatcher, Personal WebWatcher(PWW) is structured to specialize for a particular user, modeling her/his interests. It 'watches over the user's shoulder' the similar way WebWatcher does, but it avoids involving the user in its learning process."); 8-9 ("Hyperlinks whose documents were visited by the user are considered to be positive examples, and all other [sic] to be negative examples of the user interests. The idea is that all hyperlinks were presented to the user and the user chose to visit some of them that meet her/his interests. This simplification is introduced to minimize users involvement in the learning process and enable learning without asking user [sic] for page rating. ").

(iii) 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;

Mladenic, pp. 7 (disclosing that Personal WebWatcher "saves addresses of visited documents (URLs)"); 3 ("It solely records the addresses of pages requested by the user and highlights hyperlinks that it believes will be of interest."); 8 ("Both versions fetch visited documents and documents one step behind the hyperlinks of visited documents

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and store them as positive or negative examples of user interests, depending whether the user visited the document or not.")

(iv) 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;

Mladenic, pp. 9 ("LEARNER transforms documents into examples in two phases : (1) (docs2exs and docs2addexs in Figure4) parsing each document, assigning an index to each word and representing it in three files as a line of word indices containing: all words, only headline words, only underlined words. (2) (exs2vec in Figure4) calculating score (e.g. information gain) for each word, selecting some top words and represent documents as bag-of-words keeping frequency for each of the top words."); 7 ("the learner uses them to generate model of user interests."); 10 ("The model of user interests is designed to predict if some document is positive or negative example of user interests."); 3 ("Personal WebWatcher (PWW) is structured to specialize for a particular user, modeling her/his interests In the learning phase (typically during the night), requested pages are analyzed and a model of user interests is generated/updated. This model is used to give advice for hyperlinks on retrieved HTML-pages requested by and presented to the user via Web browser each user has her/his own copy of the system-her/his own agent."); 7 ("The current version of PWW uses a Naive (Simple) Bayesian classifier on frequency vectors to generate a model of user interests, that is used for advising hyperlinks.")

(v) analyzing a document d to identify properties of the document;

Mladenic, pp. 4 ("We decided to use the bag-of-words representation using frequency of word and observe success of given advice (whether user selected the advised hyperlink). In case of poor system performance, some additional information from HTML-structure could be added, for example, frequency of word in headlines of a given document."); 5 ("we weight words using mutual information between word occurrence [sic] and class value... Mutual information assigns higher weight to the words that make better distinction between interesting and uninteresting documents."); 12

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("Documents are currently represented using the bag-of-words approach (see Section 3.1) and feature selection is performed using mutual information approach (see Section 3.2).")

(vi) 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

Mladenic, pp. 10 ("[t]he model of user interests is designed to predict if some document is positive or negative example of user interests."); 6 ("A new document is then represented as a vector in the same vector space as the generated model and the distance between them is measured (usually defined as a cosine of angle between documents) in order to classify the document."); 5 ("Since we are more interested in positive class (interested documents) and we want to have words that are frequent, it might be better to include in the weighting formula the probability of a word occurring in the positive class or frequency of the word, (a formula) where w is a selected word, c is the positive class and $TF(w)$ is the frequency of the word w "); 7 ("The current version of PWW uses a Naive(Simple) Bayesian classifier on frequency vectors to generate a model of user interests, that is used for advising hyperlinks.");

p. 12, Table 2:

Userid and data source	probability of interestingness	number of examples	data entropy
usr150101			
Doc	0.091	1 333	0.119
HL	0.101	2 528	0.180
usr150202			
Doc	0.107	3 115	0.192
HL	0.053	1 798	0.301
usr150211			
Doc	0.089	2 038	0.136
HL	0.011	2 221	0.259
usr150502			
Doc	0.100	1 272	0.168
HL	0.100	2 498	0.168

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(vii) using the estimated probability to provide automatic, personalized information services to the user.

Mladenec, pp. 7-8 ("a limited number of hyperlinks that are scored above some threshold are recommended to the user, indicating their scores using graphical symbols placed around each advised hyperlink."); 2 ("Personal Web Watcher is a system that observes users of the WWW and suggests pages they might be interested in. It learns user interests from the pages requested by the user. The learned model of user interests is then used to suggest hyperlinks on new HTML-pages requested by and presented to the user via Web browser that enables connection to 'proxy' e.g. Netscape.")

(b) Mladenec anticipates claim 11

The method of claim 1 further comprising estimating a posterior probability $P(u/d, q)$ that the document d is of interest to the user u , given a query q submitted by the user.

Mladenec, p. 2 ("The idea is that the user provides a few keywords describing a search goal and Web Watcher highlights related hyperlinks on the current page and/or adds new hyperlinks to the current page.").

(c) Mladenec anticipates claim 32

A program storage device accessible by a central computer, tangibly embodying a program of instructions executable by the central computer to perform method steps for providing automatic, personalized information services to a user u , the method steps comprising [steps (a)-(f) from claim 1].

As discussed *above*, Mladenec discloses steps (a)-(f) from claim 1 as a method for "providing automatic, personalized information services to a user u ." Mladenec also discloses that Personal Web Watcher resides at least in part on "a proxy server that interacts with the user via web browser," *id.* at 7, and thus could be accessible by a central computer. Moreover, "It]he whole system is implemented in approximately 2500 lines of Perl code and 1500 lines of C++ code," *id.*, which are program languages executable by a central computer.

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(d) Mladenic anticipates claim 34

The program storage device of claim 32 wherein, analyzing the document d provides for the analysis of documents having multiple distinct media types.

Mladenic meets this limitation because it discloses the analysis of both plain text and HTML documents. *See id.* at 3.

2. Proposed Rejection #2

Claims 1, 11, 32, and 34 are rejected under 35 U.S.C. § 103(a) as being obvious over Mladenic in view of Yang.

(a) Claims 1 and 32 are obvious

With respect to claims 1 and 32, in the event that the Patent Owner argues that Mladenic alone did not sufficiently disclose the element of **"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,"** as required by independent claims 1, 32, and their dependents, Mladenic could be combined with Yang to satisfy this element. Yang discloses a modified k-Nearest Neighbor algorithm to determine the relevance of an unseen document to a predetermined category. Specifically, the algorithm is:

$$rel(c_k|X) \approx \sum_{j=1}^n sim(X, D_j) \times P_r(c_k|D_j)$$

where c_k is the category, X is the unseen document, $sim(X, D_j)$ is the similarity between X and a "training document" D_j that has been manually categorized by a person; and $P(c_k / D_j)$ is the conditional probability of category c_k being related to document D_j by human judgment. *See Yang*, at 16.

Reasons to Combine Mladenic and Yang

A person of ordinary skill in the art at a time before the invention of the '040 patent would have combined Mladenec with Yang because Mladenec itself notes how Yang's algorithm is a relevant "learning algorithm" in the art. *See* Mladenec, at 6, fourth line from the bottom. Combining Yang's algorithm with Mladenec's Personal WebWatcher system would have been obvious to one skilled in the art, given Mladenec's express mention of Yang's algorithm as one of the relevant learning algorithms in the art. Further, a person of ordinary skill in the art would have been motivated to combine Mladenec with Yang because combining the algorithm of Yang with Mladenec according to known methods would have yielded predictable results (e.g., to determine the relevance of an unseen document to a predetermined category. [*See* MPEP § 2143])

(b) claim 11 is obvious

With respect to claim 11, Mladenec alone disclose the element of "**estimating a posterior probability $P(u/d, q)$ that the document d is of interest to the user u , given a query q submitted by the user**". Mladenec, p. 2 ("The idea is that the user provides a few keywords describing a search goal and WebWatcher highlights related hyperlinks on the current page and/or adds new hyperlinks to the current page.").

(c) claim 34 is obvious

The program storage device of claim 32 wherein, analyzing the document d provides for the analysis of documents having multiple distinct media types. Mladenec meets this limitation because it discloses the analysis of both plain text and HTML documents. *See id.* at 3.

3. Proposed Rejection #3

Claim 11 is also rejected under 35 U.S.C. § 103(a) as being obvious over Mladenec in view of Culliss.

Claim 11 depends from claim 1, and further requires "**estimating a posterior probability $P(u/d, q)$ that the document d is of interest to the user u , given a query q submitted by the user.**" In the event that the Patent Owner argues that the reference of

Mladenic did not disclose this element, Culliss discloses a system that "utilizes personal data to [] refine search results." Culliss at 3:12-13. "[T]he invention can accept a search query from a user and a search engine will identify matched articles and display squibs of the matched articles in accordance with their comparison scores." *Id.* at 2:39-42.

Reasons to Combine Mladenic and Culliss

Applying Culliss' personalized list of articles in response to user queries to Mladenic's Personal WebWatcher would have been obvious to one skilled in the art. Such a combination would be the mere application of a known technique (Culliss) to a known system (Mladenic) and would yield a predictable result. To put it another way, the personalized document recommendations disclosed by Mladenic are drawn from the Internet as a whole. But rather than analyzing the pool of overall documents on the Internet, it would be just as feasible (and obvious) to use Personal WebWatcher to analyze a pool of search results generated in response to a user query.

4. Proposed Rejection #4

Claim 21 is also rejected under 35 U.S.C. § 103(a) as being obvious over Mladenic in view of Refuah.

Claim 21 depends from independent claim 1, and further requires **"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."** Refuah, at 2:63-66 discloses: "Another aspect of some preferred embodiments of the invention relates to using 'persona' and/or 'mood' (hereafter referred to together as 'personality') to define a view of the Internet." As such Refuah which discloses the use of a user's "mood" and "persona" to affect the web pages provided to the user, explains that "the personality [*i.e.*, mood and persona] may be used when entering any WWW site to provide personally tailored service." Refuah at 3:47-49 (emphasis added); see also *id.* at 4:59-61 ("in a preferred embodiment of the invention, only portions of the persona and/or mood are provided to each site.") Refuah thus discloses sending user interest information (embodied by the user's "personality") to third-party web servers that host various WWW sites.

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Reasons to Combine Mladenic and Refuah

While Mladenic discloses a personalized list of recommendations that is generated by analyzing and filtering documents at the user's computer, Refuah discloses that the document analysis and filtering may take place at a third-party site - the site that the user is accessing. Applying this teaching of Refuah to Mladenic would have been obvious to one skilled in the art, as it merely would have shifted the location where the document analysis and filtering takes place.

5. Proposed Rejection #5

Claim 22 is rejected under 35 U.S.C. § 103(a) as being obvious over Mladenic in view of Culliss.

Claim 22 depends from claim 1, and further requires "**wherein the monitored user interactions include a sequence of interaction times.**" Culliss discloses that articles can be analyzed and ranked according to "how much time the user spent with the article." *See*, Culliss at 2:43-46 ("Articles can have their key term scores or key term total scores altered according to whether they were displayed to a user, whether they were selected by a user, how much time the user spent with the article, etc.") (emphasis added)

Reasons to Combine Mladenic and Culliss

It would have been obvious to one skilled in the art at the time of the invention to modify Mladenic's Personal WebWatcher to include an analysis of user interaction times in judging which documents would be of most interest to a user. This combination would be the mere application of a known technique to a known system ready for improvement and would yield a predictable result.

6. Proposed Rejection #6

Claim 34 is rejected under 35 U.S.C. § 103(a) as being obvious over Mladenic in view of Culliss.

Claim 34 depends from claim 1, and further requires "**wherein analyzing the document d provides for the analysis of documents having multiple distinct media types.**" In the event that the Patent Owner argues that Mladenic did not disclose this element, Culliss discloses that the "articles" which are ranked and presented to the user may include multiple distinct media types, such as "text collections, audio clips, video clips and samples of any other type of information." *See*, Culliss at 2:20-21.

Reasons to Combine Mladenic and Yang

It would have been obvious to one skilled in the art to combine Mladenic with Culliss, such that Mladenic could be used to analyze web pages of multiple media types. Indeed, by the time the '040 patent's application was filed in June 2000, it was well known that web pages could contain the multiple types of media disclosed by Culliss - *i.e.*, text, audio files, video files, *etc.*

B. Primary Reference, Wasfi

7. Proposed Rejection #7

Claims 1, 21, 22, and 32 are rejected under 35 U.S.C. §§ 102(a) and (b) as being anticipated by Wasfi.

(a) Wasfi anticipates claim 1

(i) A computer-implemented method for providing automatic, personalized information services to a user u, the method comprising:

Wasfi discloses "a new learning mechanism to extract user preferences transparently for a World Wide Web recommender system." *See*, Wasfi at 57. Wasfi notes that "[t]o deliver information a user wants to see, we should search for pages that are similar to his/her profile." *Id.* at 58. Wasfi thus discloses a method for providing information services that are "personalized" to the user's profile. Wasfi also discloses that this provision of information services occurs automatically, through the "ProfBuilder" computer agent. *See id.* at 60 ("This section discusses ProfBuilder (acronym for Profile

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Builder), a transparent, adaptive, autonomous agent which works as a recommender system.").

(ii) transparently monitoring user interactions with data while the user is engaged in normal use of a computer;

Wasfi discloses "collecting the access patterns of users navigating on the Web", *id.* at 57, and doing so in a "transparent" manner. *See id.* at 60 ("it is transparent as it extracts the preferences without user intervention.").

(iii) 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;

As noted *above*, Wasfi discloses "collecting the access patterns of users navigating on the Web." *Id.* at 57. This collection of access patterns is inherently grown and updated as the user continues to navigate through the Web. Indeed, Wasfi discloses that "the context model is built progressively as users jump from one page to another using any navigation technique." *Id.* at 61. Thus, these monitored access patterns comprise the pages (*i.e.*, documents) that were jumped to by the user and are therefore associated with the user.

Because Wasfi discloses updating the "monitored user interactions" and "a set of documents associated with the user," it thereby discloses updating "user-specific data files," since PUM has argued that the "user-specific data files" are defined as "the monitored user interactions with data and a set of documents associated with the user." Request, OTH-B at 12.

(iv) 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;

Wasfi discloses a "learning module" that "handles the task of mapping user interests to the [user] profile and maintaining the correlation between the two." *Id.* at 61.

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Note that PUM has argued that a "learning machine" need not be corporeal or physical - rather, that it is simply "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." OTH-B at 18. In this regard, PUM has also proposed construing "User Model specific to the user" as "an implementation of a learning machine updated in part from data specific to the user." *Id*

Wasfi also discloses that the parameters of the user profile are determined based on the specific web pages the user visits. *See id.* at 58:

Consider that page s_i is the current page of user U_j . Let us assume that variable t_{ij} , which is a nonnegative number between zero and one, indicates the relevance or importance of page s_i to user U_j . A reformulation of vector Q_j representing the user profile is obtained by taking Q_j and adding the vector elements D_i representing page s_i after it is changed in proportion to t_{ij} , $Q_j = Q_j + t_{ij} * D_{ij}$, *i.e.* the weight of each word in D_i is modified proportional to t_{ij} (emphasis added).

In other words, Wasfi discloses mathematically representing the pages viewed by the user and using these mathematical representations to define the parameters of the User Profile.

(v) analyzing a document d to identify properties of the document;

Wasfi discloses analyzing a document d to determine its properties. *See id.* at 61:

"The vector representation is obtained by a text analysis of HTML pages. This is done by extracting keywords from page titles, all levels of headings, and anchor hypertexts., the keywords are weighted based on the well-test algorithm TDIDF. The weight of the keyword k_j is given by:

$$W_{ij} = tf_{ij} * idf_j$$

where tf_{ij} is the number of occurrences of k_j in page s_i and idf_j is the inverse document frequency of k_j in the Web site.

(vi) 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

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properties of the document to the learning machine having the parameters defined by the User Model”

PUM has construed "estimating a probability $P(u/d)$ that an unseen document d is of interest to the user u " as "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." Request, OTH-B 23. Wasfi discloses this element, as it discloses filtering web pages "based on the correlation between the content of the pages and the user's preferences." Wasfi at 60; *see also id.* at 61 ("The similarity metric between the vector D_i representing page s_i and the vector Q_j representing the interests of user u_j is calculated by taking the scalar product of the two vector,

$$\text{Similarity}(D_i, Q_j) = \sum_k w_{ik} * w_{jk}$$

Wasfi contemplates that the page s_i might be "unseen" at the time its interestingness is estimated. *See id.* at 60 ("[i]f the order-0 sub-model is consulted (i.e., the page s_i has never occurred in the context of any higher sub-model before), p_r is assumed to be proportional to n_i/N ...") (emphasis added). Note also that as mentioned *above*, PUM has argued in the Pending Litigation that a document is "unseen" merely if it is unseen by the user, as opposed to being unseen by any user. *See Request, OTH-B at 25.*

(vii) using the estimated probability to provide automatic, personalized information services to the user.

Wasfi discloses that the filtering technique described above is used to provide, automatic, personalized information services to the user. *See id.* at 61 ("The filtering process consists of translating pages to their vector space representation, finding pages that are similar to the profile, and selecting the top-scoring pages for presentation to the user.") (emphasis added).

(b) Wasfi anticipates claim 21

Claim 21 depends from independent claim 1, and further requires **"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."**

Wasfi discloses that, while "ProfBuilder assists a user by finding relevant information on only one Web site [,] [w]e intent [sic] to solve the problem by maintaining user profiles across different Web sites that use ProfBuilder. So that, when a user jumps to another site, the user's profile will also be transferred to the new site who's ProfBuilder will search for pages similar to the profile." *Id.* at 63. Thus, Wasfi discloses sending user profiles (i.e., user interest information) to third party web servers, whereby the third party web servers may customize their interaction with the user.

(c) Wasfi anticipates claim 22

Claim 22 depends from claim 1, and further requires **"wherein the monitored user interactions include a sequence of interaction times."** Wasfi discloses that "[t]o track user presence, a timeout mechanism is used to delete user's session information after a predetermined amount of idle time. So that, a connection after the specified period having the same IP is identified as a new user." *Id.* at 60. Thus, Wasfi discloses monitoring a sequence of interaction times as part of its user interaction monitoring.

(d) Wasfi anticipates claim 32

Independent claim 32 recites **"A program storage device accessible by a central computer, tangibly embodying a program of instructions executable by the central computer to provide method steps for providing automatic, personalized information services to a user u, the method steps comprising [steps (a)-(f) from claim 1]."** As discussed above, Wasfi discloses steps (a)-(f) from claim 1 as a method for "providing automatic, personalized information services to a user u." Wasfi also discloses that its ProfBuilder program "inhabits a website," *id.* at 60, and thus could be accessible by a central computer. Moreover, "ProfBuilder was built in a highly multi-threaded

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fashion using Java language," *id.*, which is a program language executable by a central computer.

8. Proposed Rejection #8

Claim 11 is rejected under 35 U.S.C. § 103(a) over Wasfi in view of Culliss.

Claim 11 depends from claim 1, and further requires "**estimating a posterior probability $P(u/d, q)$ that the document d is of interest to the user u , given a query q submitted by the user.**" Culliss discloses a system that "utilizes personal data to [] refine search results." *See*, Culliss at 3:12-13. "[T]he invention can accept a search query from a user and a search engine will identify matched articles and display squibs of the matched articles in accordance with their comparison scores." *Id.* at 2:39-42.

Reasons to Combine Wasfi and Culliss

Combining Wasfi's personalized list of WebPages with Culliss' personalized list of articles in response to user queries would have been obvious to one skilled in the art. Wasfi recognized that WebPages can simply be digital embodiments of articles, and thus "articles" can be presented to a user just as "WebPages" can be. *See* Wasfi at 58 (disclosing CNN news articles as exemplar web pages). Moreover, by the time the '040 patent application was filed in June 2000, search engines that responded to user queries were very well known in the art. It thus would have been obvious to apply Wasfi's method to the search engine context, as disclosed by Culliss. Such a combination would be the mere application of a known technique (Wasfi) to a known field (Internet search engines) and would yield a predictable result.

To put it another way, the personalized filtering disclosed by Wasfi analyzes local pages drawn from a host Web site. *See* Wasfi at 60 ("ProfBuilder inhabits a Web site and is assigned the goal of finding relevant local pages for the site's users.") But rather than analyzing the pool of local pages on a host web site, it would be just as feasible (and obvious) to use Wasfi's method to analyze a pool of search results generated in response to a user query.

9. Proposed Rejection #9

Claim 22 is rejected under 35 U.S.C. § 103(a) as being obvious by Wasfi in view of Culliss.

Claim 22 depends from claim 1, and further requires "**wherein the monitored user interactions include a sequence of interaction times.**" Even if Wasfi did not disclose this element, Culliss discloses that articles can be analyzed and ranked according to "how much time the user spent with the article." *See* Culliss at 2:43-46 ("Articles can have their key term scores or key term total scores altered according to whether they were displayed to a user, whether they were selected by a user, how much time the user spent with the article, etc.") (emphasis added). It would have been obvious to one skilled in the art at the time of the invention to modify Wasfi to include an analysis of user interaction times in judging which documents would be of most interest to a user. This combination would be the mere application of a known technique to a known system ready for improvement and would yield a predictable result.

10. Proposed Rejection #10

Claim 34 is rejected under 35 U.S.C. § 103(a) as being obvious by Wasfi in view of Culliss.

Claim 34 depends from Claim 32, and further requires "**wherein analyzing the document d provides for the analysis of documents having multiple distinct media types.**" Culliss discloses that the "articles" which are ranked and presented to the user may include multiple distinct media types, such as "text collections, audio clips, video clips and samples of any other type of information." *See* Culliss at 2:20-21. It would have been obvious to one skilled in the art to combine Wasfi with Culliss, such that Wasfi's method could be used to analyze web pages of multiple media types. Indeed, by the time the '040 patent application was filed in June 2000, it was well known that web pages

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could contain the multiple types of media disclosed by Culliss - *i.e.*, text, audio files, video files, *etc.*

C. Primary Reference, Refuah

11. Proposed Rejection #11

Claims 1, 21, 22, 32, and 34 are rejected under 35 U.S.C. § 102(e) as being anticipated by Refuah.

(a) Refuah anticipates claim 1

(i) A computer-implemented method for providing automatic, personalized information service to a user u, the method comprising.

Refuah discloses "a method of aiding information search and retrieval on the Internet. In a preferred embodiment of the invention, Internet searching is personalized to a particular user's profile." PA-C, Refuah at 1:63-66.

(ii) transparently monitoring user interactions with data while the user is engaged in normal use of a computer;

Refuah discloses "tracking interactions of the user with an Internet." *Id.* at Abstract. Refuah also discloses that "[s]uch tracking is preferably achieved using a standalone program which monitors the browser and/or TCP/IP connection." *Id.* at 5:59-61. Monitoring the user's Internet browser and IP connection will inherently include monitoring "normal" use of the computer, such as standard Internet browsing. *See also id.* at 19:20-22 ("In a preferred embodiment of the invention, a persona of a client may be automatically generated by tracking the way a client interacts with the Internet.")

(iii) 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;

Refuah discloses "analyzing said tracked interactions to determine at least one aspect of a user's interaction with the Internet." *Id.* at 8:17-18. "In a preferred

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embodiment of the invention, said analyzing comprises analyzing previously acquired tracking data." *Id.* at 8:30-31. This data includes a set of documents associated with the user; e.g., one or more websites visited by the user. *See id.* at 5:35-37 ("In a preferred embodiment of the invention, the mood is updated based on the one or more identification of sites visited by the user.")

(iv) 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;

Refuah discloses assigning a user a "persona." *See generally id.* at col. 2. "In a preferred embodiment of the invention, a mood and/or a persona may be updated by modifying continuous parameters." *Id.* at 6:5-7. Specifically, "a parameter may be reflexive towards the persona, for example defining how to modify the persona and/or a mood based on user activities." *Id.* at 6:60-62. Accordingly, the parameters define the "user model" (persona) specific to the user, and these parameters are "estimated in part from the user-specific data files" because they are "based on user activities."

As noted *above*, PUM has proposed construing "learning machine" as "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." Request, OTH-B at 18. PUM has also proposed construing "User Model specific to the user" as "an implementation of a learning machine updated in part from data specific to the user." *Id.*

(v) analyzing a document d to identify properties of the document;

Refuah discloses analyzing a document d to identify properties of the document. *See Refuah*, at 20:31-34 ("a site may be automatically evaluated by tracing the personas and/or moods of clients who visit the site and/or remain at the site for a significant period of time."); 21:6-10 ("an atmosphere of a site may be automatically evaluated by analyzing the content of a site, in addition to or instead of utilizing a client's reaction to the site or statistics of accessing the site. Various characteristics of a site may be

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automatically determined.") Moreover, Refuah discloses analyzing the "words and/or phrases used by [] the site", *id.* at 21:15-16, and this word/phrase analysis is the same traditional document analysis disclosed in Wasfi, Mladenic, etc.

(vi) 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

Refuah discloses that "[i]n the evaluation technique, a site is evaluated for suitability and/or qualities which are preferred and/or match a particular persona." *Id.* at 17:44-46. This "evaluation of suitability" clearly qualifies as "estimating a probability" that the document is of interest to the user, as PUM has construed "estimating a probability $P(u/d)$ that an unseen document d is of interest to the user" as "approximating or roughly calculating the degree of belief or likelihood that an unseen document d is of interest to the user." Request, OTH-B at 23.

The evaluation of suitability disclosed in Refuah also extends to "unseen" sites. For instance, Refuah discloses how "when a user enters a book-seller's web site, even if the user has never been at the book-seller, he may be offered books which match his persona and/or mood." *See*, Refuah at 3:65-4:1 (emphasis added). In this example, different books that may be evaluated and presented to the user are different "documents." Refuah also discloses how the parameters of the user's persona are used to determine the suitability and interestingness of documents. *See id.* at 17:49-56 ("the presentation of search results may also be parameters of the persona. In one example, the persona can dictate whether or not to grade sites or information files and whether or not to limit the results using criteria such as geographical criteria. Thus, in one case, a strong match will be shown even if its associated geographical location is 1000 miles away. In the other case, only hits having an associated geographical location within 50 miles are shown.")

(vii) using the estimated probability to provide automatic, personalized information services to the user.

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As discussed above, Refuah discloses this element. *See id.* at 3:65-4:1 ("when a user enters a book-seller's web site, even if the user has never been at the book-seller, he may be offered books which match his persona and/or mood"); 17:49-50 ("In a preferred embodiment of the invention, the presentation of search results may also be parameters of the persona.")

(b) Refuah anticipates claim 11

Claim 11 depends from claim 1, and further requires "**estimating a posterior probability $P(u/d, q)$ that the document d is of interest to the user u , given a query q submitted by the user.**" Refuah discloses this element. *See id.* at 17:20-30 ("a persona is used to personalize information retrieval. Such personalization can affect many modes of information retrieval, including search engines... It should be noted in this context that search engines return matches for a particular query, while personality and mood are designed to affect the results of substantially any query..") (emphasis added).

(c) Refuah anticipates claim 21

Claim 21 depends from independent claim 1, and further requires "**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.**" Refuah, which discloses the use of a user's "mood" and "persona" (collectively "personality") to affect the web pages provided to the user, explains that "the personality may be used when entering any WWW site to provide personally tailored service." *Id.* at 3:47-49; see also *id.* at 4:59-61 ("in a preferred embodiment of the invention, only portions of the persona and/or mood are provided to each site.") Refuah thus discloses sending user interest information (embodied by the user's "personality") to third-party web servers that host various WWW sites.

(d) Refuah anticipates claim 22

Claim 22 depends from claim 1, and further requires "**wherein the monitored user interactions include a sequence of interaction times.**" Refuah discloses monitoring the user's interaction times to determine the user's mood, which affects the

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web pages displayed to the user. For instance, "a 'rush' mood [] may be identified by tracking whether a user waits until images are downloaded [or] whether a user waits for a complete site to download." *Id.* at 5:42- 45.

(e) Refuah anticipates claim 32

Independent claim 32 recites "**A program storage device accessible by a central computer, tangibly embodying a program of instructions executable by the central computer to provide method steps for providing automatic, personalized information services to a user u, the method steps comprising [steps (a)-(f) from claim 1].**" As discussed above, Refuah discloses steps (a)-(f) from claim 1 as a method for "providing automatic, personalized information services to a user u." Refuah also discloses that the persona (and mood) may be embodied as a program storage device accessible by a central computer. *See id.* at 4:7-11 ("the personalization information may be stored by a persona-service. Preferably, a user enters some type of identification, such as a code number, so that the service identified the user. In some preferred embodiments of the invention, the persona are stored at a central location.") Refuah also discloses that the persona and mood may be executed by the central computer as a program of instructions. *See id.* at 4:14-16 ("In a preferred embodiment of the invention, the personality and/or portions thereof may be stored as scripts to be executed and/or as parameters for pre- defined functions") (emphasis added); *id.* at 18:61-63 ("a Java applet and/or a JavaScript script may utilize persona information in their execution.")

(f) Refuah anticipates claim 34

Claim 34 depends from Claim 32, and further requires "**wherein analyzing the document d provides for the analysis of documents having multiple distinct media types.**" Refuah discloses the analysis of websites, *see id.* at 20:31-34, and it was well-known when the Refuah patent application was filed in 1999 that websites could include multiple types of media. Thus, Refuah inherently provides for the analysis of documents having multiple distinct media types. Moreover, as noted above, PUM has accused Google of infringing Claim 34 because "Google AdWords analyzes ads having a variety of distinct media types. For example, ad formats may include: text, image, animation,

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video, audio, mobile, gadgets & print." Request, OTH-D, Attachment A at 14. These types of media - text, image, animation, video, audio, etc. - are the same types of media that have long been elements of websites, both at the time the Refuah application was filed in 1999 and thereafter.

12. Proposed Rejection #12

Claims 1, 21, 22, 32, and 34 are rejected under 35 U.S.C. § 103(a) as being obvious over Refuah in view of Mladenic.

Claims 1 and 32 (to which all other claims in this Request depend) include the element of "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." Even if Refuah did not disclose this element, Mladenic discloses a "learner" module which uses the documents that the user visited "to generate model of user interests." Request, PA-A, Mladenic at 7; *see also id.* at 3 ("[i]n the learning phase (typically during the night), requested pages are analyzed and a model of user interests is generated/updated.") This model is specific to each user. *See id.* ("Personal WebWatcher (PWW) is structured to specialize for a particular user, modeling her/his interests.") The model's parameters are determined by "parsing each document, assigning an index to each word... [and] calculating score (information gain) for each word." *Id.* at 9.

Reasons to Combine Refuah and Mladenic

It would have been obvious to combine Refuah's method with the "learner" and "model of user interests" disclosed by Mladenic. As noted above, Refuah discloses a method of "Internet searching [that] is personalized to a particular user's profile," *See*, Refuah at 1:63-66, while Mladenic's learner/user model likewise determines personal user interests in order to determine which pages are presented to an Internet user. Thus, combining Refuah with the learner/user model of Mladenic would merely have involved fusing two known pieces of prior art, each retaining its ordinary and established function.

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This combination would have been "obvious to try" and would have been well within the grasp of person of ordinary skill in the art.

Claims 1 and 32 also include the element of **"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"** Even if Refuah did not disclose this element, Mladenic discloses estimating the probability that an unseen document D is of interest to a user u by using "It]he model of user interests [] to predict if some document is positive or negative example of user interests." See Mladenic at 10 (emphasis added). It would have been obvious to combine Refuah with the probability predications disclosed by Mladenic. As noted above, Refuah discloses a method of "Internet searching [that] is personalized to a particular user's profile," See Refuah at 1:63-66, while Mladenic's probability predictions enable this sort of personalization by determining which documents are likely to be of interest to the user. Thus, combining Refuah with the probability predictions of Mladenic would merely have entailed fusing two known pieces of prior art, each retaining its ordinary and established function. This combination would have been "obvious to try" and would have been well within the grasp of person of ordinary skill in the art.

D. Primary Reference, Culliss

13. Proposed Rejection #13

Claims 1, 11, 22, 32, and 34 are rejected under 35 U.S.C. § 102(e) as being anticipated by Culliss.

(a) Culliss anticipates independent claim 1

(i) A computer-implemented method for providing automatic, personalized information services to a user u , the method comprising:

Culliss is entitled "Personalized Search Methods," and discloses a method of "utilizing personal data to further refine search results." PA-D, Culliss at 3:12-13.

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(ii) transparently monitoring user interactions with data while the user is engaged in normal use of a computer;

Culliss discloses transparently monitoring user interactions with data while the user is engaged in normal use of a computer. For instance, Culliss explains that:

"Users can explicitly specify their own personal data, or it can be inferred from a history of their search requests or article viewing habits. In this respect, certain key words or terms, such as those relating to sports (i.e. 'football' and 'soccer') can be detected within search requests and used to classify the user as someone interested in sports. Also, certain known articles or URLs can be detected in a users [sic] searching or browsing habits, such as those relating to CNNfn (www.cnnfn.com) or Quote.com (www.quote.com), and also used to classify the user as someone interested in finance."

Id. at 3:46-56

(iii) 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;

As noted *above*, Culliss discloses that users' personal data "can be inferred from a history of their search requests or article viewing habits." *Id.* at 3:46-48. Culliss further discloses that "it is possible to simply store all elements of personal data, individually or in key term groupings, within the index separately, with components of the query or otherwise." *Id.* at 5:37- 39 (emphasis added). These personal data elements are also "updated" as the user continues to navigate the Internet and visit documents and URLs. *See id.* at 4:60-64 (disclosing "keeping a cumulative score for a user for search requests or URLs. For example, whenever there is a match (whole or partial) between a search request or URL and an item of personal data, a record for the user can be updated to give a +1 for that item of personal data.")

(iv) 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;

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Culliss discloses that a user model specific to the user can be estimated in part from the user-specific data files. In the example given in Column 4 of Culliss, "the user can be identified as having the personal data characteristic of being a sports fan and having an interest in finance because there are three queries relating to sports ('sports scores,' 'football,' and 'nba') and five queries containing key words relating to finance ('stock quotes,' 'cnfn,' 'junk bonds,' 'stock quotes,' and 'dowjones.')" *Id.* at 4:54:60.

To be sure, Culliss classifies users as belonging to certain groups (in the above example, sports fans or persons interested in finance) and provides personalized results based in part on the user's group membership. *See, e.g., id.* at 8:63-9:1 ("Here, the previous-user relevancy scores of the queries or groupings Pump-Shoes-Men and Pump-Shoes-Women are different, whereas the previous-user relevancy scores of the queries or groupings Pump-Shoes-Doctor and Pump-Shoes-Lawyer are somewhat similar. The personal data of gender (i.e., male or female) is then considered relevant.") Nonetheless, PUM has argued in the Pending Litigation that a User Model may be "specific to the user" even if it serves as a model for other users as well. According to PUM, a User Model is "specific" to a user simply if it is derived from data from that user. *See* OTH-C at 2-3 ("Defendant incorrectly argues that the 'user model specific to the user' and 'user-specific learning machine' elements must be 'unique' to each individual user... PUM's construction contemplates that the 'specific to the user/'user-specific,' aspects of the learning machine/user model occur because they are defined by 'parameters,' which are specific to each user."); *see also* Request, OTH-B at 22 fn. 14 (arguing that a User Model is "specific" to a user if the model is "associated with the specific user.") Thus, in Culliss, the fact that a User Model is defined by user-specific information (e.g., defining the user as a sports fan, a person interested in finance, a woman, and/or a lawyer) means that the User Model is "specific to the user" under PUM's interpretation.

Culliss further discloses estimating parameters of a learning machine. It employs a mathematical function of data scores to define this learning machine. *See id.* at 4:65-5:4 ("A cumulative score can be developed for the user for each item of personal data, called a personal data item score. When the personal data item score of the user reaches a certain threshold, then the item of personal data can be said to be associated with the user.

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Additionally or alternatively, the strength of the association can be determined by the cumulative personal data item score.")

See also Request, OTH-B at 18 (construing "learning machine" as "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."); *see also id.* (construing "User Model specific to the user" as "an implementation of a learning machine updated in part from data specific to the user.")

(v) analyzing a document d to identify properties of the document;

Culliss discloses analyzing a document d to identify properties of the document. *See* Culliss at 2:25-36 ("the present invention maintains an index of key words, terms, data or identifiers in English or other languages, computer code, or encryption which are collectively referred to as key terms... The articles can each be associated with one or more of these key terms by any conceivable method of association now known or later developed. A key term score is associated with each article for each of the key terms.") (emphases added).

(vi) 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

Culliss discloses that, when a user enters a search request, the search request and the user's personal data are combined to form various groupings: key term groupings, category and personal data groupings, etc. *See id.* at 5:40-45. Based on these groupings, the system determines how relevant a given document d is to the searching user u.

As noted *above*, PUM has construed "estimating a probability $P(u/d)$ that an unseen document d is of interest to the user" as "approximating or roughly calculating the degree of belief or likelihood that an unseen document d is of interest to the user," OTH-B at 23.

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See id. at 5:45-48 ("Articles associated with these groupings are then retrieved from the index, and their relevancy scores are used or combined to determine their rankings.") Nothing in Culliss requires that these documents (which are analyzed and given relevancy scores) be previously seen by another user.

(vii) using the estimated probability to provide automatic, personalized information services to the user.

Culliss discloses using the estimated probability to provide automatic, personalized information services to the user. *See* Culliss at 2:39-42 ("the invention can accept a search query from a user and a search engine will identify matched articles and display squibs of the matched articles in accordance with their comparison scores.")

(b) Culliss anticipates dependent claim 11

Claim 11 depends from claim 1, and further requires **"estimating a posterior probability $P(u/d, q)$ that the document d is of interest to the user u , given a query q submitted by the user."** As described above, Culliss meets this limitation. *See id.* at 5:40-48 ("When the next user enters a search request, the search request and the user's personal data are combined to form groupings ... Articles associated with these groupings are then retrieved from the index, and their relevancy scores are used or combined to determine their rankings.")

(c) Culliss anticipates dependent claim 22

Claim 22 depends from claim 2, and further requires **"wherein the monitored user interactions include a sequence of interaction times."** Culliss meets this limitation. *See id.* at 2:43-46 ("Articles can have their key term scores or key term total scores altered according to whether they were displayed to a user, whether they were selected by a user, how much time the user spent with the article, etc.")

(d) Culliss anticipates independent claim 32

Independent claim 32 recites **"A program storage device accessible by a central computer, tangibly embodying a program of instructions executable by the central**

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computer to provide method steps for providing automatic, personalized information services to a user u, the method steps comprising [steps (a)-(f) from claim 1]." As discussed above, Culliss discloses steps (a)-(f) from claim 1 as a method for "providing automatic, personalized information services to a user u." Culliss also discloses that "It]he personal data, scores for determining the personal data based on personal activity, *etc.* can be stored in the form of what are commonly known in the computer industry as 'cookies,'" *id.* at 11:37-40, which are inherently accessible and executable by a central computer.

(e) Culliss anticipates independent claim 34

Claim 34 depends from Claim 32, and further requires "**wherein analyzing the document d provides for the analysis of documents having multiple distinct media types.**" Culliss discloses that the "articles" which are ranked and presented to the user may include multiple distinct media types, such as "text collections, audio clips, video clips and samples of any other type of information." *Id.* at 2:20-21.

In this regard, it should be noted that PUM in his infringement contentions arguing that Claim 34 "Google AdWords analyzes ads having a variety of distinct media types. For example, ad formats may include: text, image, animation, video, audio, mobile, gadgets & print." OTH-D, Attachment A at 14. These various types of media include precisely the types of media that can be analyzed in Culliss.

14. Proposed Rejection #14

Claims 1, 11, 22, 32, and 34 are rejected under 35 U.S.C. § 103(a) as being obvious over Culliss in view of Mladenic.

Claims 1 and 32 (to which all other claims in this Request depend) include the element of "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." In the event that the Patent Owner argues that Culliss do not disclose this element, Mladenic discloses a "learner" module which uses the documents

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that the user visited "to generate model of user interests." *See* Mladenec at 7; *see also id.* at 3 ("[i]n the learning phase (typically during the night), requested pages are analyzed and a model of user interests is generated/updated.") This model is specific to each user. *See id.* ("Personal WebWatcher (PWW) is structured to specialize for a particular user, modeling her/his interests.") The model's parameters are determined by "parsing each document, assigning an index to each word... [and] calculating score (information gain) for each word." *Id.* at 9.

Reasons to Combine Culliss with Mladenec

It would have been obvious to combine Culliss's method with the "learner" and "model of user interests" disclosed by Mladenec. As noted above, Culliss discloses a method of "utilizing personal data to further refine search results," *See* Culliss at 3:12-13, while Mladenec's learner/user model likewise determines personal user interests in order to refine the web pages that are presented to the user. Thus, combining Culliss with the learner/user model of Mladenec would merely have involved fusing two known pieces of prior art, each retaining its ordinary and established function. This combination would have been "obvious to try" and would have been well within the grasp of person of ordinary skill in the art.

Moreover, Mladenec discloses how each user can run his or her own local copy of personalization software. *See* Mladenec at 3 ("each user has her/his own copy of the system - her/his own agent ...") Applying this teaching of Mladenec to Culliss, it would have been obvious to modify Culliss such that each computer user had his or her own local copy of Culliss' disclosed system, employing a User Model specific to the user.

Claims 1 and 32 also include the element of "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." Even if Culliss did not disclose this element, Mladenec discloses estimating the probability that an unseen document D is of interest to a user u by using "[t]he model of user interests [] to predict if some document is positive or negative example of user interests." *See* Mladenec at 10 (emphasis added). It

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would have been obvious to combine Culliss with the probability predications disclosed by Mladenic. As noted above, Culliss discloses a method of "utilizing personal data to further refine search results," *See* Culliss at 3:12-13, while Mladenic's probability predictions enable just this sort of "refining" process by determining which documents are likely to be of interest to the user. Thus, combining Culliss with the probability predictions of Mladenic would merely have entailed fusing two known pieces of prior art, each retaining its ordinary and established function. This combination would have been "obvious to try" and would have been well within the grasp of person of ordinary skill in the art.

15. Proposed Rejection #15

Claim 21 is rejected under 35 U.S.C. § 103(a) as being obvious over Culliss in view of Refuah.

Claim 21 depends from independent claim 1, and further requires "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." Refuah, which discloses the use of a user's "mood" and "persona" to affect the web pages provided to the user, explains that "the personality [i.e., mood and persona] may be used when entering any WWW site to provide personally tailored service." *See* Refuah at 3:47-49 (emphasis added); *see also id.* at 4:59-61 ("in a preferred embodiment of the invention, only portions of the persona and/or mood are provided to each site.") Refuah thus discloses sending user interest information (embodied by the user's "personality") to third-party web servers that host various WWW sites.

Thus, while Culliss discloses a personalized list of recommendations that is generated by analyzing and filtering documents at the user's computer, Refuah discloses that the document analysis and filtering may take place at a third-party site - the site that the user is accessing. Applying this teaching of Refuah to Culliss would have been obvious to one skilled in the art, as it merely would have shifted the location where the document analysis and filtering takes place.

16. Proposed Rejection #16

Claim 21 is rejected under 35 U.S.C. § 103(a) as being obvious over Culliss in view of Mladenic and Refuah.

As noted *above*, even if Culliss does not disclose elements (iv) and (vi) from independent claim 1, Mladenic discloses these elements. *See supra* Section V(B)(13). Moreover, as discussed immediately above, Refuah discloses the additional limitation in claim 21. Thus, claim 21 is rendered obvious by the combination of Culliss, Mladenic, and Refuah.

VII. RESPONSE TO ARGUMENTS

At the outset it must be pointed out that the Examiner is aware that determination of claim scope during litigation involves different standards of proof and rules of claim construction however, "in rejecting claims the examiner may rely upon admissions by applicant or the patent owner as to any matter affecting patentability[.]" *See* 37 C.F.R. § 1.104(c)(3).

A. Patent Owner's arguments - Section 1., titled; "Response to Rejections Based on Primary reference Mladenic."

1. Response to argument that Mladenic is not prior art

The Patent Owner at page 5 footnote 2, asserts that the Mladenic reference is not prior art to the '040 patent. Arguing that, because the reference bears no date of publication, "its status as a reference suitable for consideration under either 35 USC 102(a) or 102(b) has not been established by the Examiner". Requester in response providing a signed declaration from Ms. Dunja Mladenic as evidence, testifying that her "Personal WebWatcher: design and implementation" article was published as Technical Report IJS-DP-7472 by the J.Stefan Institute, Slovenia in 1996. Based on the evidenced provided, Examiner is convinced that the requester reasonably established that the first version of "personal WebWatcher", used in the rejection was published at least in 1996

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and therefore, Mladenic is appropriately considered prior art to the '040 Patent under 35 USC 102(a) and 102(b).

2. Response to argument that claims 1, 11, 32, and 34 are not anticipated by Mladenic

a. Mladenic discloses Transparently monitoring

At pages 8-9, the Patent Owner asserts that Mladenic does not “transparently monitor user interface”. Arguing that since highlights that are believed to point to Web pages of interest to a user are specifically called out through highlighting or other modification “[r]eturing pages that are specially highlighted and/or annotated... is not ‘transparently monitoring.’”

Examiner noted that the Patent Owner’s argument is not persuasive. First, the Patent Owner is not clear as to where Mladenic teaches that: “highlights that are believed to point to Web pages of interest to a user are specifically called out” and how it is related to “monitoring”.

Second, the Konig ‘040 patent also discloses highlighting as a part of “providing automatic, personalized information service to a user” (required by claim 1). See for example the ‘040 patent discloses that as part of personalizing browsing discloses:

“For example, the CNN home page includes several potential lead articles, and only the one that is most interesting to the user is displayed. In a second embodiment, links on a page are shown only if the page to which they link is of interest to the user. For example, following the lead article on the CNN home page are links to related articles, and only those of interest to the user are shown or highlighted.” *Id.* at 29:28-36.

And later on discloses:

“In this application, the hyperlinks in a document being viewed by the user are graphically altered, e.g., in their color, to indicate the degree of interest of the linked documents to the use.” *Id.* at 29:42-46.

Accordingly, in one of the claimed embodiment of the ‘040 patent specification, the same type of highlighting and the pages are highlighted for providing automatic personalized information service to the user. Similar to the ‘040 patent, in Mladenic, highlighting is provided to provide automatic, personalized information service to the user, and this feature must be mapped against the “providing personalized information”

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service to the user" limitation of claims by the Patent Owner. Examiner concurs with the Requester that comments, the personalized, annotated pages created by Mladenic relate to the "provid[ing] automatic, personalized information services to the user" limitation of claim 1[f], not the "transparently monitoring" limitation of claim 1 [a]. Arguing that, the Patent owner is reading the transparency requirement from the "monitoring" limitation to apply to the "providing personalized services" limitation.

Third, the '040 patent specification with respect to "transparently monitoring" in the 'Background Art' of the invention specifically discloses: "The earliest collaborative filtering systems required explicit ratings by the users, but existing systems are implemented without the user's knowledge by observing user actions." *Id.*, at 2:23-26. Therefore, Mladenic transparently monitors user interaction, because Mladenic discloses a Personal WebWatcher that; "watches over the user's shoulder.., but it avoids involving the user in its learning process (it doesn't ask the user for any keywords or opinions about pages). It solely records the addresses of pages requested by the user and highlights hyperlinks that it believes will be of interest." (Mladenic at 3.) As such Mladenic discloses claim feature of : "transparently monitoring user interactions with data while the user is engaged in normal use of a computer" (claim 1[a]), according to the definition provided in the '040 specification, since the system learns by observing user-actions rather than requiring feedback from the user.

b. Mladenic discloses Analyzing a document d to identify properties of the document

The Patent Owner asserts that Mladenic, does not teach "Analyzing a document d to identify properties of the document". Arguing that Mladenic fails to teach "analyzing document" because, Personal WebWatcher "predicts interestingness of a document based on the hyperlink pointing to it, and not on the document itself." Arguing that the claim is concerned with the properties of the unseen document and "[T]hese properties are identified through analysis of the unseen document" and not the currently viewed document. (Response at 9.)

These arguments are not persuasive. First, the claims, for example claim 1 [d] recites:

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“analyzing a document d to identify properties of the document”.

First, “[i]t would be error ... to entertain a phrase that only introduces new limitations and subjective ambiguity into the claims where none existed before.” Yet the Patent Owner attempts to introduce new limitations and ambiguity into the claims where none existed before. For example, the Patent owner introduces the limitation that the claimed “analyzing” must be related to unseen document, but the analyzing feature does not require any specific of the type of document to be analyzed. It is noted that the word “unseen” comes after the analyzing document in step (e) “that an unseen document d is of interest”. As such the analyzing step does not necessarily must be interpreted to mean unseen document.

Second regarding the argument that hyperlink pointing to the document is analyzed and not the document itself, the argument is not persuasive. Mladenic discloses that:

“Some later versions of the WebWatcher system change slightly the way of constructing text for learning, e.g. adding words in the document retrieved behind hyperlink. Many current systems that learn on text use the bag-of-words representation using either Boolean features indicating if specific word occurred in document (eg. [2], [8], [23], [26], [35]) or frequency of word in a given document (eg. [1], [3] [4], [5], [17], [35]). There is also some work that uses additional information such as word position [8] or word tuples called n-grams [33].” *Id.*, at page 4.

As understood from the above excerpts, there are versions of the WebWatcher that analyzes the document behind the link because, Mladenic referring to the version that adding word in the document behind hyperlink.

Howevare, later at page 10, teaches:

“Since the prediction should be performed while user is waiting for a HTML-document, we are actually predicting interestingness of document based on the hyperlink pointing to it, and not document itself (retrieving documents behind the requested hyperlinks is usually time consuming)”

“What we use is an extended representation of hyperlink (see Section 4.1), that tries to capture information related to the document behind a hyperlink. But during the learning phase we can afford using more time than when adding advice, so why not retrieving documents behind hyperlinks, instead of using the extended hyperlink representation? In that case, we can learn the model of user

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interests directly from documents whose interestingness we are trying to predict”
Id. pg. 10-11.

As such Mladenec recognizes analyzing the whole document however, since the prediction should be performed while the user is waiting for a HTML-document, the prediction on the interestingness of document is based on hyperlink pointing to it, and not document itself. Examiner noted that, even when the prediction is based on the hyperlink itself, i.e., in extended hyperlink representation (in section 4.1), this teaching reads on the broad language of the claim because, it is the document that is analyzed to find other links in order to find the interestingness of other links. As such, Mladenec teaches “analyzing a document d to identify properties of the document” and the Patent Owner erred arguing that Mladenec fails to teach this limitation.

The Third Party requester’s comments at pages 4-5 of the Comments the same as the Examiner’s; thus, the Examiner’s position is convinced by the Third Party requester’s comments.

c. Mladenec discloses estimating parameters ... user-specific data files

The Patent Owner asserts that Mladenec does not teach 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, as recited in claim 1. Arguing that in Mladenec, in producing the model of user interest, the “learner” portion of Personal Web Watcher does not estimate parameters of a learning machine, and instead, the “learner” assembles a scored words map that is used for comparison purpose whenever hyperlinks are encountered. The Patent Owner concludes that the “score word map” described in Mladenec does not rise to the level of the learning machine with parameters estimated from user-specific data files recited in claim 1.

This argument is not persuasive. Examiner noted that the specification of the Konig ‘040 patent, with regards to parameters of the User model states:

FIGS. 4A-4E illustrate tables that store different components and parameters of the User Model. *Id.*, 6:13-14

Words

Scores

Informative Word/Phrase List

Word ID	Word Grade	Last Access Time	Number of Accesses
Vegan	0.86	3/6/2000 12:22:41	173
Parasail	0.72	4/15/2000 18:51:27	220

Fig. 4A

Looking at Fig. 4A, for example, it is noticed that there is a score named 'Word Grade' associated with each word that is identified with a 'Word ID'.

The specification further states that:

"The informative word and phrase list of FIG. 4A contains the most informative words and phrases (i. e., 'words') found in user documents, along with a measure of each informative phrase or word's importance to the user (i.e., 'scores')." *Id.* at 10:52-55.

"Other techniques rate documents using the TFIDF (term frequency, inverse document frequency) measure: *Id.*, 1:53-55

"a preferred embodiment uses the TFIDF measure" *Id.*, 11:12-13

As such the score associated with the word is used to estimate parameters of a learning machine. Examiner noted that same measure used in Kong '040 patent is described in Mladenic for learning machine with parameters estimated from user-specific data files. See for example Mladenic at 3-4 ("[t]he frequently used document representation in Information Retrieval and text learning is the so called TFIDF-vector representation. It is a bag-of-words representation... [w]e decided to use the bag-of-words

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representation.") *Id.* at 11:4-20;). See also section 3.3 where Mladenich teach of how to find the probability of class c document doc that contains word c.

Additionally, even if the Mladenich model does not rise to the level of the learning machine (which the Examiner does not concede since this is not the case), any model that is a learning machine is within the scope of the invention in '040 patent. See for example the '040 patent specification states:

"The User Model 13, with its associated representations, is an implementation of a learning machine. As defined in the art, a learning machine contains tunable parameters that are altered based on past experience. Personal Web 12 stores parameters that define a User Model 13 for each user, and the parameters are continually updated based on monitored user interactions while the user is engaged in normal use of a computer. While a specific embodiment of the learning machine is discussed below, it is to be understood that any model that is a learning machine is within the scope of the present invention." *Id.*, 8:43-53
[Underlining provided]

The Mladenich has disclosed a learning machine as noted by the Patent Owner and the patent Owner provides no reasoning as to why the method described in Mladenich for learning machine and the parameters from user-specific data files estimated does not rise to the level of learning machine with parameters estimated from user-specific data files recited in claim 1.

The Examiner concurs with the requester that it appears that the Patent owner's assertion regarding the scope of the "learning machine" limitation excludes the preferred embodiment of the invention. *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) (a construction that excludes "a preferred [] embodiment in the specification" is "rarely, if ever, correct.") *Id.* Requester's comment at page 7.

d. Mladenich discloses computing posterior probability based on a query

The Patent Owner with respect to claim 11 asserts that the WebWatcher in Mladenich cannot determine a posterior probability that a document is of interest to the user. Arguing that Mladenich is describing the previously developed WebWatcher, which "is designed to serve all users". Because WebWatcher is concerned with all users, and not

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the user, it follows that WebWatcher cannot and does not determine a posterior probability that a document is of interest to the user.

These arguments are not persuasive. It appears that the Patent Owner is arguing that since the WebWatcher is determine the probability that a document is of interest to all users, it cannot or perhaps it would take undue experimentation to use the system for determining the probability that a document is of interest to a user. However, this is purely a miss characterization of the system disclosed in Mladenic reference and, the Patent owner is selecting and choosing portions of the reference without regards for other teachings in the reference. First, Mladenic specifically is concerned with finding interest probability of a user. For example he discloses that:

“unlike WebWatcher, he personal WebWatcher (PWW) is structured to specialize for a particular user modeling her/his interests. It watches over the user's shoulder the similar way WebWatcher does, but it avoids involving the user in its learning process (it doesn't ask the user for any keywords or opinions about pages). It solely records the addresses of pages requested by the user and highlights hyperlinks that it believes will be of interest” *Id.* pg. 3 [Underlining not in original]

As seen from the above teaching, Mladenic discloses personalization services that uses a query. Examiner noted that the Patent owner in the argument attempting to distinguish Mladenic in view of Culliss, acknowledges this fact by stating: “Mladenic already returning search results in response to a query and highlighting links in those search results.” (response at 14).

Even in the version argued by the Patent Owner that the interest of other users is used in determining probability that the document is of interest to ‘the user’, still ‘the user’s’ interest is considered as input to the learner. See for example, he teaches that:

“It learns by observing a user on her/his way through the WWW and suggests interesting hyperlinks whenever confident enough”. *Id.* at pg. 2, under “personalizing Web Watcher”

In other words ‘a user’ is a subset of ‘the users’ and that version of WebWatcher taught by Mladenic still reads on the claim language, because it would take undue experimentation to use the system in a smaller scale for a user and its interest and build the learner based on ‘a user.’

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The Third Party requester's comments at pages 7-8 of the Comments the same as the Examiner's; thus, the Examiner's position is convinced by the Third Party requester's comments.

e. Mladenic anticipates claims 32 and 34

The Patent Owner at pages 12-13 argues the patentability of claims 32 based on the arguments presented with respect to claim 1, and arguing that claim 32 fails to teach "transparently monitoring," "analyzing a document," and "estimating parameters" limitations that are also present in claim 1.

With respect to claim 34, the Patent Owner argues that "Because of its dependency from claim 32, claim 34 is not anticipated by Mladenic for at least the same reasons as claim 32." The Patent Owner does not provide any additional arguments regarding claim 32 and 34.

The Examiner is not persuaded by the Patent Owner's arguments. For the reasons discussed in response to arguments regarding claim 1, it is submitted that Mladenic in fact anticipates the "transparently monitoring," "analyzing a document," and "estimating parameters" features of claims 32 and 34. Those arguments are incorporated herein by reference and will be repeated for brevity.

3. Response to argument that claims 1, 11, 32, and 34 are not obvious by Mladenic in view of Yang

The Patent Owner starting at page 13 through first complete paragraph at page 14 asserts that neither Mladenic nor Yang meet the "transparently monitoring," "analyzing a document," and "estimating parameters" limitation of claims 1 and 32. Additionally, the Patent Owner argues that Personal WebWatcher system employ learner that fails to estimate parameters of a learning machine and instead, the learner assembles a scored word map that is used for comparison purposes whenever new hyperlinks are encountered. Arguing that, such a word map is useful for the thresholding operation described by Mladenic, but does not rise to the level of the learning machine with parameters estimated from riser-specific data files recited in claims 1 and 32.

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These arguments are not persuasive. For the reasons described in response to the arguments about claim 1, it is submitted that Mladenic in view of Yang in fact obviates the "transparently monitoring," "analyzing a document," and "estimating parameters" features of claims 1, 11, 32 and 34. Those arguments are incorporated herein by reference and will not be repeated for brevity. Additionally, the Patent owner is arguing that Yang does not teach the "transparently monitoring," and "analyzing a document," of claims 1 and 32. It appears that the patent Owner is attacking the references individually. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F.2d 413, 08 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 75 (Fed. Cir. 1986). The rejection clearly states that the reference of Yang is used for the teaching of "estimating a probability $p(u/d)$ that an ..." limitation of those claims and not for the other two limitations argued by the Patent Owner.

With respect to argument about the scored word the argument is responded above, with respect to claim 1, incorporated herein by reference and will not be repeated for brevity.

4. Response to argument that claim 11 is not obviated by Mladenic in view of Culliss

The Patent Owner starting at page 14 through first incomplete paragraph at page 15 asserts that Mladenic in view of Culliss fails to teach "estimating a posterior probability $P(u/d, q)$ that the document d is of interest to the user u , given a query q submitted by the user." Arguing that Culliss does not meet the limitations of claim 11 because "all that is done is matching of various key words and related personal interests of different users in order to rank search results" and that "[n]o probability estimate is involved in such a determination." The Patent Owner arguing that the "[t]he ranking is governed solely by matching of the various elements".

The Examiner is not persuaded by the Patent Owner's argument. First, Culliss as understood by a person of ordinary skill in the art is directed to a system that "utilizes personal data to refine search results." *Id.*, at 3:12-13. Culliss further discloses that:

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"As described in my previous applications, the invention can accept a search query from a user and a search engine will identify matched articles and display squibs of the matched articles in accordance with their comparison scores. Articles can have their key term scores or key term total scores altered according to whether they were displayed to a user, whether they were selected by a user, how much time the user spent with the article, etc. In this application, the phrase previous-user relevancy score, designated by the generic label "PRS," will be used to refer to any of the key term score, key term total score, key term probability score, comparison score, or other ranking score determined by the previous search activity of users." [Underlining not in original] *Id.*, at 2: 39-51

As such Culliss is used for the teaching of personalizing a set of search results based on the characteristic of the user, and in specific for the limitation "estimating a posterior probability $P(u/d, q)$ that the document d is of interest to the user u , given a query q submitted by the user (See, claim rejections in section VI.A.3, *above*).

As seen from the above excerpt, the relevancy score is a form of estimation and the "key term probability score" is a probability functions which defines a measure of estimation for the interestingness of the document to the user u . It is not clear and the Patent Owner provided no reasoning as to why the probability calculation described by Culliss does not teach the claim language of "estimating a posterior probability" limitation in the claim.

Examine concurs with the Requester that the Patent owner's argument are at odd to its claim construction and admissions, where it asserts that a probability is merely "a degree of belief or likelihood" in an attempt to ensnare products that do not calculate actual probabilities. (OTH-B 23.) Culliss discloses "accept[ing] a search query from a user" and "identify[ing] matched articles." (Culliss at 2:39-42.) Articles "can have their key term scores or key term total scores altered according to whether they were displayed to a user, whether they were selected by a user, how much time the user spend with the article, etc." (*Id.* at 2:43-46.) These key term scores are "a degree of belief or likelihood" as interpreted by Respondent in the co-pending litigation, and Respondent advances no argument to the contrary beyond a bare assertion. *Innova/Pure Water v. Safari Water Filtration*, 381 F.3d at 1117 (Fed. Cir. 2004).

The Patent Owner should be reminded that the Court's claim constructions (which remain subject to appeal) do not strictly govern these reexamination proceedings,

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which are to be conducted under the broadest reasonable interpretation standard. Nonetheless, they should be noted and considered in application of the broadest reasonable interpretation standard. Convolv should not be permitted to treat its patent claims "like a 'nose of wax,' [to] be twisted one way to avoid unpatentability [in reexamination] and another to find infringement [in the litigation]." *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1351 (Fed. Cir. 2001), quoting, *Sterner Lighting, Inc. v. AlliedElec. Supply, Inc.*, 431 F.2d 539, 544 (5th Cir.1970). To permit it do so would defeat the public interest in the reexamination "reducing the possibility that claims, finally allowed [if any], will be given broader scope than is justified." *Yamamoto*, 740 F.2d at 1571.

The Patent Owner strictly acknowledges that "probability" is merely "a degree of belief or likelihood", and Culliss specifically teach a "degree of belief or likelihood" and that is why is used in combination with Mladenic reference.

5. Response to argument that claim 21 is not obviated by Mladenic in view of Refuah

The Patent Owner starting at page 15 through first incomplete paragraph at page 16 asserts that Mladenic in view of Refuah fails to teach "sending to a third party web server user interest information derived from the User Model, whereby the third paw web server m ay customize its interaction with the user." The Patent Owner first argues that the conclusion of obviousness in the rejection of claim 21 that states: "would have been obvious to one skilled in the art [to apply the teachings of Refuah to Mladenic], as it merely would have shifted the location where the document analysis and filtering takes place," is unsupported speculation. The reason that it is argued to be unsupported is that: "personal privacy is an ever-evaporating thing in the Internet age and many have commented on the lack of one's ability to control information being provided to third parties such as advertisers and the like. Ceding control over filtering of search results and the like to unknown third party web servers seems highly unlikely inasmuch as users would quickly lose control over their Internet "personas""

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The Patent Owner's argument is not persuasive. First, the Patent Owner has provided no evidence and merely opines that "Ceding control over filtering of search results and the like to unknown third party web servers seems highly unlikely..." This is at best the patent owner's opinion without supporting evidence. Second, as it is noted by the Requester, from the first statement that "personal privacy is an ever-evaporating ...", it appears that the Patent owner is acknowledging that the software industry has largely ignored privacy concerns when providing personal information to third parties, and yet provide no reasoning as to why a person of ordinary skill in the art would resist the industry trend the Patent asserts. The Patent Owner's statement is contradictory and makes no sense.

Later the Patent Owner argues that the virtual persona described by Refuah are not "derived from [a] User Model" which defines parameters of a learning machine, instead the "virtual persona are either defined through a question and answer session, Refuah at 22:15-18, are selected from a library of pre-defined persona and modified by individual users, *Id.*, at 21-40-44, or are compiled through monitoring of user action on Internet. *Id.*, 21-22-24." Arguing that, even if the teachings of Refuah were combined with those of Mladenic, a person of ordinary skill in the art would not arrive at the presently claimed invention because, the interest information would not be derived from a User Model that defines parameters of a learning machine as claimed.

The Patent Owner's argument is not persuasive. First, the Patent Owner miss interpreted the rejection. As stated in the rejection, the suggested combination takes Mladenic's User Model and "shift[s] the location where the document analysis and filtering takes place." See rejection section VI.A.4., *above* .

As noted in there, Refuah which discloses the use of a user's "mood" and "persona" to affect the web pages provided to the user, explains that "the personality [*i.e.*, mood and persona] may be used when entering any WWW site to provide personally tailored service." Refuah at 3:47-49 (emphasis added); see also *Id.* at 4:59-61 ("in a preferred embodiment of the invention, only portions of the persona and/or mood are provided to each site.") Refuah thus discloses sending user interest information (embodied by the user's "personality") to third-party web servers that host various WWW

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sites. See also VI.A.1.(iv). As noted there Mladenec meets the "User Model" limitations of the claimed invention, even disclosing the same keyword-score data structure and using the same TF-IDF measure to determine the corresponding score. As such the User Model is taught by Mladenec, at pp. 9, and the Patent Owner erred by arguing that the Refuah fails to teach User Model, as this limitation is taught by Mladenec.

6. Response to argument that claim 22 is not obviated by Mladenec in view of Culliss

The Patent Owner starting at page 16 asserts that Mladenec in view of Culliss fails to teach "the monitored user interactions include a sequence of interaction times." The Patent Owner arguing that in Culliss determining how much time the user spends with an article is not the same as monitoring a sequence of interaction times. Arguing that the Monitoring taught by Mladenec is not transparent monitoring, and therefore, the combination of Mladenec and Culliss would, at best, teach overt monitoring of how much time a user spends with an article, and this is not sequence of interaction times.

The Patent owner's argument is not persuasive. Culliss discloses: "Articles can have their key term scores or key term total scores altered according to whether they were displayed to a user, whether they were selected by a user, how much time the user spent with the article, etc." *Id.*, Culliss at 2:43-46. Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Mladenec to include an analysis of user interaction times in judging which documents would be of most interest to a user, rather than the existing system which considers all visited documents to be of interest to the user. Accordingly, this would allow Mladenec to account for documents that the user viewed and did not like, e.g. links that led to poor-quality pages, search results that did not fulfill the user's needs, etc. The argument about, transparent monitoring has been responded above in section VII. 2, supra, incorporated herein by reference and will not be repeated for brevity.

The third part requester, comments that the Patent owner's argument is again at odds with its infringement allegations in the co-pending litigation, where it asserts that recording timestamps is sufficient to meet the limitation. Commenting that Culliss also