

discrete qualities of a site are the same as those included in a persona. Certainly none of these measured qualities are estimates of probabilities.

Further, the Office Action fails to identify any “learning machine” described by *Refuah*. Reciting a proposed claim construction advanced by the Patent Owner in the related litigation (as is done in the Office Action) is not a substitute for identifying where in the cited reference the claim feature is purportedly taught. As stated above, “A claim is anticipated only if **each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.**” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The burden is on the Examiner to present at least a *prima facie* case of anticipation by demonstrating where the features of the claims are found in the cited reference, *In re King*, 801 F.2d 1324, 1327, 231 USPQ 136, 138-39 (Fed. Cir. 1986); *In re Wilder*, 429 F.2d 447, 450, 166 USPQ 545, 548 (CCPA 1970), and only if that burden is met, does the burden of going forward shift. *In re King*, 801 F.2d at 1327, 231 USPQ at 138-39; *In re Wilder*, 429 F.2d at 450, 166 USPQ at 548. Here, because the Examiner has failed to identify where *Refuah* describes a learning machine, no *prima facie* case of anticipation is presented and the rejections of claims 1 and 32 must be withdrawn.

Perhaps recognizing this failing, the Office Action cites *Mladenic* for teaching a “learner” module. This reliance is misplaced. In the Personal WebWatcher system described by *Mladenic*, the “learner” that generates the model of user interests examines documents visited by the user, assigns indices to words in those documents, calculates scores for each word, and produces a representation of the documents as bags-of-words with the assigned scores. *Mladenic* at p. 9, ll. 3-8. These scored word representations form the “model” of user interests and when new hyperlinks on newly visited documents are encountered, the new hyperlinks are deconstructed in a similar fashion and compared against the model to be scored. *Id.* at p. 7, ll. 36-39 (describing the “advisor”). Those scoring above a threshold are recommended to the user. *Id.* at p. 7, l. 39 - p. 8, l. 1.

Thus, in producing the model of user interests, the “learner” portion of the Personal WebWatcher does not *estimate parameters of a learning machine*. Instead, the “learner” assembles a scored word map that is used for comparison purposes whenever

new hyperlinks are encountered. 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 user-specific data files recited in claims 1 and 32.

Accordingly, even if the teachings of *Mladenic* were combined with those of *Refuah*, one would not arrive at the presently claimed invention and claims 1 and 32 are patentable over the combination of *Refuah* and *Mladenic*.

The Office Action fails to specify any rationale for rejecting claims 11, 21, 22 and 34 in view of the combination of *Refuah* and *Mladenic*. Accordingly, there has been no *prima facie* case of obviousness made and the rejections must be removed. The key to supporting any rejection under 35 USC 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 409, 82 USPQ2d 1385, 1396 (2007) (noting that the analysis supporting a rejection under 35 USC 103 should be made explicit). The Federal Circuit has stated that “rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). Here, not even conclusory statements have been presented and this total lack of any basis on which the present rejections were made must likewise be deemed wholly inadequate.

4. Response to Rejections Based on Primary Reference Culliss

A. Claims 1, 11, 22, 32 and 34 are Not Anticipated Under 35 USC 102(e) by Culliss.

Culliss describes techniques purportedly useful in connection with searches that make use of search engines, specifically a method of organizing information in which the search activity of previous users is monitored and used to organize articles for future users. *Culliss*, Abstract. User data is used to refine search results returned by the search engine, *id.* at 1:48-50, and users can specify their own personal data or it can be inferred from a history of their search requests or article viewing habits. *Id.* at 3:46-48.

In operation, a cumulative score is kept of the occurrences of certain classified key terms, queries or visited URLs to quantify how strongly someone is associated with a particular item of personal data. When a first user enters a search query, that user's personal data can be considered part of the request and it is stored within or added to an index, either individually or in groupings with other items such as key terms, categories, or ratings. Once so associated with a query, the personal data can be used to recall different lists of articles in response to new queries from new users. For example, when a new user enters a search request, that search request and the new user's personal data are combined to form groupings containing key term groupings, key term and personal data groupings, category and personal data groupings, rating and personal data groupings, etc. Articles associated with these groupings are then retrieved from the index, and their relevancy scores are used or combined to determine their rankings. *Id.* at 5:18 - 6:13. Thus, in the *Culliss* system information services which are provided to a user are dependent upon and informed by activities of prior users.

From the above, it should be apparent that *Culliss* fails to anticipate independent claims 1 and 32. For example, claims 1 and 32 recite,

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.

Culliss fails to disclose such features. Instead, *Culliss* describes a process in which users can explicitly specify their own personal data (which, of course, would preclude “transparent monitoring”, a further element of claims 1 and 32) or in which personal data can be inferred from a history of user search requests or article viewing habits. *Id.* at 3:46-48. “All elements of personal data, individually or in key term groupings, [are stored] within the index separately, with components of the query or otherwise.” *Id.* at 5:37-40. Thus, while *Culliss* may describe maintaining personal data that is associated with a user there does not appear to be any discussion concerning updating user-specific data files in any way. Instead, personal data is collected and separately indexed (so that key words or terms detected within search requests can be associated with such data).

This appears to be something different than what is claimed; *i.e.*, updating of user data files. Accordingly, claims 1 and 32 cannot be anticipated by *Culliss*.

Claims 1 and 32 further recite,

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

Culliss fails to teach such a learning machine, wherein the parameters define a User Model specific to the user, as claimed.

The Office Action equates the “cumulative score [that] can be developed for the user for each item of personal data” (a personal data item score) with estimating the parameters of a learning machine. However, this is incorrect. According to *Culliss*, 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. Additionally or alternatively, the strength of the association can be determined by the cumulative personal data item score. *Id.* at 4:67 - 5:4. **Developing a score in this manner (*i.e.*, essentially by summation and thresholding) involves a direct, calculated relationship between the user and personal data associated with the user. Such a calculation does not include any estimations:** “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.” *Id.* at 4:61-64. Thus, whether the cumulative score and personal data item score of *Culliss* are or are not parameters of a learning machine, **because these items are not estimated they cannot be read as teaching this element of the claims.**

Accordingly, claims 1 and 32 are not anticipated by *Culliss*.

Further, even if somehow the computation of the cumulative score is read to be an estimation, the *Culliss* system operates according to activities of prior users. Articles retrieved for the first user are so retrieved on the basis of a conventional searching approach, *Culliss* at 5:59-60 (“initially retrieve articles for presentation to the first user using a conventional search engine”); thereafter, articles retrieved for future users depend on the results of this previous user’s search activity and any similarities of personal data

between the prior and future users. *Id.* at Abstract. In other words, the User Model (if in fact the personal data of a Culliss user can be considered as such) is not specific to the user. It is entirely dependent on prior users and their search activities. This is a further reason why claims 1 and 32 cannot be anticipated by *Culliss*.

Finally, claims 1 and 32 each recite,

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.

Culliss fails to teach this element of the claims.

As observed above, *Culliss* describes using personal data to refine search results presented to a user in response to a received query. *See e.g.*, *Culliss*, Fig. 1 and 3:12-13. *Culliss* also describes tracking that personal data to recall different lists of articles in response to new queries from new users, *id.* at 5:35-37, and storing all elements of personal data, individually or in key term groupings, within the index separately, with components of the query or otherwise. *Id.* at 5:37-48. The grouped relationships are used as a basis to retrieve articles, and relevancy scores of those retrieved articles are to determine their respective rankings. *Id.* In other words, it is the computed score of a particular article that is used to determine its relevancy to a query.

Such groupings and relevancy scores do not establish an estimation of a probability $P(u|d)$ that an unseen document d is of interest to a user u . If anything, *Culliss* eschews any probability determinations in favor of direct numerical computations to group users together and determine the relevancy of a particular article to a particular query. At best, user data is used to interpret a query and determines how relevant a given document is to the query, not a particular user as required by claims 1 and 32. This is yet another reason why claims 1 and 32 are not anticipated by *Culliss*.

With respect to claim 11, which depends from claim 1 and therefore is not anticipated by *Culliss* for at least the reasons provided above with regard to claim 1,

Culliss additionally 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. Indeed, *Culliss* fails to describe any type of estimated probability calculation (posterior or otherwise) and only discloses using a user's personal data to retrieve articles related to the user's search request from an index and ranking retrieved articles according to a relevancy score. *Id.* at 5:40-48. Using personal data of a user to answer a query is not the same as estimating a posterior probability that a document will be of interest to a user given a particular query, as required by claim 11. Hence, claim 11 is not anticipated by *Culliss*.

Claim 22 depends from claim 1 and therefore is patentable over *Culliss* for at least the reasons provided above with regard to claim 1. Claim 22 further requires that the monitored user interactions include a sequence of interaction times. *Culliss* does not teach or suggest such monitoring. Instead, *Culliss* discloses altering the key term scores or key term total scores of articles "according to whether they were displayed to a user, whether they were selected by a user, how much time users spent with the article, etc." *See e.g., id.* at 2:43-46. Monitoring how long a user spends with an article is not monitoring a sequence of interaction times as required by claim 22.

Claim 34 depends from claim 32 and therefore is patentable over *Culliss* for at least the reasons provided above with regard to claim 32. Further, while *Culliss* may indicate that the Internet can include a variety of different kinds of documents, files, etc., *id.* at 2:19-25, *Culliss* does not teach how to analyze documents having multiple distinct media types, as claimed. Indeed, nowhere does the Office Action indicate where such teachings (of analysis of these different media types, rather than simple acknowledgment of their existence) can be found in the cited reference. Accordingly, claim 34 is not anticipated by *Culliss*.

B. Claims 1, 11, 22, 32 and 34 are Not Obviated Under 35 USC 103(a) by Considering Culliss in View of Mladenic.

With respect to independent claims 1 and 32, it was previously noted that *Culliss* fails to teach or suggest 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 claims 1 and 32. Perhaps recognizing this failing, the Office Action cites *Mladenic* for teaching a “learner” module. This reliance is misplaced. In the Personal WebWatcher system described by *Mladenic*, the “learner” that generates the model of user interests examines documents visited by the user, assigns indices to words in those documents, calculates scores for each word, and produces a representation of the documents as bags-of-words with the assigned scores. *Mladenic* at p. 9, ll. 3-8. These scored word representations form the “model” of user interests and when new hyperlinks on newly visited documents are encountered, the new hyperlinks are deconstructed in a similar fashion and compared against the model to be scored. *Id.* at p. 7, ll. 36-39 (describing the “advisor”). Those scoring above a threshold are recommended to the user. *Id.* at p. 7, l. 39 - p. 8, l. 1.

Thus, in producing the model of user interests, the “learner” portion of the Personal WebWatcher does not *estimate parameters of a learning machine*. Instead, the “learner” assembles a scored word map that is used for comparison purposes whenever new hyperlinks are encountered. 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 user-specific data files recited in claims 1 and 32. Accordingly, even if the teachings of *Mladenic* were combined with those of *Culliss*, one would not arrive at the presently claimed invention and claims 1 and 32 are patentable over the combination of *Culliss* and *Mladenic*.

The Office Action fails to specify any rationale for rejecting claims 11, 22 and 34 in view of the combination of *Culliss* and *Mladenic*. Accordingly, there has been no prima facie case of obviousness made and the rejections must be removed. The key to supporting any rejection under 35 USC 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. *KSR, supra.*, 550 U.S. at 409, 82 USPQ2d at 1396, *In re Kahn, supra.*, 441 F.3d at 988, 78 USPQ2d at 1336. Here, not even conclusory statements have been presented and this total lack of any basis on which the present rejections were made must likewise be deemed wholly inadequate.

*C. Claim 21 is Not Obviated Under 35 USC 103(a) by Considering Culliss in View of Refuah.*⁶

Claim 21 depends from claim 1 and is patentable over *Culliss* for all of the reasons set forth above with respect to claim 1.

The Office Action relies on *Refuah* for its teachings regarding the use of a user's "mood" and "persona" to affect web pages provided to the user, and asserts that it "would have been obvious to one skilled in the art [to apply the teachings of *Refuah* to *Culliss*], as it merely would have shifted the location where the document analysis and filtering takes place." As discussed above, this conclusion is unsupported speculation. Moreover, the virtual personas described by *Refuah* are not "derived from [a] User Model" which defines parameters of a learning machine, as required by the present claims. Instead, the virtual personas are either defined through a question and answer session, *Refuah* at 22:15-18, are selected from a library of pre-defined personas and modified by individual users, *id.* at 21:40-44, or are compiled through monitoring of user actions on the Internet. *Id.* at 21:22-24. Hence, even if the teachings of *Refuah* were combined with those of *Culliss*, one 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. Accordingly, claim 21 is not obviated by the combination of *Culliss* and *Refuah*.

*D. Claim 21 is Not Obviated Under 35 USC 103(a) by Considering Culliss in View of Mladenic and Refuah.*⁷

Claim 21 depends from claim 1 and is patentable over *Culliss* for all of the reasons set forth above with respect to claim 1.

Furthermore, in the Personal WebWatcher system described by *Mladenic*, the "learner" that generates the model of user interests examines documents visited by the

⁶ For the reasons discussed above, *Refuah* is not properly considered as prior art to the '040 Patent and all rejections which rely on *Refuah* should be removed.

⁷ For the reasons discussed above, *Refuah* is not properly considered as prior art to the '040 Patent and all rejections which rely on *Refuah* should be removed.

user, assigns indices to words in those documents, calculates scores for each word, and produces a representation of the documents as bags-of-words with the assigned scores. *Mladenic* at p. 9, ll. 3-8. These scored word representations form the “model” of user interests and when new hyperlinks on newly visited documents are encountered, the new hyperlinks are deconstructed in a similar fashion and compared against the model to be scored. *Id.* at p. 7, ll. 36-39 (describing the “advisor”). Those scoring above a threshold are recommended to the user. *Id.* at p. 7, l. 39 - p. 8, l. 1.

Thus, in producing the model of user interests, the “learner” portion of the Personal WebWatcher does not *estimate parameters of a learning machine*. Instead, the “learner” assembles a scored word map that is used for comparison purposes whenever new hyperlinks are encountered. 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 user-specific data files recited in claim 1. Accordingly, even if the teachings of *Mladenic* were combined with those of *Culliss*, one would not arrive at the presently claimed invention and claim 1 remains patentable over the combination of *Culliss* and *Mladenic*.

Claim 21 depends on claim 1 and further recites, “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.” By virtue of its dependency, claim 21 is not anticipated by the combination of *Culliss* and *Mladenic*. Further, the Office Action does not contend that *Mladenic* teaches the subject matter of claim 21 and instead relies on *Refuah* for such teachings. Immediately above it was shown that this reliance is misplaced. The virtual personas described by *Refuah* are not “derived from [a] User Model” which defines parameters of a learning machine, as required by the present claims. Instead, the virtual personas are either defined through a question and answer session, *Refuah* at 22:15-18, are selected from a library of pre-defined personas and modified by individual users, *id.* at 21:40-44, or are compiled through monitoring of user actions on the Internet. *Id.* at 21:22-24. Hence, even if the teachings of *Refuah* were combined with those of *Culliss* and *Mladenic*, one 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. Accordingly, claim 21 is not obviated by the combination of *Culliss*, *Mladenic* and *Refuah*.

CONCLUSION

For at least the foregoing reasons, claims 1, 11, 21, 22, 32 and 34 remain patentable over the cited references.

Please charge any shortages and credit any overages of fees in connection with this application to Deposit Account No. 19-3140.

Respectfully submitted,
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re *Inter Partes* Reexamination of:
Yochai KONIG et al.

Reexamination of U.S. Patent No. 6,981,040

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MS *Inter Partes* Reexam
Central Reexamination Unit
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PATENT OWNER'S RESPONSE TO ACTION CLOSING PROSECUTION

This Response is in reply to the Action Closing Prosecution mailed April 19, 2012 in the above-captioned *inter partes* reexamination request filed by the third party requester Google Inc. ("Requester").

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I. INTRODUCTION

A. Summary of Response

In this Response, no claims are being amended. As demonstrated in detail below, claims 1, 11, 21, 22, 32 and 34 are patentable and should be confirmed over the cited references, whether considered alone or in the combinations proposed in the Action Closing Prosecution (the “ACP”).

B. Status of Claims

Claims 1, 11, 21, 22, 32 and 34 are presented without amendment in the form as issued in US Patent 6,981,040 (hereinafter, the “’040 Patent”). No new claims are being added.

C. Discussion of the Invention Recited in the Present Claims

Before discussing the detailed reasons why the present claims are patentable over the cited references, it is helpful first to discuss the general nature of the inventions recited in these claims.

Claim 1 recites:

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

Several important features are present in this claim, for example, a “learning machine”. In the concurrent litigation, this term has been construed as “a mathematical function and/or model used to make a prediction, that attempts to improve its predictive ability over time by altering the values/weights given in its variables, depending on a variety of knowledge sources, including monitored user interactions with data and a set of documents associated with the user.”¹ This is an appropriate construction for the U.S. Patent and Trademark Office (the “USPTO”) to apply in the present proceedings.

While the USPTO must give the claims their “broadest reasonable interpretation consistent with the specification” during these reexamination proceedings, *In re Bond*, 910 F.2d 831, 833 (Fed. Cir. 1990), that interpretation must also be consistent with the one that a person of ordinary skill in the art would reach. See *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). “The broadest construction rubric . . . does not give the PTO an unfettered license to interpret claims to embrace anything remotely related to the claimed invention. Rather, claims must always be read in light of the specification and teachings in the underlying patent.” *In re Suitco Surface, Inc.*, 603 F.3d 1255, 1260 (Fed. Cir. 2010) *citing Schriber-Schroth Co. v. Cleveland Trust Co.*, 311 U.S. 211, 217 (1940).

Here, the construction adopted by the U.S. District Court in the concurrent litigation is the broadest reasonable interpretation consistent with that which would be reached by a person of ordinary skill in the art in view of the specification. In reaching its conclusions regarding the meaning of the claims, the court carefully considered the fact that the ‘040 Patent describes “intricate and complicated issues of computer science and machine learning.” *Personalized User Model LLP v. Google Inc.*, Civ. No. 09-525-LPS, Claims Construction Opinion dated 25 Jan 2012, USDC D. Del., slip op. at 10. Accordingly, the court carefully looked for supporting descriptions in the patent’s specification when considering alternative constructions proposed by the parties and further considered the technology background against which those proposed constructions were offered. *Id.* In doing so, the court placed itself as the person of ordinary skill in the art at the time of the invention in order to interpret the specification as such a person would, and through that lens reached the findings regarding the meaning of the claim terms that

¹ *Personalized User Model LLP v. Google Inc.*, Civ. No. 09-525-LPS, Claims Construction Order dated 25 Jan 2012, USDC D. Del. (hereinafter “*Markman Order*”), slip op. at 1-2.