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BEFORE THE PATENT TRIAL AND APPEAL BOARD

X CORPORATION,
Petitioner,

v.

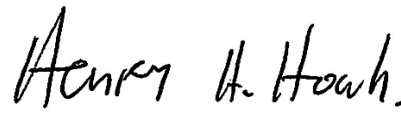
STERLING COMPUTERS CORPORATION,
Patent Owner.

Case No. IPR2025-00299
U.S. Patent No. 7,716,217

EXPERT DECLARATION OF DR. HENRY HOUH

I do hereby declare and state, that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, under Section 1001 of Title 18 of the United States Code.

Dated: December, 12, 2024

A handwritten signature in black ink that reads "Henry H. Houh." The signature is written in a cursive, slightly slanted style.

Dr. Henry Houh

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a.	[1pre]: A computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented system comprising:	80
b.	[1a]: a computer processor; and.....	87
c.	[1b]: a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules comprising:	88

- d. [1c]: a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;.....90
- e. [1d]: a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content 98
- f. [1e]: a second relevance measurement module coupled to the monitoring module.....101
- g. [1f]: identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and.....106
- h. [1g]: determine a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group consisting of: 111
- i. [1g(i)]: a local importance describing an importance of the sender to the user, ...113
- j. [1g(ii)]: a global importance describing an importance of the sender within an organization with which the plurality of users are associated,.....115
- k. [1g(iii)]: a content relevance determined responsive to content of the piece of electronic content, and.....117
- l. [1g(iv)]: one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and.....119
- m. [1h]: a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance. 122

- n. [2]: The system of claim 1, further comprising: a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score. 127
 - o. [3]: The system of claim 1, further comprising: a search module configured to search the electronic content in accordance with the determined relevance score. 131
 - p. [4]: The system of claim 1, wherein the piece of electronic content comprises an electronic mail object in a relational mail system. 132
 - q. [5]: The system of claim 1, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message. 133
 - r. [8]: The system of claim 1, wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user. 134
 - s. [9]: The system of claim 8, wherein the at least one other of the plurality of users is cognate to the user, and the user is not cognate to the at least one other of the plurality of users. 134
 - t. [10]: The system of claim 4, wherein the electronic mail object includes one or more submessages. 137
 - u. [11]: The system of claim 10, wherein the submessages are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system. 139
 - v. [12]: The system of claim 4, wherein the electronic mail object has an associated job code representing a business process with which the electronic mail object is associated. 141
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- a. [6pre]: A computer program product for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-program product having a computer-readable storage medium having computer program instructions encoded thereon comprising: 141
- b. [6a]: a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;.....142
- c. [6b]: a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content; 142
- d. [6c]: a second relevance measurement module coupled to the monitoring module and configured to: 143
- e. [6d]: identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and.....143
- f. [6e]: determine a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group consisting of: .144
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4.	Claim 7 and its Dependent Claims 18-22	148
a.	[7pre]: A computer-implemented method for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented method comprising:	148
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- c. [7b]: identifying at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user,.....149
- d. [7c]: determining a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.....149
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- f. [7d(i)]: a local importance describing an importance of the sender to the user 150
- g. [7d(ii)]: a global importance describing an importance of the sender within an organization with which the plurality of users are associated,.....150
- h. [7d(iii)]: a content relevance determined responsive to content of the piece of electronic content, and 150
- i. [7d(iv)]: one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and.....151
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- k. [18]: The method of claim 7, further comprising: presenting the piece of electronic content to the user in accordance with the determined relevance score and presenting to the user a value describing the determined relevance score.....152
- l. [19]: The method of claim 7, further comprising: searching the electronic content in accordance with the determined relevance score. 152

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b.	[1a]: a computer processor; and.....	182
c.	[1b]: a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules comprising:	183
d.	[1c]: a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;.....	184

- e. [1d]: a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content; 191
- f. [1e]: a second relevance measurement module coupled to the monitoring module; 195
- g. [1f]: identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and.....198
- h. [1g]: determine a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group consisting of: 203
- i. [1g(i)]: a local importance describing an importance of the sender to the user, ...206
- j. [1g(ii)]: a global importance describing an importance of the sender within an organization with which the plurality of users are associated,.....209
- k. [1g(iii)]: a content relevance determined responsive to content of the piece of electronic content, and.....211
- l. [1g(iv)]: one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and.....216
- m. [1h]: a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance. 218
- n. [2]: The system of claim 1, further comprising: a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score. 222

- o. [3]: The system of claim 1, further comprising: a search module configured to search the electronic content in accordance with the determined relevance score. 225
- p. [4]: The system of claim 1, wherein the piece of electronic content comprises an electronic mail object in a relational mail system. 226
- q. [5]: The system of claim 1, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message. 228
- r. [8]: The system of claim 1, wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user. 228
- s. [9]: The system of claim 8, wherein the at least one other of the plurality of users is cognate to the user, and the user is not cognate to the at least one other of the plurality of users. 230
- t. [10]: The system of claim 4, wherein the electronic mail object includes one or more submessages. 231
- u. [11]: The system of claim 10, wherein the submessages are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system. 232
- v. [12]: The system of claim 4, wherein the electronic mail object has an associated job code representing a business process with which the electronic mail object is associated. 232
- 6. Claim 6 and its Dependent Claims 13-17 233
 - a. [6pre]: A computer program product for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-program product having a computer-readable storage medium having computer program instructions encoded thereon comprising: 233

- b. [6a]: a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;.....233
- c. [6b]: a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content 234
- d. [6c]: a second relevance measurement module coupled to the monitoring module and configured to: 234
- e. [6d]: identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and.....235
- f. [6e]: determine a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group consisting of: .235
- g. [6e(i)]: a local importance describing an importance of the sender to the user 235
- h. [6e(ii)]: a global importance describing an importance of the sender within an organization with which the plurality of users are associated.....236
- i. [6e(iii)]: a content relevance determined responsive to content of the piece of electronic content, and 236
- j. [6e(iv)]: one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and.....236
- k. [6(f)]: a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance. 237
- l. [13]: The computer program product of claim 6, further comprising: a content presentation module configured to

	present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.....	237
m.	[14]: The computer program product of claim 6, further comprising: a search module configured to search the electronic content in accordance with the determined relevance score.....	238
n.	[15]: The computer program product of claim 6, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.	238
o.	[16]: The computer program product of claim 6, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.	238
p.	[17]: The computer program product of claim 16, wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.	239
7.	Claim 7 and its Dependent Claims 18-22	239
a.	[7pre]: A computer-implemented method for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented method comprising:	239
b.	[7a]: tracking actions by a plurality of users associated with an application for managing electronic content; ..	240
c.	[7b]: identifying at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user,.....	240
d.	[7c]: determining a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.....	241

- e. [7d]: determining a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group consisting of: .241
- f. [7d(i)]: a local importance describing an importance of the sender to the user 241
- g. [7d(ii)]: a global importance describing an importance of the sender within an organization with which the plurality of users are associated,.....242
- h. [7d(iii)]: a content relevance determined responsive to content of the piece of electronic content, and 242
- i. [7d(iv)]: one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and.....242
- j. [7e]: determining the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance. 243
- k. [18]: The method of claim 7, further comprising: presenting the piece of electronic content to the user in accordance with the determined relevance score and presenting to the user a value describing the determined relevance score.....243
- l. [19]: The method of claim 7, further comprising: searching the electronic content in accordance with the determined relevance score. 244
- m. [20]: The method of claim 7, wherein the piece of electronic content comprises an electronic mail object in a relational mail system. 244
- n. [21]: The method of claim 20, wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system. 245

- o. [22]: The method of claim 7, wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the one other of the plurality of users with respect to historical actions of the user. 245

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EXHIBITS CONSIDERED

No.	Short Name	Reference
1001	217 Patent	Certified Copy of U.S. Patent 7,716,217
1002	217 File History	Certified File History of 7,716,217
1003	828 Provisional	Certified United States Provisional Patent Application No. 60/758,828.
1004	Houh Decl.	Expert Declaration of Dr. Henry Houh
1005	Houh CV	Curriculum Vitae of Dr. Henry Houh
1006	<u>Dumais</u>	U.S. Patent Application Publication 2007/0016553A1
1007	<u>Kircher</u>	U.S. Patent Application Publication 2003/0195937A1
1008	<u>Krug</u>	Certified Translation of WIPO Patent 2003/023650A2
1009	Sch. Order	Order 32 (Scheduling Order) in <i>Sterling Computers Corporation v. X Corp.</i> , Case No. 1:24-cv-00552 (W.D. Tex. May 22, 2024)
1010	Sch. Hr. Tr.	Oct. 21, 2024, Transcript of Initial Pretrial (Scheduling) Conference in <i>Sterling Computers Corporation v. X Corp.</i> , Case No. 1:24-cv-00552 (W.D. Tex. May 22, 2024).
1011	Goldberg	David Goldberg, et al., <i>Using Collaborative Filtering To Weave An Information Tapestry</i> , COMMUNICATIONS OF THE ACM, 35:12 (Dec. 1992).
1012	Kennedy	U.S. Patent 6,134,582
1013	Mailk	U.S. Patent Application Publication 2004/0078447
1014	587 Application	International Application PCT/US07/60587
1015	587 File History	File History of PCT/US07/60587
1016	RESERVED	
1017	118 File History	File History of 11/426,118

1018	605 Provisional	Provisional Patent Application NO. 60/693,605.
1019	Shaw	U.S. Patent 6,249,807
1020	Karamchedu	U.S. Patent Application Publication 2004/0054744
1021	Fitzpatrick	U.S. Patent Application Publication 2006/0168029
1022	Yao	U.S. Patent Application Publication 2003/0187937
1023	Segal	Richard Segal, et al., <i>SpamGuru: An Enterprise Anti-Spam Filtering System</i> , CEAS 2004, FIRST CONFERENCE ON EMAIL AND ANTI-SPAM, (July, 2004).
1024	Carlson	U.S. Patent Application Publication 2005/0267973
1025	Sood	U.S. Patent 7,941,491
1026	Kirsch	U.S. Patent Application Publication 2005/0091319
1027	Boykin	P. Oscar Boykin, et al., <i>Personal Email Networks: An Effective Anti-Spam Tool</i> , ARXIV.ORG, 4 (Feb. 2004)
1028	Horvitz	International PCT Application WO2001/069432
1029	Lui	Andrew K. Lui, et al., <i>An Advanced Organizer for Asynchronous Discussion Forums</i> , IEEE (2005).
1030	Claypool	Mark Claypool, et al., <i>Combining Content-Based and Collaborative Filters in an Online Newspaper</i> , ACM SIGIR WORKSHOP ON RECOMMENDER SYSTEMS (Aug. 1999).
1031	Brun	U.S. Patent Application Publication 2007/0168430
1032	Linden	Greg Linden, et al., <i>Amazon.com Recommendations Item-to-Item Collaborative Filtering</i> , IEEE INTERNET COMPUTING (2003).
1033	Frankowski	International PCT Application WO2001/53973
1034	Dabbish	Laura A. Dabbish, et al., <i>Understanding Email Use: Predicting Action on a Message</i> , CHI (2005).
1035	Basu	Chumki Basu, et al., <i>Recommendation as Classification: Using Social and Content-Based</i>

		<i>Information in Recommendation</i> , AAAI-98 PROCEEDINGS (1998).
1036	Melville	Prem Melville, et al., <i>Content-Boosted Collaborative Filtering for Improved Recommendations</i> , PROCEEDINGS OF THE EIGHTEENTH NATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE (Jul. 2002).
1037	Alspector	Joshua Alspectot, et al., <i>Comparing Feature-Based and Clique-Based User Models for Movie Selection</i> , PROCEEDINGS OF THE THIRD ACM CONFERENCE ON DIGITAL LIBRARIES (1998).
1038	Balabanovic	Marko Balabanovic, et al., <i>Content-Based Collaborative Recommendation</i> , COMMUNICATIONS OF THE ACM (Mar. 1997).
1039	Kussmaul	U.S. Patent 7,860,933
1040	Rose	U.S. Patent 6,202,058
1041	MSFT Comp.	Microsoft Computer Dictionary, 3ed (1997).
1042	Levenshtein	Jan 2005 – Lvenshtein Distance – Wikipedia
1043	<u>Marston</u>	U.S. Patent Application Publication 2004/0260710

LISTING OF CLAIMS

Element	Claim Limitation
Claim 1	
1[pre]	A computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented system comprising:
1[a]	a computer processor; and
1[b]	a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules comprising:
1[c]	a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;
1[d]	a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content;
1[e]	a second relevance measurement module coupled to the monitoring module and configured to:
1[f]	identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and
1[g]	determine a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group consisting of:
1[g][i]	a local importance describing an importance of the sender to the user,
1[g][ii]	a global importance describing an importance of the sender within an organization with which the plurality of users are associated,
1[g][iii]	a content relevance determined responsive to content of the piece of electronic content, and

1[g][iv]	one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and
1[h]	a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.
Claim 2	
2	The system of claim 1, further comprising: a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.
Claim 3	
3	The system of claim 1, further comprising: a search module configured to search the electronic content in accordance with the determined relevance score.
Claim 4	
4	The system of claim 1, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.
Claim 5	
5	The system of claim 1, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.
Claim 6	
6[pre]	A computer program product for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-program product having a computer-readable storage medium having computer program instructions encoded thereon comprising:
6[a]	a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;

6[b]	a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content;
6[c]	a second relevance measurement module coupled to the monitoring module and configured to:
6[d]	identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and
6[e]	determine a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group consisting of:
6[e][i]	a local importance describing an importance of the sender to the user,
6[e][ii]	a global importance describing an importance of the sender within an organization with which the plurality of users are associated,
6[e][iii]	a content relevance determined responsive to content of the piece of electronic content, and
6[e][iv]	one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and
6[f]	a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.
Claim 7	
7[pre]	A computer-implemented method for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented method comprising:
7[a]	tracking actions by a plurality of users associated with an application for managing electronic content;
7[b]	identifying at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user,

7[c]	determining a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content;
7[d]	determining a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group consisting of:
7[d][i]	a local importance describing an importance of the sender to the user,
7[d][ii]	a global importance describing an importance of the sender within an organization with which the plurality of users are associated,
7[d][iii]	a content relevance determined responsive to content of the piece of electronic content, and
7[d][iv]	one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and
7[e]	determining the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.
Claim 8	
8	The system of claim 1, wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user.
Claim 9	
9	The system of claim 8, wherein the at least one other of the plurality of users is cognate to the user, and the user is not cognate to the at least one other of the plurality of users.
Claim 10	
10	The system of claim 4, wherein the electronic mail object includes one or more submessages.
Claim 11	

11	The system of claim 10, wherein the submessages are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.
Claim 12	
12	The system of claim 4, wherein the electronic mail object has an associated job code representing a business process with which the electronic mail object is associated.
Claim 13	
13	The computer program product of claim 6, further comprising: a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.
Claim 14	
14	The computer program product of claim 6, further comprising: a search module configured to search the electronic content in accordance with the determined relevance score.
Claim 15	
15	The computer program product of claim 6, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.
Claim 16	
16	The computer program product of claim 6, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.
Claim 17	
17	The computer program product of claim 16, wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.
Claim 18	
18	The method of claim 7, further comprising: presenting the piece of electronic content to the user in accordance with the determined

	relevance score and presenting to the user a value describing the determined relevance score.
Claim 19	
19	The method of claim 7, further comprising: searching the electronic content in accordance with the determined relevance score.
Claim 20	
20	The method of claim 7, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.
Claim 21	
21	The method of claim 20, wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.
Claim 22	
22	The method of claim 7, wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the one other of the plurality of users with respect to historical actions of the user.

I. INTRODUCTION

1. I, Dr. Henry Houh, have been retained by X Corp. (Petitioner) as an independent, technical expert consultant in this proceeding before the United States Patent and Trademark Office (USPTO).

2. This Declaration is in support of the Petition for *inter partes* review involving U.S. Patent 7,716,217 (the “’217 Patent” or “the Patent”) (EX1001), entitled “Determining relevance of electronic content” and listing Justin Marston and Paul Marston as inventors. I have been informed that Sterling Computers Corp. (“Sterling”) is the Patent Owner.

3. This declaration is based on information currently available to me, including the prior art discussed herein. I may also supplement my opinions in response to any additional information that becomes available from Patent Owner and/or any opinions provided by Patent Owner or its expert(s).

4. I am being compensated at my rate of US\$820 per hour for my services. No part of my compensation is dependent on my opinions or on the outcome of this proceeding. I have no financial interest in any of the parties to this proceeding.

A. Background and Qualifications

5. My complete qualifications and professional experience are described in my *Curriculum Vitae*, a copy of which can be found in Exhibit 1005. The

following is a brief summary of my relevant qualifications and professional experience.

6. I received a Ph.D. in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology (“MIT”) in 1998. I received a Master of Science degree in Electrical Engineering and Computer Science in 1991, a Bachelor of Science degree in Electrical Engineering and Computer Science in 1989, and a Bachelor of Science degree in Physics in 1990, all from MIT.

7. I am currently self-employed as an independent technical consultant. From its founding in 2012 until October 2022, I was also president of a company that provides supplemental science, technology, engineering, and mathematics (“STEM”) education to children of all ages.

8. I first entered telecommunications in 1987 when I worked as a summer intern at AT&T Bell Laboratories as part of a five-year dual degree program at MIT. After the summer ended, I continued to work at AT&T Bell Laboratories as part of this MIT program. While at MIT, I was a teaching assistant (“TA”) in the Electrical Engineering and Computer Science Department’s core Computer Architectures course. I first was a TA during my senior year of undergraduate studies for a role typically reserved for graduate students. I later became head TA. The course covered various topics in computer architectures. As a TA, I helped write homework assignments, lab assignments, and exams. I also taught in the recitation sections.

9. Later, as part of my doctoral research at MIT from 1991 to 1998, I was a research assistant in the Telemedia Network Systems (“TNS”) group at the Laboratory for Computer Science. The TNS group built a high-speed gigabit network and created applications that ran over the network. Example applications included ones for remote video capture, processing, and display of video on computer terminals. In addition to working on the design of core network components (which was based on field programmable gate arrays), designing and building the high-speed links (which included programmable logic devices), and designing and writing the device drivers for the interface cards (which included programmable logic devices), I also set up the group’s web server, which at the time was one of the first 100 or so web servers in existence. We made our video applications available on our web site, so users could initiate video sessions from a selection of cameras as well as run our demonstration applications based on pre-recorded content. I also integrated email list processing services into our web site, so that the content of email distribution lists was archived, and various views of the emails were available, such as thread-based clustering as well as author-based clustering.

10. I also helped to build the web pages that initiated the above-mentioned video sessions via a web interface. Vice President Al Gore visited our group in 1996 and received a demonstration of—and remotely drove—a radio-controlled toy car

with a wireless video camera mounted on it that was built by our group. This toy car device received commands transmitted over a network from a remote computer, and video data from the toy car was transmitted wirelessly then over a computer network back to the user controller. On occasion, we allowed users visiting our web site to drive the toy car from their remote computer while they watched the video on their computer. The video stream was encoded by TNS-designed hardware, streamed over the TNS-designed network, and displayed using TNS-designed software.

11. I defended and submitted my Ph.D. thesis, titled “Designing Networks for Tomorrow’s Traffic,” in January 1998. As part of my thesis research, I analyzed local area and wide area flows to show a more efficient method for routing packets in a network, based on traffic patterns at the time. The traffic flow data included Ethernet, IP, TCP or UDP, and RTP header information, which I analyzed to come to the conclusions in my thesis.

12. While I was in graduate school, I started a company that provided web site design services and targeted advertising opportunities. We also sold targeted advertising placements. As the web became popular first at colleges and universities, we focused initially on building college recruiting web sites and sold advertisements to companies wishing to target students to recruit at specific colleges. We developed technology that utilized the web user’s college affiliation to customize advertisements targeted to students at that college.

13. From 1997 to 1999, I was a Senior Scientist and Engineer at NBX Corporation, a start-up that made business telephone systems for streaming packetized audio over data networks instead of using traditional telephone lines. NBX was later acquired by 3Com Corporation and the phone system is still used today by numerous businesses.

14. As part of my work at NBX, I designed the core audio reconstruction algorithms for the telephones, as well as the packet transmission algorithms. I also designed and validated the core packet transport protocol used by the phone system. The protocol was used for all signaling in the phone system, including for the setup of conference calls. The NBX system also featured a computer interface for initiating phone calls, which could also initiate conference calls. The NBX system also supported the Telephony Application Programming Interface (“TAPI”) that allowed other computer programs to integrate with our system telephony features. We obtained U.S. Patent No. 6,967,963, entitled “Telecommunication method for ensuring on-time delivery of packets containing time-sensitive data,” as part of this work. The first release of the phones had integrated Ethernet repeater hubs embedded in them, and I worked with the documentation and field support people to develop sets of guidelines so that customers would not build their networks to violate the Ethernet specifications, typically by chaining too many hub repeaters and NBX phones together. The first release of the phones also worked using Ethernet-

layer packets (without the use of IP). I also programmed the first prototype of our phone which communicated using IP, and I demonstrated our IP phones working over the Internet when we attended a trade show in California. The phone connected over the Internet to our headquarters in Andover, MA.

15. From 1999 to 2004, I was employed by Empirix or its predecessor company, Teradyne. Teradyne had traditionally made products to test chips and hardware, but the founder and board chairman, Alex d'Arbeloff wanted to expand the company's products to include software systems testing. Teradyne made a number of acquisitions to achieve this goal, and I was hired to work for Mr. d'Arbeloff and work with all the acquired software test divisions. These divisions were later spun-out of Teradyne into a separate company, Empirix. Empirix was a leader in test tools for software systems including telecommunications protocols and systems, providing functional testing tools as well as load testing tools. From 2000 to 2001, I conceived and built a test platform for testing Voice-over-IP (VoIP). The first application on this new test platform was a cloud emulator for simulating the effects of transmitting VoIP over a busy network. The test platform was based on a network processor chip, which could be programmed to cut-through packets while processing packet data such as various protocol layer headers including addresses included therein and even packet data contents. I also designed a protocol analyzer built on the same platform. The application captured and performed protocol

decoding at various layers in the protocol stacks of captured packets, including detailed Ethernet header decoding, IP header decoding, TCP header decoding, UDP header decoding, RTP header decoding, and many other specified protocols. The application was also designed to reconstruct entire conversations that spanned multiple packets.

16. In 2006, as part of my role at BBN Technologies, I helped found PodZinger Inc., now known as RAMP Inc. PodZinger utilized BBN's speech recognition algorithms to search through the spoken words in audio and video segments. While I was Vice President of Operations and Technology, PodZinger followed its initial prototype with a full streaming audio and video search solution that utilized BBN's speech recognition and natural language processing algorithms. I also created a social networking web site, which BBN sold to a venture-funded startup company. In the process of creating the web site, I designed and specified the authentication and authorization protocols. I also created a social-networking web site, including a full messaging system, which was sold to venture-funded startup company, Eons, and I became the Chief Technology Officer at Eons, responsible for the technical management of the entire platform.

17. In addition, I have experience in data analysis, including content analysis and clustering. I worked on a number of such projects, including using the

Netflix Prize data to predict user ratings for movies based on collaborative filtering algorithms.

B. Materials Considered

18. In preparing this Declaration, I have reviewed the '217 Patent (EX1001) and its prosecution history (EX1002), its provisional application (EX1003), as well as the patents and documents cited herein, and I have considered these documents in light of the general knowledge in the art.

19. The '217 Patent is generally directed to the following:

In an electronic mail system, a user's actions with an application for managing electronic content are monitored. Based on the user's actions and/or on the actions of other users in the system, a relevance analysis module determines a relevance to the user of a piece of electronic content based on a likelihood of interest of the electronic content piece to the user and/or a measure of a level of significance the user has to another entity associated with the electronic content piece.

EX1001 at Abstract.

20. I am familiar with the technology described in the '217 Patent as of the earliest possible effective filing date of January 13, 2006. For the purposes of this *inter partes* review, as I discuss later, I have been instructed to assume that the effective filing date of the Claims of the '217 Patent is January 13, 2006, the filing date of Provisional Application No. 60/758,828 (EX1003).

21. In formulating my opinions, I have relied upon my experience in the relevant art. I have also considered the viewpoint of a person of ordinary skill in the art (“POSA”) in the relevant field, as of January 13, 2006, who I describe below. For convenience, the materials I considered in arriving at my opinions are listed the Materials Considered table above.

22. The opinions and comments formulated during this assessment are based on observations and information available at the time of the investigation. The findings presented herein are made to a reasonable degree of scientific certainty. My opinions reflect how one of ordinary skill in the art would have understood the ’217 Patent, the prior art, and the state of the art at the time of the earliest possible effective filing date.

C. Summary of Opinions

23. For the reasons I discuss below, it is my opinion that claims 1-22 of the ’217 patent are unpatentable for the following reasons:

- **Ground 1:** Claims 1-3, 5-9, 13-15, 18-19 and 22 are unpatentable as obvious over Dumais;
- **Ground 2:** Claims 1-3, 5-9, 13-15, 18-19 and 22 are unpatentable as obvious over Dumais in view of Applicant Admitted Prior Art (AAPA);
- **Ground 3:** Claims 1-22 are unpatentable as obvious over Dumais in view of Marston;

- **Ground 4:** Claims 1-3, 5-9, 13-15, 18-19 and 22 are unpatentable as obvious over Kircher in view of Krug; and
- **Ground 5:** Claims 4, 10-12, 16-17, and 20-21 are unpatentable as obvious over Kircher in view of Krug and Marston.

II. LEGAL STANDARDS

24. I am not an attorney and offer no legal opinions, but in the course of my work, I have had experience studying and analyzing patents and patent claims from the perspective of a POSA. I have been informed by counsel of certain legal standards and have applied those standards, described below, in formulating my opinions.

A. Claim Construction

25. I understand that the claims of a patent define the limits of the patentee's exclusive rights. I understand that to determine the scope of the claimed invention, courts typically construe claim terms, the meaning of which the parties may dispute. I understand that claim terms should generally be given their ordinary and customary meaning as understood by a POSA at the time of filing of the patent application, after reading the patent and its prosecution history. I also understand that a basic tenet of claim construction presumes that different words in a claim have different meanings, unless there is evidence to the contrary. A claim term, for instance, will not receive its ordinary meaning if the patentee acted as his or her own

lexicographer and clearly set forth a definition of the claim term in the specification.

In that case, the claim term will receive the definition set forth in the patent.

26. I understand that claims must be construed in light of and consistent with the intrinsic evidence. In this context, I understand that intrinsic evidence includes the claims themselves, the written disclosure in the specification, and the patent's prosecution history, including prior art that was considered by the United States Patent and Trademark Office. I understand that the specification is always highly relevant to the claim construction analysis and often is the single best guide to the meaning of a disputed term. I understand that extrinsic evidence may also be considered when construing claims and may include, for example, technical dictionaries, technical publications and books, treatises, and expert testimony, though the intrinsic record will be more persuasive as to the meaning of a particular term.

27. I understand that a claim's preamble is considered to be limiting if it recites essential structure or steps or it is necessary to give life, meaning, and vitality to the claim. On the other hand, I understand that a preamble is not limiting where the body of a claim defines a structurally complete invention, and the preamble only states a purpose of intended use for the invention.

B. Means Plus Function

28. I understand that claim terms may be drafted in means-plus-function format where they recite a means for performing a function, and the corresponding structure for performing that function is clearly identified in the specification.

29. I understand that, if a claim term uses the word “means” (*e.g.*, “means for transmitting” or “transmitting means”), it is presumed that it is a means-plus-function term. If, on the other hand, a claim term does not use the word “means,” it is presumed that it is not a means-plus-function term. However, this presumption may be overcome, and even a claim term that does not use the word “means” will be treated as a means-plus-function term where it recites a function without reciting sufficient structure for performing that function. For example, if the term uses functional language and/or a nonce word that would have the same effect as though the word “means” was used instead, and does not provide sufficient structure, the presumption against means-plus-function will be overcome. Some well-known “nonce” words (generic or coined structural terms lacking a clear meaning such as “widget”) that can operate as a substitute for “means” in the context of a means plus function analysis include “module,” “mechanism,” “element,” and “device” that reflect nothing more than verbal constructs tantamount to using the word “means,” because they typically do not connote sufficiently definite structure. In determining whether a claim term recites sufficiently definite structure, the court may consider

whether that term is used in common parlance by POSAs to designate a particular structure or class of structures and/or its claimed interaction with other components.

30. If a claim term is a means-plus-function term, the specification must supply the corresponding structure that the claim lacks. If there is no corresponding structure in the specification, I understand the term is indefinite.

C. Person of Ordinary Skill in the Art

31. I understand that certain issues relating to validity must be judged from the perspective of a POSA with respect to the claimed subject matter of the '217 Patent. I have been informed and understand that claims are generally given their ordinary and customary meaning as understood by a POSA at the time of the alleged invention, in light of the patent specification and prosecution history. Such an individual is presumed to be aware of all pertinent prior art, thinks along conventional wisdom in the art, and is a person of ordinary creativity. I have been informed and understand that in considering what the claims of a patent require, what was known prior to that patent, what a prior art reference discloses, and whether an invention is obvious or not, one must use the perspective of a POSA.

32. I understand that, when there is a reason to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. I further understand that, if this leads to the anticipated success, it is likely the product not of

innovation but of ordinary skill and common sense, which bears on whether the claim would have been obvious.

33. I further understand that the factors that may be considered in determining the level of skill of a POSA include, but are not limited to, (1) the type of problems encountered in the art; (2) prior art solutions to those problems; (3) rapidity with which innovations are made; (4) sophistication of the technology; and (5) the educational level of active workers in the field.

D. Anticipation

34. I have been informed and understand that a patent claim is anticipated under 35 U.S.C. §102, and therefore unpatentable, if every element of the claimed subject matter is described by a single, prior art publication.

E. Obviousness

35. I understand that a prior art reference can render a patent claim obvious (*i.e.*, unpatentable) to one of ordinary skill in the art if the differences between the subject matter set forth in the patent claim and the prior art are such that the subject matter of the claim would have been obvious at the time the claimed invention was made. For example, a combination of familiar elements according to known methods is likely to be obvious if the combination does no more than produce predictable results.

36. In analyzing obviousness, I understand that it is important to consider the scope of the claims, the level of skill in the relevant art, the scope and content of the prior art, the differences between the prior art and the claims, and any secondary considerations. I further understand that the POSA is not an automaton but one having common sense and ordinary creativity. I also understand that a claim is not obvious simply because a combination of prior art references discloses each claim element collectively.

37. I understand that a POSA is assumed to have knowledge of all prior art references. I also understand that when considering the obviousness of a patent claim, one should consider whether a teaching, suggestion, or motivation to combine the references exists so as to avoid impermissibly applying hindsight when considering the prior art. I understand this test should not be rigidly applied, but that the test can be important to avoiding such hindsight.

38. I understand that the claimed subject matter is obvious when an ordinary artisan would have been motivated to combine pre-existing elements and that combination yields no more than would have been expected. I also understand that in assessing whether a claim is obvious, one must consider whether the claimed improvement is more than the predictable use of prior art elements according to their established functions. I understand that a motivation to combine the references may be implicit in the prior art, and there is no requirement that there be an actual or

explicit teaching to combine two references. Thus, one may take into account the inferences and creative steps that a POSA would employ to combine the known elements in the prior art in the manner claimed by the patent-at-issue. I understand that one should avoid “hindsight bias” and ex post reasoning in performing an obviousness analysis. I understand that in an obviousness analysis, neither the motivation nor the avowed purpose of the inventors controls the inquiry. Any need or problem known in the field at the time of the invention and addressed by the patent can provide a reason for combining elements.

39. I further understand that obviousness is a legal conclusion based on the underlying factual issues of the scope and content of the prior art, the differences between the claimed invention and the prior art, the level of ordinary skill in the art, and any objective indicia of non-obviousness. For that reason, I am not rendering a legal opinion on the ultimate legal question of obviousness. Rather, my testimony addresses the underlying facts and factual analysis that would support a legal conclusion of obviousness, and when I use the term obvious, I am referring to the perspective of a POSA at the time of invention.

F. *Markush* Groups

40. I have been informed that a “*Markush*” group includes a disjunctive list of alternatives from which a selection is to be made. I have further been informed and understand that a *Markush* claim uses the signal “group of” and lists alternatives

that fulfill the claim limitation. I have further been informed and understand that the Federal Circuit has held that “the entire element [of a *Markush* claim] is disclosed by the prior art if one alternative in the Markush group is in the prior art.” I have been informed and understand that based on patent law, disclosure in the prior art of one member of the group is sufficient to render the claim invalid as anticipated.

III. THE '217 PATENT

A. Overview

41. The '217 Patent relates to an “electronic mail system” that “determines [the] relevance . . . [of] a piece of electronic content” to the user. EX1001, Abstract. In particular, the claims recite “[a] *computer-implemented system*” that determines a “*relevance score*” for “*a piece of electronic content sent from a sender to a user.*” '217 Patent, cl.1. The '217 Patent states that “[i]n general, embodiments of the present invention relate to a technique for determining the relative relevances of electronic mail messages” (*i.e.*, emails). *Id.*, 3:34-36.

42. The claims recite various “*computer program modules*” that are “*execute[d] on [a] computer processor.*” *Id.*, c.1. For example, there is “*a monitoring module,*” “*a first relevance measurement module,*” “*a second relevance measurement module*” and “*a relevance analysis module.*” *Id.*

43. The '217 Patent states that in an email system, the monitoring module “generally monitors and registers user actions [on an email] and those of users

associated or corresponding with a particular user.” *Id.*, 6:40-43. The first “relevance determination module assesses user action data provided by the monitoring module and calculates relevance scores for objects accessible to the user.” *Id.*, 6:45-47.

44. The second relevance determination module identifies another user that also received the email where that other user is “cognate” with the user and calculates a relevance measure. *Id.*, 47:41-45. The ’217 Patent states that “cognate entities” are “a group [of users] . . . defined by similar past user actions and assessments, and/or a direct input by a user.” *Id.*, 14:65-66. The second relevance determination module also makes a relevance determination based at least in part one or more of the following: local importance of the sender to the user (*e.g.*, “how important is John to Doug?”), global importance of the sender within an organization (*e.g.*, “values describing a particular job code”), “a content relevance determined responsive to content” of the email, and one or more actions on the email taken by at least one of the other users that received the email where that other user is “cognate” with the user. *Id.*, 8:53-55, 13, 24-26, 47:41-61.

45. The ’217 Patent states that relevance analysis module determines the relevance score of the email based at least in part on the two relevance measures. ’217 Patent, 47:62-67. The relevance score may be displayed to the user. ’217 Patent, 7:48-50.

46. The specification describes two types of relevance values: “incoming relevance” and “post-reading relevance.” *Id.*, 8:63-66. Incoming relevance is the “estimated relevance [of a piece of content] to a recipient before [it] . . . is opened.” *Id.*, 8:64-66. Post-reading relevance is the “relevance assigned after an electronic mail object is opened and dealt with.” *Id.*, 8:63-9:1. Here, the independent claims require “*a first measure of relevance of the piece of electronic content **based at least in part on one or more actions of the user.***” *Id.*, c.1. Therefore, the claims of the ’217 Patent are directed to post-reading relevance because they require a measure of relevance assigned after an object “is opened and dealt with.”

B. Prosecution History

1. File History of 7,716,217

47. I have reviewed the file history of the ’217 Patent. EX1002. I summarize the relevant information that I have reviewed pertaining to my opinion.

48. I understand that EX1002 is a certified copy of the file history of the ’217 Patent—application number 11/623,653 (“the ’653 Application”). The ’653 Application was filed on January 16, 2007. The ’653 Application also claims priority to provisional application 60/758,828 (“the ’828 Provisional”) (EX1003) filed on January 13, 2006 (discussed more below).

49. On November 14, 2008, the examiner issued a Non-Final Rejection, rejecting the claims as anticipated by U.S. Patent Application Publication

2004/0078447 (“Malik”) (EX1013). EX1002, 235.¹ In particular, the examiner explained that “every claim limitation is taught by” Malik and that “[a]pplicant has not named a credible improvement over the prior art.” *Id.*, 239-240. The examiner also stated that “applicant’s claimed Background and Summary is a mischaracterization of the state of the prior art.” *Id.* Finally, the examiner referenced the “PCT International Search Report and Written Opinion” for PCT Application No. PCT/US07/60587, whose claims were identical to those submitted in the ’658 Application, which “found the claims lacked novelty as anticipated by the Malik Reference.” *Id.*, 234. The examiner also stated that “[t]his case is related to co-pending application no. 11/426118” (discussed below). *Id.*, 233.

50. On December 15, 2008, Patent Owner initiated an examiner interview and “attempted to distinguish claimed invention over prior art of record.” *Id.*, 252. In particular, Patent Owner argued that “Malik did not determine relevance based on user actions ‘on a piece of electronic content.’” *Id.* However, no agreement was reached. *Id.*

51. On January 5, 2009, Patent Owner responded to the Non-Final Rejection and incorporated its arguments from the examiner interview into its remarks. *Id.*, 253. In particular, Patent Owner argued that “the claimed invention

¹ All citations to page numbers herein refer to the pagination provided pursuant to 37 CFR § 42.63.

recites determining relevance to a user of a piece of electronic content (*e.g.*, an email) . . . dependent on one or more **actions of the user** (and of at least one other of the plurality of users that is a recipient of the piece of electronic content) **on the piece of electronic content.**” *Id.*, 259-60 (emphasis in original). According to Patent Owner, Malik did not disclose this feature because its user profile is a “collection of properties related to a user email folder” but does not track user actions. *Id.*, 260. Patent Owner noted that Mailk does disclose “server processors [] configured to track email access by individual users,” however, argued that “such a general statement in no way discloses or suggests the specific elements recited.” *Id.*, 261.

52. On May 12, 2009, the examiner issued a final rejection and found the Applicant’s arguments unpersuasive. *Id.*, 275.

53. On August 10, 2009, Patent Owner initiated another “telephone interview” with the examiner. *Id.*, 290. According to Patent Owner’s summary of the call, “Examiner Hocker agreed that Malik does not disclose or suggest that the measure of relevance of the piece of electronic content is determined dependent on one or more actions on the piece of electronic content of at least one other of the plurality of users that is a recipient of the piece of electronic content, and that if claim 1 were amended to include this limitation, then claim 1 would be distinguished from Malik.” *Id.*, 290-91.

54. Applicants then filed a Request for Continued Examination (RCE). *Id.*, 315. Specifically, in the RCE, Applicants argued that claims 4, 6, 7, 14, 16, 20, 22 were allowable over Malik because the examiner agreed that Malik does not disclose that “the measure of relevance of the piece of electronic content is determined dependent on one or more actions on the piece of electronic content of at least one other of the plurality of users that is a recipient of the piece of electronic content.” *Id.*, 220.

55. Patent Owner initiated additional telephone interviews with the examiner on August 11, 2009 and January 11, 2010. The examiner’s summary of the interviews notes that “[t]he arguably novel feature is that the claimed invention bases the ‘Relevance’ on the actions of another user ‘ON The Piece of Content’” and that “Applicant seemed to agree to amend to further specify the ‘actions’ in the last limitation were based on ‘others’ (*i.e.*, another person forwards it, another person deletes it).” *Id.*, 306.

56. On January 15, 2010, Patent Owner cancelled then-pending claims 18-22, amended then-pending claims 1, 7, 8, 11, and 17, and added claims 27-37. *Id.*, 319-326. In particular, Patent Owner amended the independent claims to include a *Markush* group:

a second relevance measurement module coupled to the monitoring module and configured to:

identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and

determine a second measure of [[a]] relevance of the piece of electronic content as determined dependent based at least in part on one or more measures derived from the group consisting of:

a local importance describing an importance of the sender to the user,

a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and

Id., 322.

57. Patent Owner, however, did not make any specific arguments or remarks with these amendments outside of what is reflected in the telephone interview summaries. Of note, is that the examiner previously noted that “[t]he arguably novel feature is that the claimed invention bases the ‘Relevance’ on the actions of another user ‘ON The Piece of Content,’” and the recited functionality is within the Markush group. *Id.*, 306.

58. The USPTO subsequently allowed the ’653 Application and issued a notice of allowance for the issued ’217 Patent. *Id.*, 728. The notice of allowance explained that Malik “teaches the general state of the art, Malik does not teach each

and every limitation in claims 1, 11 and 17.” *Id.*, 736. In particular, the examiner noted that “Malik at least differ [sic] from claim 1 because claim 1 teaches:”

a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of [[a]] relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content; ~~and~~

a second relevance measurement module coupled to the monitoring module and configured to:

identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and

determine a second measure of [[a]] relevance of the piece of electronic content as determined dependent at least in part on one or more measures derived from the group consisting of: a local importance describing an importance of the sender to the user, a global importance describing an importance of the sender within an organization with which the plurality of users are associated, a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.

Id., 736-737.

2. PCT Application

59. I have reviewed the International Application PCT/US07/60587 (“the ’587 Application”) (EX1014) (WO 2007-082308) and its file history (EX1015). I summarize the relevant information that I have reviewed pertaining to my opinion.

60. I note that, on February 14, 2008, a written opinion of the International Searching Authority was issued in relation to the ’587 Application. All 22 claims were found to be anticipated by Malik. EX1002, 215.

3. Provisional Patent Application No. 60/758,828

61. I have reviewed the ’828 Provisional Application. I summarize the relevant information that I have reviewed pertaining to my opinion.

62. I understand that EX1003 is a true and correct copy of the ’828 Provisional Application. The application is a manual for BlueSpace Mail Relevance. EX1003, 4. The application states that “BlueSpace uses a multi-dimensional relevance system – BlueSpace Mail Relevance – which rates the importance of each piece of content based primarily on the following criteria: 1. User actions, 2. Other user actions, and 3. Administrative settings. *Id.*, 8.

Most email systems today have basic search facilities in which each email is given equal weighting. BlueSpace allows searching by keyword, process code and other such criteria. But in addition, BlueSpace uses a multi-dimensional relevance system – BlueSpace Mail Relevance – which rates the importance of each piece of content based primarily on the following criteria:

1. **User actions** – what did the user do with the mail? If they moved it to a folder or forwarded it then it is likely to be of significant importance.
2. **Other user actions** – what did other users do with the mail? Again, their actions indicate their views on the content's importance.
3. **Administrative settings** – a 'Relevance Administrator' can add weightings reflecting the enterprise's view of what is important.

BlueSpace Mail Relevance does not only rate the "relevance" of content – it also rates the "importance" of each user and other entity (such as Jobcodes and contexts) in the system.

Id., 8.

63. The '828 Provisional also discusses that "[r]elevance rates each piece of content in an order reflecting a user's likely interest in the content," and that "[i]mportance rates each entity . . . reflecting a user's likely interest in content involving that entity," with the "primary input for determining both relevance and importance is observing users' actions – an automatic, background process." *Id.*, 16. That in summary, the system "observes user's actions to infer their interest in both content and other entities (such as users) in a BlueSpace system, and presents these values to the user." *Id.*

64. The '828 Provisional Application also cites to several prior art references, which do not appear to have been included in the certified file history for the '217 Patent or within EX1003.

- ⁱ Talking Headers, Katie Hafner and Matthew Lyon, The Washington Post Magazine, 4th August 1996.
- ⁱⁱ Legal Lottery, Melanie Liew, Computerworld, 28th April 2004
- ⁱⁱⁱ Talking Headers, Katie Hafner and Matthew Lyon, The Washington Post Magazine, 4th August 1996.
- ^{iv} Simple Mail Transfer Protocol, Johnathan Postel, RFC 821, August 1982
- ^v Is banning e-mail a viable way for IT to avoid being crippled by storage costs?, Julia Vowler, ComputerWeekly, 16th October 2003
- ^{vi} Email management too important for CIOs, Rachel Fielding, Network News, 11th February 2003
- ^{vii} Legal Lottery, Melanie Liew, Computerworld, 28th April 2004
- ^{viii} Relational Messaging White Paper, BlueSpace Group Ltd, 2nd July 2002
- ^{ix} BlueSpace Discovery Service, BlueSpace Group Ltd, 3rd December 2003
- ^x BlueSpace Email Structuring, BlueSpace Group Ltd, August 2004
- ^{xi} BlueSpace Integrated Governance Management, BlueSpace Group Ltd, 15th May 2004
- ^{xii} BlueSpace Integrated Governance Management, BlueSpace Group Ltd, 15th May 2004
- ^{xiii} BlueSpace Email Structuring, BlueSpace Group Ltd, August 2004
- ^{xiv} BlueSpace Integrated Governance Management, BlueSpace Group Ltd, 15th May 2004
- ^{xv} BlueSpace Integrated Governance Management, BlueSpace Group Ltd, 15th May 2004
- ^{xvi} BlueSpace Integrated Governance Management, BlueSpace Group Ltd, 15th May 2004

Id., 99.

4. Patent Application No. 11/426,118

65. I have reviewed the file history of U.S. Patent Application No. 11/426,118 (“the ’118 Application”). EX1017. I summarize the relevant information that I have reviewed pertaining to my opinion.

66. I understand that EX1017 is a true and correct copy of the file history of the ’118 Application. The ’118 Application was filed on June 23, 2006. The ’118

Application claims priority to the '828 Application and provisional application 60/693,605 (“the '605 Application”) (EX1018) filed on June 24, 2005. The '118 Application filed with 23 total claims. Claims 1, 9, and 17 were independent.

67. The '118 Application was cited during the prosecution of the '217 Patent and was described as a “related [] copending application no. 11/426118.” EX1002, 233. The content of the '118 Application is similar, with the embodiments of the application relating to “a technique for determining the relative relevances of electronic mail messages.” EX1001, 3:34-36.

68. On November 26, 2008, the examiner issued a non-final rejection, finding that: (1) claims 1-8 were directed to non-statutory subject matter and not limited to tangible embodiments and, therefore, invalid under 35 U.S.C. 101; (2) claims 1, 5-9, and 13-16 were anticipated by U.S. Patent No. 6,249,807 (“Shaw”) (EX1019), and (3) claims 2-4, 10-12, and 17-23 were obvious over Shaw in view of U.S. Patent Application Publication 2004/0054744 (“Karamchedu”) (EX1020). EX1017, 120-26.

69. In response, on March 26, 2009, Patent Owner cancelled then-pending claims 6, 14, and 21, amended then-pending claims 1, 7, 9, 15, 17, and 22, and added claims 24. *Id.*, 137-43. Patent Owner amended claim 1 to “recite a processor configured to execute computer program modules,” to overcome the rejection under 101. *Id.*, 144. Patent Owner also amended claim 1 to incorporate the limitation of

former claim 6, specifically “specifying a validity period for a context category, the validity period defining a period of time during which new associations of content to the context category can be made and preventing new associations of content of the context category after the period,” with claims 9 and 17 amended to recite similar limitations. *Id.* Patent Owner argued that Shaw and Karamchedu does not “define [a period of time during which new associations of content to the context category can be made, and prevent[] new associations of content to the context category after the period,” as claimed. *Id.*, 145. Claim 7 was amended to recite “specifying conditions for when to delete the context category,” with claims 15 and 22 amended to recite similar limitations. *Id.*, 146. Patent Owner argued that Shaw and Karamchedu does not “specif[y] conditions for when to delete a message queue (alleged context category), as claimed.” *Id.*, 147.

70. On June 15, 2009, the Examiner rejected all the then-pending claims. *Id.*, 154-55. The Examiner rejected claims 1, 5-9, 13-16, and 24 as anticipated by Shaw, rejected claims 2-4, 10-12, 17-21, and 23 as obvious over Shaw in view of Karamchedu, and rejected claim 7 as obvious over Shaw in view of U.S Patent Application Publication 2006/0168029 (“Fitzpatrick”) (EX1021). *Id.*, 156-62.

71. Patent Owner did not respond, and a Notice of Abandonment was issued for the ’118 Application on December 22, 2009. *Id.*, 170-72.

C. The Challenged Claims

72. The '271 Patent includes 22 total claims, three (claims 1, 6 and 7) of which are independent claims. The independent claims overlap significantly. For example, as shown in the redline below claims 1 and 6 only differ with respect to the first few limitations:

Claim 1

1. A computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented system comprising:

a computer processor; and

a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules comprising:

a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;

a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content;

a second relevance measurement module coupled to the monitoring module and configured to:

identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and

determine a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group consisting of:

a local importance describing an importance of the sender to the user,

a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and

a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.

Claim 6

~~46. A computer-implemented-system, program, product for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented-system, program, product, having a computer-readable storage medium having computer program instructions encoded thereon, comprising:~~

~~a computer processor; and~~

~~a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules comprising:~~

a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;

a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content;

a second relevance measurement module coupled to the monitoring module and configured to:

identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and

determine a second measure of relevance of the piece of electronic content ~~as~~ based at least in part on one or more measures derived from the group consisting of:

a local importance describing an importance of the sender to the user,

a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and

a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.

73. And as shown in the redline below, claims 1 and 7 also overlap significantly:

Claim 1

1. A computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented system comprising:

a computer processor; and

a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules comprising:

a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;

a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content;

a second relevance measurement module coupled to the monitoring module and configured to:

identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and

determine a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group consisting of:

a local importance describing an importance of the sender to the user,

a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and

a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.

Claim 7

7. A computer-implemented ~~system~~method for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented ~~system~~method comprising:

~~a computer processor; and~~

~~a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules comprising:~~

~~a monitoring module configured to track tracking actions by a plurality of users associated with an application for managing electronic content;~~

~~a first relevance measurement module coupled to the monitoring module and configured to determine identifying at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user,~~

~~determining~~ a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content;

~~a second relevance measurement module coupled to the monitoring module and configured to:~~

~~identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and~~

~~determined~~~~determining~~ a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group consisting of:

a local importance describing an importance of the sender to the user,

a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and

~~a relevance analysis module configured to determined~~~~determining~~ the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.

74. Further, the dependent claims for each independent claim **do not** directly follow their respective independent claims, rather the dependent claims appear out of order. For example, despite directly following claim 7 in order, claims 8-12 dependent from claim 1 (either directly or indirectly). But claims 13-17 depend on claim 6 (either directly or indirectly). The table below associates each dependent claim with its respective independent claim.

Independent Claims	Respective Dependent Claims (directly or indirectly)
Claim 1	Claims 2-5, 8-12
Claim 6	Claims 13-17

Claim 7	Claims 18-22
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75. For ease of analysis and reading I have grouped each dependent claim with its respective independent claim below, rather than in order.

IV. THE STATE OF THE ART

76. By the late 1980s and early 1990s, the use of email and other electronic documents skyrocketed. As email volume increased users felt they were being “inundated by a huge stream of incoming documents.” EX1011, 1, 4; EX1012, 1:1-67. The problem of spam or junk email also emerged where individuals received dozens of unwanted emails daily. EX1022, [0002]; EX1023, 1. As a result, important emails were lost or overlooked. Likewise, “[m]any entities spen[t] millions of dollars in communicating with their constituencies” yet find it difficult to “to deliver the right marketing message to the right customer at the right time” given the large volume of email communication. EX1024, [0005].

77. Content management systems were quickly developed to filter out spam and other unwanted messages. *See, e.g.*, EX1007, [0004]-[0009] (discussing various patents related to inventions geared toward controlling spam); EX1026, Abstract (discussing how disclosed invention determined the likelihood that an email is spam); EX1025, 4:20-23 (noting that the user of the system can set spam filtering rules); EX1027, *passim* (describing anti-spam tool); EX1023, 1. The concept of

filtering out spam evolved into a general need for systems to manage and sort through email and/or documents. In other words, there was a need for systems that helped users by evaluating the relevance or importance of a piece of content. *See, e.g.*, EX1028, 3:21-4:14; EX1029, 1-2; EX1030, 1.

78. Several solutions arose for managing, filtering, and sorting email and documents.

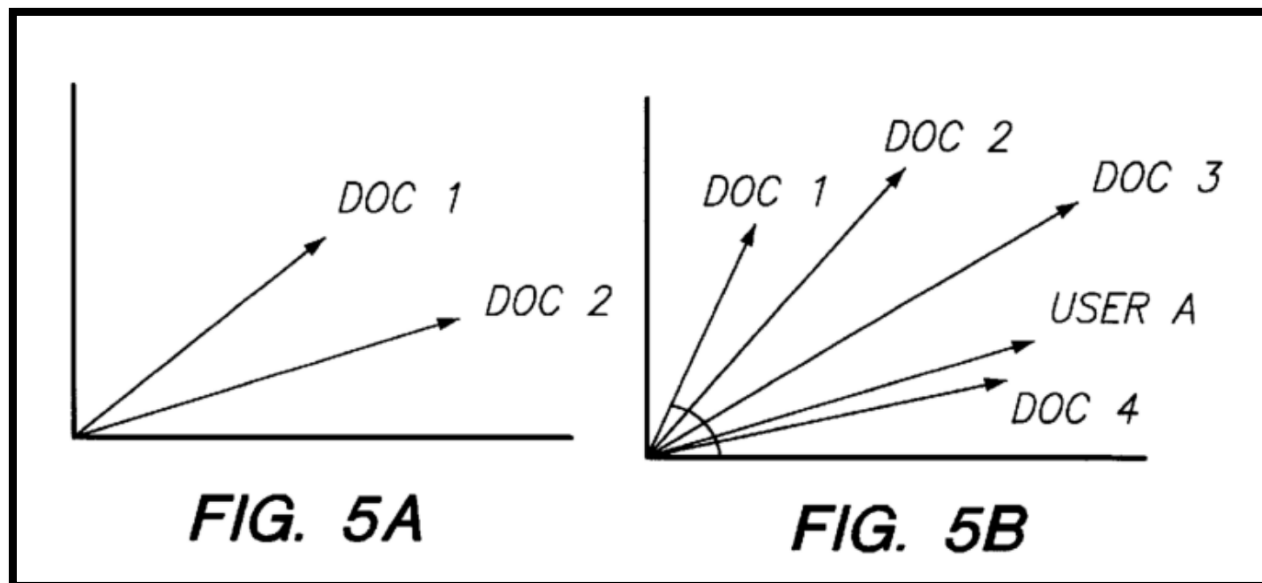
A. Content-Based Filtering

79. By 1992 “[s]everal mail systems” and document management system filtered documents “based on a document’s contents.” EX1011, 1. Content-based filtering recommends items based “on a profile built up by analyzing the content of items that a user has rated.” EX1030, 2.

80. One common approach for content-filter involved analyzing the occurrence of certain words in a message and correlating those words with importance. *See, e.g.*, EX1025, 6:4-18. US 7,941,491 (“Sood”), for example, disclosed a method and system that ranked electronic messages, and the method used a “Statistical Analysis Box” to “extract the key words, and/or sentences and/or links” in a message and kept statistics per word or group of words. *Id.*, 6:4-10. A score would be attached to the words or group of words. *See Id.* The system used a “Keywords Identification Box” to identify key words in an email based on the words’ scores. *Id.*, 6:10-18; *see also* EX1031, Abstract (disclosing an email

organizer with a natural language processor that detected deadlines in emails and assigned priority based at least in part by the deadlines and the current date). As another example, Kircher, incorporated content analysis. Kircher evaluated the email's likely importance to the user based in part on "clues found in the content of the email," such as if the email suggested that email was a reply to an email sent by the user. EX1007, [0048].

81. Similarly, Rose disclosed using a "two-dimensional vector" that was based on "indexing text" within a document (Vectors: DOC 1; DOC 2). Each user profile "also comprise[d] a vector, based upon the user's indications as to his or her relative interest in previously retrieved documents." EX1040, 6:36-38. As shown in FIG. 5B, "a score of a document's relevance [could] be indicated by the cosine of the angle between the document's vector and the user's profile vector. A document having a vector which [was] close to that of the user's profile [would] be highly ranked, whereas those which [were] significantly different [would] have a lower ranking." EX1040, 6:53-60.



82. However, content-based filters “have difficulty in distinguishing between high-quality and low-quality information that is on the same topic.” EX1030, 2. Moreover, as the number of documents or items associated with a category grows content-filtering can become less effective, because the strength of a given content keyword become diluted. *Id.* Therefore, users quickly realized that without “involving humans in the filtering process” effective filtering could not be achieved. EX1011, 1.

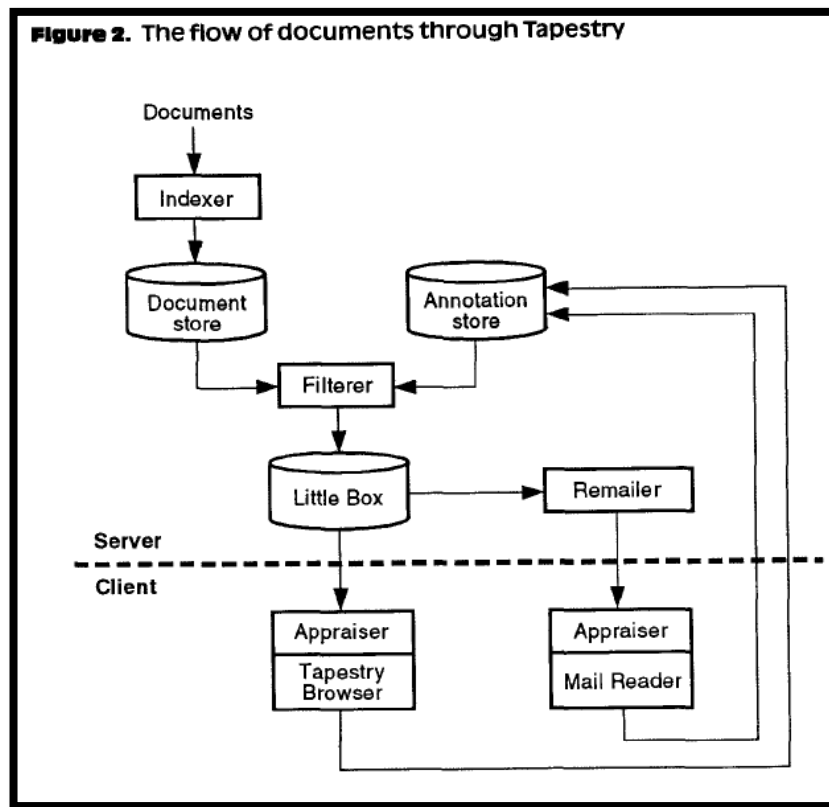
B. Collaborative Filtering

83. To overcome some of the issues associated with content-based filtering, many systems used techniques known as collaborative filtering. EX1011, 1. Collaborative filtering is the technique of using peer opinions to predict the interest of others. EX1030, 1. Users indicate their opinions in the form of ratings on various

pieces of information, and the collaborative filter correlates the ratings with those of other users to determine how to make future predictions for the rater. *Id.*

84. For example, in 1992 (over a decade before the earliest possible priority date of the challenged patent), Xerox Palo Alto Research (PARC) designed an experimental mail and document management system called “Tapestry.” EX1011, 1. The “basic tenet” of Tapestry was that in addition to content-based filtering, discussed above, email should support “collaborative filtering.” Collaborative filtering allowed people to “collaborate to help one another perform filtering by recording their reactions to documents they read.” *Id.* The Tapestry system recorded a user’s “reactions” as “annotations.” *Id.*

85. The set of annotations for all the users of the system were stored in a centralized “annotation store.”



EX1011, 3.

86. The annotations database included the annotations for all users of the system. EX1011, 9. The Tapestry system then employed software agents called “Appraiser[s],” which used the database of annotations to assign relevance weights to each document and filter out irrelevant documents. EX1011, 4.

87. The concept of collaborative filtering in Tapestry evolved over time. Roughly a decade after Tapestry—and still before the priority date—Amazon built on “traditional collaborative filtering algorithm[s]” to develop its recommendations engine. EX1032, 1. Amazon used “item-to-item collaborative filtering” where Amazon would build a similar-items table by finding items customers tended to

purchase together and then created an algorithm to calculate the similarity between products. *Id.*, 2-3. Around the same time, a program called SmartTag was invented to “identify[] relevant messages in asynchronous discussion forums[,]” which also incorporated collaborative filtering. EX1029, 1-2. In SmartTag, if user A received a new message, the organizer’s “New Message Filter” would evaluate the relevancy of the new message to user A by examining how user B evaluated the message. *Id.* For example, if user B categorized the new message as “*Category 5*,” which “contain[ed] similar statistics” to user A’s “*Category 2*,” then the New Message Filter would recommend the relevancy of the new message to user A as “*Category 2*.” *Id.*, 4.

88. In the early 2000s, Microsoft and Apple both developed robust information access systems that ranked information by a “prediction of the likely degree of relevance to the user’s interests” based at least in part by “data regarding correlations of interests between users.” EX1040, Abstract (Apple); *see also* EX1006, Abstract (Microsoft). These systems leveraged correlations between users with similar interests to weight and assign relevance sources to a piece of content. For example, in the Apple system, when a user retrieved a document, the user would “subsequently provide[] an indication of interest” for that document, which was then used to create the matrix along with other users’ indications. EX1040, 6:59-66. The Microsoft system, likewise, used “collaborative filter techniques” that leveraged

“[s]everal algorithms including techniques based on correlation coefficients, vector-based similarity calculations, and statistical Bayesian methods.” EX1006, [0055]; *see also* EX1033, 3:17-4:2.

89. In the field of email, collaborative filtering became ubiquitous. In the early 2000s, for example, WO 01/69432 (“Horvitz”) disclosed the use of classifiers, such as a Bayesian classifier or a support vector machine, where the classifiers could be refined based on a monitor that tracked the user’s actions on an email. EX1028, 3:4-15. The user actions were used to help determine the importance of the message to the user. *Id.*, 8. Similarly, in 2002, U.S. Patent App. Pub. 2003/0187937 (“Yao”) disclosed “[a] method for handling e-mail messages” where fuzzy logic rules were applied to emails, and the rules were modified based on what a user did with an email (*e.g.*, deleted it immediately, saved it, etc.) to ultimately apply importance ratings to the emails. EX1022, Abstract, [0028].

C. Local and Global Importance Filtering

90. The relative local or global importance of the author of the document is another common way to filter relevant information. For example, in the context of email, relevance can be affected by how important the sender of the message is to the receiver. *See, e.g.*, EX1034, 4 (discussing results of a survey where “[s]ender characteristics and message content influenced users’ perceptions of message

importance”). In general, the more important the sender was to the receiver, the more important the email was to the receiver.

91. Different methods were used to evaluate the local or global importance. By the early 2000s, one way to do this was to check the identity of the sender against a list created by the user (*i.e.*, an email address book or whitelist). *See, e.g.*, EX1026, [0025], [0027] (discussing how a “whitelist” was created to “indicate which messages will be accepted”). If the sender of an email was on the whitelist, then the email would be passed onto the user. *Id.*; *see also* EX1028, 11:21-22 (discussing how its text classifier could be trained and enhanced by identifying “[n]ames on [a] pre-determined list of important people, potentially segmented into a variety of classes of individuals, (*e.g.*, [f]amily members, [f]riends)”).

92. Another method was for the system to consider the structure of the user’s network. For example, Horvitz (2001) disclosed how its text classifier could be trained to assess criticality of the email based on different “tokens and/or patterns of value” such as “[i]nformation about the structure of organizational relationships relative to the user drawn from an organization chart such as: [m]anagers the user reports to, [m]anagers of the managers of users, [and p]eople who report to the user.” EX1028, 11:24-28.

D. Combining Different Filtering Techniques

93. Often multiple types of filtering and relevance scoring are used in a single system to gain the benefits of multiple techniques. For example, in 1998, researchers at BellCore, AT&T Labs, and Rutgers published a paper explaining that by combining “social ratings” (*i.e.*, collaborative filtering) and “content-based information” their system could outperform existing systems that relied on collaborative filtering alone. EX1035, 1. Similar concepts were explored in the Claypool and Melville papers. EX1030; EX1036. In a 1999 paper, Claypool presented a “new filtering approach that combine[d] the coverage and speed of content-filters with the depth of collaborative filtering.” EX1030, 1. Claypool explained that:

Experiments have shown collaborative filtering can be enhanced by adding content-based filters [1, 2]. By using a combination of content-based and collaborative filters we can realize the benefits of content-based filters which include early predictions that cover all items and users, while gaining the benefits of accurate collaborative filtering predictions as the number of users and ratings increases.

EX1030, 2 (citing [1] EX1037 and [2] EX1038).

94. Multiple systems at the time included both collaborative and content-based filtering, including GroupLens and Tapestry. EX1011, 1 (“In addition to content-based filtering, the Tapestry system was designed and built to support

collaborative filtering”); EX1030, 2 (“GroupLens implements a hybrid collaborative filtering system for Usenet news that supports content-based filters.”).

95. Likewise, Dabbish explains that a model based on sender characteristics, job characteristics, and message content was significantly better than model based on sender characteristics and job characteristics alone.

	Base Model	Model 1 Job Char	Model 2 Job Char + Sender Char	Model 3 Job Char + Sender Char + Message Content	Impact on importance score (percent change)
Independent variable	Beta	Beta	Beta	Beta	
Intercept	2.28***	1.66***	1.88***	1.68***	---
Job Complexity		0.26***	0.22***	0.19***	+ 9%
No. of Recipients			-0.23***	-0.22***	- 10%
Comm. Frequency			0.05*	0.05*	+ 4%
Work Relationship			0.56***	0.45***	+ 23%
Action Request				0.38***	+ 20%
Info. Request				0.19*	+ 10%
Status Update				0.35***	+ 18%
Scheduling				0.38***	+ 24%
Reminder				0.25**	+ 13%
Social Message				-0.62***	- 32%
R-squared	0.26	0.27	0.40	0.53	

*<.05, **<.001, ***<.0001

Table 4. Predicting importance score of a message.

EX1034, 6.

96. Likewise, as explained above, the “basic tenet” of Tapestry was that in addition to content-based filtering, discussed above, email should support “collaborative filtering.” Collaborative filtering allowed people to “collaborate to

help one another perform filtering by recording their reactions to documents they read.” EX1011, 1.

97. Combining multiple forms of filtering together is often accomplished through a weighted mean. EX1030, 2 (“Our approach is extensible to additional filtering methods by allowing each method to be added as a separate weight in the weighted average.”). This approach has several advantages. In particular, it allows new methods of filtering to be easily added or deleted. *Id.* It also allows “per-user, per-article weights for the content-based and collaborative predictions” where “[t]hese weights can also change over time to reflect the change in user tastes.” *Id.*, 4.

E. Tracking User Actions

98. One of the concepts that evolved to evaluate user relevance generally was to track a user’s (or a group of users’) interaction with the content. *See* EX1011, 3-4; EX1024, Abstract (“Using the unique identifier, the user’s actions with respect to the provided feed is tracked. The feed is further re-personalized according to the user’s actions.”); EX1006, Abstract (“[A]spects of the history of user activity, attention, interest, location, or other interaction with data is determined and employed to enhance information storage and access”); EX1025, 8:32-40; EX1039, 3:44-47.

99. The filtering techniques discussed above used tracked user actions to ascertain the relevance of an already reviewed document. For example, the Tapestry system recorded a user's "reactions" as "annotations." EX1011. The annotations included "Implicit feedback" (such as sending a reply to a message). *Id.*, 2. However, Tapestry also included a wide array of possible annotations including, allowing the user to expressly designate a document as priority. *Id.*, 5-6. The "annotations can then be used for filtering." *Id.*, 9. Therefore, by at least 1992, collaborative filtering and content-based filtering based on the actions of one or more users was known in the art. Over the following decade numerous improvements to this idea became commonplace and ubiquitous in email and document management systems.

F. Relevance Scores

100. A common approach for sorting and filtering documents based on relevance is to assign each document a relevance value (or score) using the techniques described above. Many systems at the time, such as the Microsoft and Apple systems discussed above, ranked information using a relevance score. EX1040, Abstract (Apple); *see also* EX1006, Abstract (Microsoft). Some of the systems placed numerical values on the documents or emails. Tapestry, for example, assigned priority to emails with a numerical value. EX1011, 2, 6. Kircher, too, generates a numerical value for the email that correlated to the ranking of the email's

importance. EX1007, [0015]; *see also* EX1031, Abstract (describing how emails are assigned priority scored “based at least on the action deadlines and a current date”); EX1023, 1 (discussing how SpamGuru “assigns a score from 0-1000 for each user that is to receive that message, with higher scores indicating a higher likelihood that the message is spam”). By assigning a score to each document the systems were more easily able to compare the relative relevance of each document, and to filter and rank documents according to their relevance.

G. The Rise of the Personal Computer

101. In the late 1990s and early 2000s, personal computers (“PCs”) and laptops became more ubiquitous. By 2005, it was well-known that PCs and laptops had processors and memories and that the memory included software code that could run on the processor. *See generally*, EX1028 (discussing how the computer program disclosed could be executed by a computer processor via the software on the memory). At the time, email applications and the systems described above generally ran on the computer’s processor.

V. THE LEVEL OF ORDINARY SKILL IN THE ART

102. I understand that patents are interpreted from the perspective of a hypothetical POSA at the time of the alleged invention. The earliest possible priority

date of the '217 Patent is January 13, 2006.² As of this date, I was at least POSA of the '217 Patent, and I had personal knowledge of the technologies involved in the '217 Patent.

103. I also understand that various factors are considered in determining the level of ordinary skill in the art. I understand that the factors include types of problems encountered in the art, prior solutions to those problems, rapidity with which innovations are made, sophistication of technology at the time of the invention, and educational levels and experience of persons working in the field and capable of understanding the applicable scientific and engineering principles. I understand that in determining the level of ordinary skill in the art, not all factors may be present, or one or more factors may predominate.

104. In my opinion a POSA at the time of the purported inventions of the '217 Patent would have had at least a bachelor's degree in electrical or computer engineering, or a related field, and two to three years of experience with the design or implementation of content management and analysis systems: a higher level of education or skill can make up for less experience, and vice versa. I have applied this level of skill herein.

² To the extent a different priority data is adopted, the analysis herein remains the same.

105. At least as of January 13, 2006, I satisfied and exceeded all of the above requirements for a POSA.

VI. CLAIM CONSTRUCTION

106. I understand that claim terms should carry their “ordinary and customary meaning,” which is “the meaning that the term would have to a person of ordinary skill in the art in question” at the time of the invention. For the terms below I provide constructions explaining how a POSA would have interpreted the claims. For all other terms I apply the plain and ordinary meaning.

A. The “*computer program module*” terms

107. As explained above, I understand claim terms may be drafted in means-plus-function format where they recite a means for performing a function. I also understand that even if the term “means” is not used in the claim, the claim may be means-plus-function if the term uses functional language and/or a nonce word that would have the same effect as though the word “means” was used instead and does not provide sufficient structure.

108. In my opinion, the following claim limitations of claim 1 and 6 should be treated as means-plus-function terms: (1) “*a monitoring module*,” (2) “*a first relevance measurement module*,” (3) “*a second relevance measurement module*,” and (4) “*a relevance analysis module*” (collectively “*computer program modules*”).

109. While these claim limitations do not recite the term “means” they use the equally generic term “*module*.” The claims recite that the generic “*module*” perform specific functions, such as: tracking user actions, determining measures of relevance based on user actions, identifying user that are “cognate” to a first user, and determining relevance scores.

110. In my opinion, the term “*module*” does not convey to a POSA a specific structure for performing the functions recited in the claim. The term “*module*” can vaguely refer to any code or components to perform a given function. For example, and as explained in more detail below, the term “*a monitoring module*” does not convey a specific structure for performing the function of tracking actions by a plurality of users. Rather, the “*module*” is defined entirely by its function—*i.e.*, monitoring/tracking actions by a plurality of users. The same is true of the claimed “*first relevance measurement module*,” and “*second relevance measurement module*.” These claim limitations fail to convey a structure to a POSA. Indeed, the first and second “*relevance measurement module[s]*” perform different functions. This further confirms that the term “*relevance measurement module*” does not denote a specific structure. The claimed “*relevance analysis module*” is equally generic. The term “*relevance analysis module*” does not denote any structure for performing the claimed function of determining the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being

determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance. In short, “*module*” and the “*computer program modules*” do not convey to a POSA a name for a specific structure to perform the claimed function.

111. Moreover, the claims are written in functional form. Each claim limitation recites a “*module*” that performs a function. This generic use of the term “*module*” further confirms that “*module*” and the “*computer program modules*” are generic functional terms. Each “*module*” is a black box which performs a specified function. A POSA would view the generic phrasing of these “*computer program modules*” to perform recited functions to mean essentially the same thing as “means for” performing those functions, or some other verbal construct that also does not connote any definite structure.

112. I understand that in some cases, generic computer functions such as “processing,” “receiving,” and “storing” do not require more specific structure because they can be achieved by any general-purpose computer without special programming. This is not the case here. Each recited “*module*” performs a specific function—*e.g.*, tracking user actions, determining measures of relevance based on user actions, identifying user that are “*cognate*” to a first user, and determining relevance scores. A POSA could not program any computer to perform the claimed functions corresponding to the “*computer program modules*” without being given

some description of how to do so through an algorithm or some other form of structure recited as these are computer-implemented “*modules*.” For example, a generic general-purpose off-the-shelf computer is not capable of tracking user actions, determining measures of relevance based on user actions, identifying user that are “cognate” to a first user, and determining relevance scores.

113. The specification also confirms that the “*module*” terms are generic and purely functional. The specification explains that “a ‘module’ may be **any** program, circuitry, logic, and/or functionality implemented in either software and/or hardware.” EX1001, 6:36-38. The specification further acknowledges that “any combination of the modules shown therein, may run on **any** type of computer system.” *Id.*, 6:65-66. A POSA reading the specification would understand that the “*computer program modules*” are nothing but a generic description for software or hardware that performs a specified function.

114. Accordingly, the generic term “*module*” does not convey to a POSA any structure. Rather, these limitations only denote a functional black box and should be construed as “means-plus function” terms. I provide my analysis for each term below.

1. “a monitoring module”

115. I understand that if a claim limitation is written in means-plus function form one must *first*, identify the function explicitly recited in the claim and *second*,

identify the corresponding structure set forth in the written description that performs the particular function set forth in the claim.

116. As explained above, “*a monitoring module*” refers to a generic black box to perform a specific claimed function. In particular, the claim expressly recites the function of the “*monitoring module*” is to “*track actions by a plurality of users associated with an application for managing electronic content.*” This function tracks with the description of the “*monitoring module*” in the specification. For example, the specification states that the “monitoring module [is] configured **to track actions by a plurality of users.**” *Id.*, 1:49-52, (emphasis added); 6:39-42 (“electronic mail system 250 has a monitoring module 252, which generally monitors and registers user actions and those of users associated or corresponding with a particular user”); *see also Id.* 7:16-19; 27:11-14, 27:37-40 (noting without any detail that the system “marks” the content”). Therefore, the express function recited in the claim is to track actions by a plurality of users.

117. Next, I reviewed the claims to see if it discloses any corresponding algorithm that performs this function. There is no corresponding algorithm in the claim.

118. I also reviewed the specification to determine if it discloses a computer algorithm corresponding to the claimed function. While the specification is vague, it does describe two possible structures used to track used actions. First,

specification states that in a “relational mail architecture,” each piece of content “is managed as a single instance object during its life in the mail system.” *Id.*, 15:51-58. The “granularity” afforded by the “relational mail architecture” “may allow the electronic mail system to record all actions by users in the system.” *Id.* Alternately, within a “conventional email system” the claimed system may be a “plug-in to the email client” that can “tag content with ‘flags’ so that it can track what happens to the content.” *Id.*, 16:31-57; *Id.*, 27:11-14, 27:37-40 (noting without any detail that the system “marks” the content). Therefore, the structure described by the specification for carrying out the claimed function is either (1) a “relational mail architecture,” or (2) tags or flags within a “conventional email system.”

119. Beyond these two sections, the specification provides no explanation for how the individual “*monitoring module*” performs the claimed function. *Id.*, 16:34-38. If Patent Owner argues that the software and/or algorithm(s) disclosed at 15:51-58, 16:31-57 do not correspond to the “*monitoring module*” there is no other structure in the specification.

120. I’ve also reviewed the File History of the ’217 patent. The file history does not provide any guidance or an algorithm or structure for performing the recited function.

121. Therefore, it is my understanding that for a computer-implemented means-plus-function claim limitation, if the specification discloses a corresponding

structure or algorithm that performs the claimed function, the claims are limited to that algorithm and its equivalents. Therefore, the structure described by the specification for carrying out the claimed function is either (1) a “relational mail architecture” or (2) tags or flags within a “conventional email system.”

2. “a first relevance measurement module”

122. As explained above, “a first relevance measurement module” refers to a generic black box to perform a specific claimed function. In particular, the claim expressly recites the function of the “a first relevance measurement module” is to “determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.” The specification does not use the phrase “relevance measurement module,” further confirming its functional nature. However, the specification does explain at 8:31-40 that:

Users’ actions 86 represent the ways users interact with the electronic mail system, e.g., reading mails, replying to mails, changing settings. Users’ actions 86 encompass an individual user’s own actions and other users’ actions (the communal elements of the system). These actions may help to determine relevance, as relevance is calculated based on the way users interact with content. Users’ actions 86 may also help determine importance, as the importance of entities reflects the significance with which users treat them.

123. Therefore, the specification links user actions with a determination of relevance. Accordingly, the express function recited in the claim is to determine a

first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.

124. Next, I reviewed the claims to see if it discloses any corresponding algorithm that performs this function. There is no corresponding algorithm in the claim.

125. I also reviewed the specification to determine if it discloses a computer algorithm corresponding to the claimed function. The specification describes an “Individual Relevance Component” (“IRC”), which is defined as “a relevance score for a piece of content respective to a given individual user and is based on the actions of that user.” EX1001, 25:45-48. While the specification does not link the “*relevance measurement module*” to the IRC, the IRC appears to perform a similar function—*i.e.*, determinizing relevance of the piece of electronic content based on user actions. The specification denotes the IRC by the symbol ${}^x\text{IRC}_r$, for where recipient r ’s actions on electronic mail object x from sender(s). *Id.*, 25:48-49. The IRC is made up of a “plurality of factors,” including two disclosed factors. *Id.*, 28:63-29:40. The first are dichotomous factors (${}^x\text{IRC}_{ri}$), which depends “on whether the action has happened or not” such as if the user has opened the electronic mail object, clicked on a hyperlink, or replied to an electronic mail object. *Id.*, 28:63-29:7. The second are factors on a cardinal scale (or ordinal scale transformed for the model to a cardinal scale) (${}^x\text{IRCC}_{rj}$), which asks, “how many extra times the user

opens the electronic mail object,” and “to how many people the user forwards the electronic mail object.” *Id.*, 29:11-13. The specification states that dichotomous factors have values of 0 (False) or 1 (True), while cardinal scale factors “may be placed into suitable functions $f(xC_{ij})$ that are between 0 and 1.” *Id.*, 29:13-14. The specification also explains that some of these factors may also “decay” over time. *Id.*, 29:13-35.

126. While the specification does describe the “plurality of factors” that make up the IRC, it fails to describe how these factors are used to calculate the IRC. I did not find any algorithm disclosed in the specification that explains or describes how the “*first relevance measurement module*” determines a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.

127. That said, I understand the PTAB may address the patentability of the claims on section 102 and 103 grounds. As I explain below, the prior art addressed herein, discloses the “plurality of factors,” and discloses how to calculate the first measure of relevance. Therefore, the prior art discloses the claims in greater detail than the ’217 Patent itself.

128. I also reviewed the File History of the ’217 Patent. The claim limitation was amended to read “a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of [[a]] relevance of

the piece of electronic content based at least in part as determined dependent on one or more actions of the user on the piece of electronic content; ~~and.~~” EX1002, 319. Applicant argued these amendments allowed the application to overcome a May 12, 2009, Final Rejection from the Examiner based on 35 USC §§102 and 103 arguments. *Id.*, 327. While the claims were allowed without further rejection on February 12, 2010, the File History provides no information or guidance to an algorithm or structure that allows the “*first relevance measurement module*” to perform the claimed function.

129. Therefore, the structure described by the specification for carrying out the claimed function uses a “plurality of factors” to calculate an IRC but does not describe how the IRC value is calculated.

3. “*a second relevance measurement module*”

130. As explained above, “*a second relevance measurement module*” refers to a generic black box to perform a specific claimed function. In particular, the claim expressly recites the following functions for the “*second relevance measurement module*”:

identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and
determine a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group consisting of:

a local importance describing an importance of the sender to the user,

a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and

131. Therefore, the second relevance module performs two functions, it must (1) identify a cognate user and (2) determine a second measure of relevance. As explained above, the specification does not use the phrase “*relevance measurement module*,” further confirming its functional nature. However, the specification does explain, at EX1001 14:59-15:11, that:

In regard to recognizing “cognate” entities are referred to above, an electronic mail system in accordance with one or more embodiments may identify a “cognate group” for a user, based on historical actions. More particularly, for each user, over time, the system may identify a cognate group of the *n* other users regarded as most similar. Such a group may be defined by similar past user actions and assessments, and/or a direct input by a user. Further, it is noted that it may not be inherent that the population of recipients falls into separate and mutually exclusive cognate groups. Rather, each recipient may have their own cognate group of those the system regards as most similar to that recipient. Thus, for example, in a certain case, user A may be in user B’s cognate group because user A is part of a group of *n* users most similar to B, but at the same time user B may not be in A’s cognate

group because there are n other users more similar to user A than is user B. Accordingly, it may be assumed in certain instances that the actions of this particular group on an electronic mail object will give more indication of its relevance to the user than would a global reaction to the electronic mail.

132. Therefore, the specification links the cognate user and with a determination of relevance.

133. Next, I reviewed the claims to see if it discloses any corresponding algorithm that performs this function. There is no corresponding algorithm in the claim.

134. I also reviewed the specification for function (1) and (2).

135. For function (1), as explained below (*infra* VI.D) the identification of a “cognate group” is based on “similar past user actions and assessments, and/or a direct input by a user.” *Id.*, 14:65-66. A “cognate group” may be determined using “role or group based; collaborative filtering; fingerprinting; cluster models; search-based methods; frequency analysis; and importance value correlation.” *Id.*, 43:30-37. A POSA would have understood that role or group based; collaborative filtering; fingerprinting; cluster models; search-based methods; frequency analysis; and importance value correlation are all methods to determine the similarity of two items (or in this case users). Therefore, a POSA would have understood that the cognate group is identified using one of the techniques described in 43:30-37. *See also Id.*, 25:65-26:10.

136. For function (2), as explained below (*infra* VI.E), each possible “measure” considered in the “second measure of relevance” is part of a *Markush* group. I address each “measure” in turn below:

137. Local Importance: The “local importance” describes “an importance of the sender to the user.” The specification states that the “the local importance to the recipient of the sender” may be a function of “the individual importance component (IIC).” *Id.*, 34:14-48. In particular, the “individual importance component (IIC) may [] be a weighted function” (shown below) of a series of “assessments” as described in 31:21-32:33. *Id.*, 32:24-35.

$$IIC_{sr} = w_1 \frac{1}{n_s} \sum_{x=1}^{n_s} f^t(\text{del}; \text{no}) + w_2 \frac{1}{m_s} \sum_{x=1}^{m_s} f^t(t_{x1} / L_{x1}) + w_3 \sum_{x=1}^v f^t(R(T_x)) + w_4 f^t(I_{rs}^{\text{assigned}}).$$

138. The specification also explains that the “local importance” (I_{sr}^1) of the sender *s* to that individual recipient *r*, [] may depend on where the organizational chart the sender is relative to the receiver.” EX1001, 30:4-9. The specification denotes local importance by the symbol I_{sr}^1 , for where local importance of sender *s* to recipient *r*. *Id.*, 26:29-30. The specification states that the “the local importance to the recipient of the sender” may be a function of “the user’s own IIC ([individual importance component]) for that sender, together with global and cognate

importance values for the sender. *Id.*, 26:27-29. Therefore, the structure described by the specification for carrying out the claimed function is a weighted function of a series of “assessments” as described in 31:21-32:33.

139. A POSA would have understood that that no single component of the weighted sum is necessary, as if a component is missing that component would be equal to zero and not contribute to the overall score. Therefore, if one component of the weighted sum is missing that part of the sum is simply zeroed out and does not impact the local importance. *Id.*, 28:46-48 (“ $^xC_i^S$ is a dichotomous variable indicating the presence or absence of that search criterion in the electronic mail object (*i.e.*, will have a value 0 or 1).”); *see supra* ¶97.

140. Global Importance: The “*global importance*” describes “an importance of the sender within an organization with which the plurality of users are associated.” The specification states that “a global importance value is an importance score for an entity respective to the entire system” and is “part of a large interconnecting matrix of importance values.” *Id.*, 25:55-58, 30:63-31:3. The specification goes on to state that global importance can be calculated based on (1) “the weighted sum of individual importance components” (*Id.*, 32:46-47); (2) the importance of mail objects received (*Id.*, 33:1-11); (3) an assigned value given to the sender by HR (*Id.*, 33:21-28); and (4) “transferred post importance,” according to the following formula:

$${}^k I_s^g = \alpha^{(k-1)} I_s^g + (1 - \alpha) \left[\begin{array}{c} w_1 f \left(\sum_{r=1}^n f \{ IIC_{sr}^{(k-1)}; I_r^g \} \right) + \\ w_2 f \left(\sum_{j=1}^m {}^{(k-1)} I_s / N_j; \frac{1}{m} \sum_{j=1}^m {}^{(k-1)} I_s / N_j \right) + \\ w_3 f({}^o HR_s^t) + w_3 f({}^o HR_s^p) \end{array} \right].$$

141. Therefore, the structure described by the specification for carrying out the claimed function are calculations (1)-(4) described in 32:46-47, 33:1-11, 33:21-28.

142. A POSA would have understood that no single component of the weighted sum above is necessary, as if a component is missing that component would be equal to zero and not contribute to the overall score. Therefore, if one component of the weighted sum is missing that part of the sum is simply zeroed out and does not impact the global importance. *Id.*, 28:46-48; *see supra* ¶97.

143. Content: The “*content relevance*” is relevance of the “*content of the piece of electronic content*.” The specification states that “statistical techniques,” such as correlating certain words or the frequencies of words, may be used to “identify terms within the content of any electronic mail object that statistically increase the likelihood that it is relevant to the recipient.” *Id.*, 41:7-25. Therefore,

the structure described by the specification for carrying out the claimed function are “statistical techniques” for correlating certain words or the frequencies of words.

144. Actions By Cognate Users: The specification states that the “cognate relevance value” is a “score for a piece of content respective to a given recipient based on a weighted average of the IRC's of the n users considered to be the cognate group for that recipient.” *Id.*, 26:11-17. Denoted as $^xR_r^c$ for the relevance input from the cognate group c of recipient r, on electronic mail object x sent by senders {s} to recipient r. *Id.*, 26:15-17. Therefore, the algorithm described above for the First Measurement Module are also used to calculate the cognate relevance value.

145. I reviewed the claims to see if it discloses any corresponding algorithms that performs these functions. There are no corresponding algorithms in the claim for the functions or the *Markush* group.

146. I also reviewed the File History of the '217 Patent. The claim limitation was amended as follows below. EX1002, 319. Applicant argued these amendments allowed the application to overcome a May 12, 2009, Final Rejection from the Examiner based on 35 USC §§102 and 103 arguments. EX1002, 327. While the claims were allowed without further rejection on February 12, 2010, the File History provides no information or guidance to an algorithm or structure that allows the “*second relevance measurement module*” to perform the claimed function.

a second relevance measurement module coupled to the monitoring module and configured to:

identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and

determine a second measure of [[a]] relevance of the piece of electronic content as determined dependent based at least in part on one or more measures derived from the group consisting of:

a local importance describing an importance of the sender to the user,

a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and

Id., 322.

147. Accordingly, as explained above, the structure described by the specification for carrying out the claimed function of the “*second measure of relevance*” is the software and/or algorithm(s) disclosed at EX1001, 14:59-15:11, 43:30-37, 43:30-37, 25:40-44, 25:55-58, 26:11-17, 29:42-31:4, 31:21-32:41, 32:42-33:57, 33:58-34:12, 34:14-48, 41:7-25.

4. “a relevance analysis module”

148. As explained above, “a *relevance analysis module*” refers to a generic black box to perform a specific claimed function. The claim expressly recites the function of the “*relevance analysis module*” is to “*determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.*” The specification explains that the:

relevance analysis module [is] coupled to the monitoring module and configured to determine a relevance to a user of a piece of electronic content sent from a sender to the user, where the relevance is determined dependent on a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content, and a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other recipient of the piece of electronic content.

Id., 1:52-61, emphasis added.

149. Therefore, the claimed function tracks with the specification’s discussion of the “*relevance analysis module*,” except that it does not address all of the “measures” recited in the second relevance measure. Therefore, the express function recited in the claim is to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.

150. Next, I reviewed the claims to see if it discloses any corresponding algorithm that performs this function. There is no corresponding algorithm in the claim.

151. The specification states that the “local relevance” is a “a function of the user's own IRC, the global and cognate relevance scores, and the combined importance relating to that mail.” *Id.*, 26:46-52; 35:62-36:6. However, the specification does not disclose the function used. It merely recites that “the input into the local relevance is actually a weighted average of the local importance values of all the senders, the combined importance ${}^xCI_{\{s\}r}^1$, which relates specifically to the combination of senders in this electronic mail object x as received by r.” *Id.*, 30:29-33.

152. While the specification does describe the some of the “inputs” that make up the “local relevance,” it fails to describe how these factors are used to calculate the “local relevance.” I did not find any algorithm disclosed in the specification that explains or describes how the “*relevance analysis module*” determines the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.

153. That said, I understand the PTAB may address the patentability of the claims on section 102 and 103 grounds. As I explain below, the prior art addressed herein, discloses how to calculate the relevance score. Therefore, the prior art discloses the claims in greater detail than the '217 Patent itself.

154. I also reviewed the File History of the '217 Patent. These claim limitations were added as part of the same amendments discussed above. EX1002, 319. Applicant argued these amendments allowed the application to overcome a May 12, 2009, Final Rejection from the Examiner based on 35 USC §§102 and 103 arguments. EX1002, 327. While the claims were allowed without further rejection on February 12, 2010, the File History provides no information or guidance to an algorithm or structure that allows the “*relevance analysis module*” to perform the claimed function.

155. Therefore, the structure described by the specification for carrying out the claimed function uses a series of “inputs” (such as “the user's own IRC, the global and cognate relevance scores, and the combined importance relating to that mail”) (EX1001, 26:46-52; 35:62-36:6) to calculate the “local importance,” but does not describe how the “local importance” value is calculated.

B. “*content presentation module*”

156. Claims 2 and 13 recite a “*content presentation module*.” Claim 2 depends on claim 1 and claim 13 depends on claim 6. Therefore, the “*content*

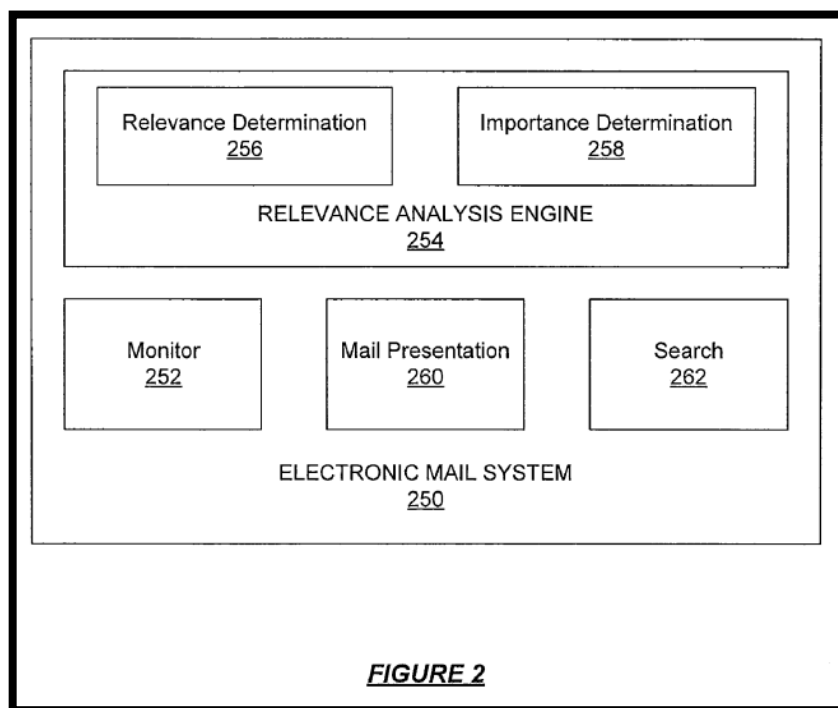
presentation module” is an additional example of a “*computer program module*” as discussed above. *Supra* §VI.A.

157. For the same reasons as above (*supra* §VI.A) the “*content presentation module*” term is a means-plus-function term. In particular, the term “*module*” as used in the claims and specification is a generic black box (or nonce) term. EX1001, 6:36-38, 6:65-66. The claims also confirm that “*content presentation module*” is defined by its function—to present content—and does not convey to a POSA the name for structure. A POSA would not understand the “*content presentation module*” to be any specific structure for conveying content.

158. As explained above, “*content presentation module*” refers to a generic black box to perform a specific claimed function. In particular, the claim expressly recites the function of the “*content presentation module*” is to “*present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.*” Therefore, the express function recited in the claim is (1) to present the piece of electronic content to the user in accordance with the determined relevance score and (2) to present to the user a value describing the determined relevance score.

159. Next, I reviewed the claims to see if it discloses any corresponding algorithm that performs this function. There is no corresponding algorithm in the claim.

160. I also reviewed the specification to determine if it discloses a computer algorithm corresponding to the claimed function. Referring to Figure 2 (shown below), the '217 Patent states “[t]he electronic mail system 250 has a mail presentation module 260, which is generally used to provide a user his/her electronic mail (along with features therewith) in accordance with the relevance and importance scores determined by the relevance analysis engine 252.” EX1001, 6:55-60. “When a user hovers their mouse over a relevance slider, a pop-up window may appear, indicating why a particular relevance value is as it is, thereby potentially helping the user understand how the relevance value was determined.” *Id.*, 17:50-53. Figures 9 through 20 also show “screenshot[s] of an example of a mail view web page.” *Id.*, 2:41-3:9.



Id., 5.

161. Therefore, a POSA would understand that the corresponding structure for the “*content presentation module*” is “mail presentation module 260” (7:28-34) because it performs both functions discussed above. Therefore, a POSA would understand that the corresponding structure for the “*content presentation module*” is “mail presentation module 260” (7:28-34) and Figures 9 through 20.

C. “*search module*”

162. Claims 3 and 14 recite a “*search module*.” Claim 3 depends on claim 1 and claim 14 depends on claim 6. Therefore, the “*search module*” is an additional example of a “*computer program module*” as discussed above. *Supra* §VI.A.

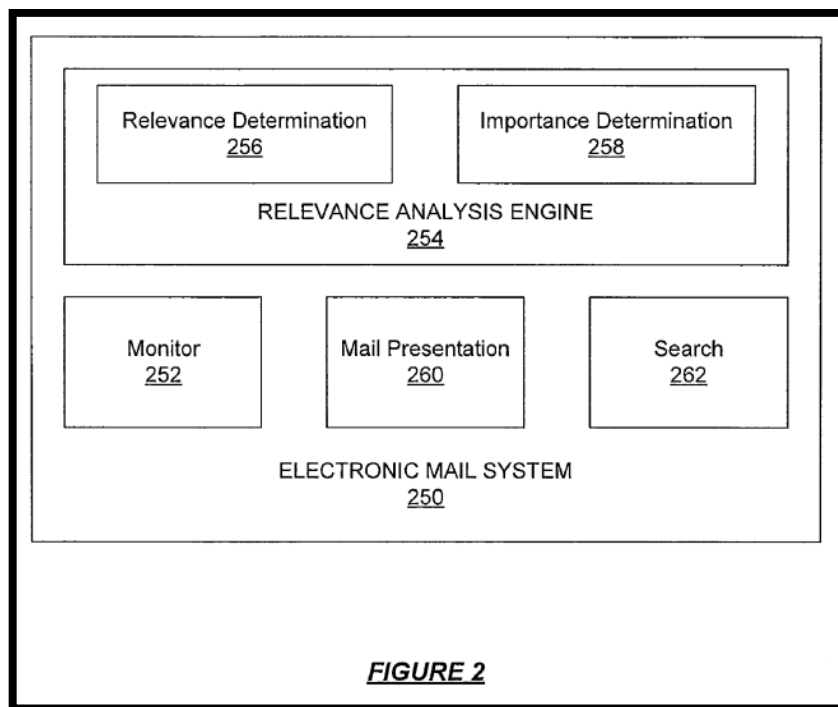
163. For the same reasons as above (*supra* §VI.A) the “*search module*” term is a means-plus-function term. In particular, the term “*module*” as used in the claims and specification is a generic black box (or nonce) term. EX1001, 6:36-38, 6:65-66. The claims also confirm that the “*search module*” is defined by its function——“provid[ing] a user with search capabilities” (EX1001, 6:60-64)—and does not convey to a POSA the name for structure. A POSA would not understand the “*search module*” to be any specific structure for searching.

164. As explained above, “*search module*” refers to a generic black box to perform a specific claimed function. In particular, the claim expressly recites the function of the “*search module*” is to “*search the electronic content in accordance*

with the determined relevance score.” Therefore, the express function recited in the claim is searching the electronic content in accordance with the determined relevance score.

165. Next, I reviewed the claims to see if it discloses any corresponding algorithm that performs this function. There is no corresponding algorithm in the claim.

166. I also reviewed the specification to determine if it discloses a computer algorithm corresponding to the claimed function. Referring to Figure 2 (shown below), the '217 Patent states “[t]he electronic mail system 250 has a search module 262, which is generally used to provide a user with search capabilities in accordance with the relevance and importance scores determined by the relevance analysis engine 252.” *Id.*, 6:60-64.



167. Therefore, the specification states that “search module 262” is used “used to provide a user with search capabilities in accordance with the relevance and importance scores determined by the relevance analysis engine 252.” *Id.*, 6:60-64. The specification states that “search module 262 may be used for performing any of the search techniques described herein” and describes searching using “search criteria (*e.g.*, keywords, dates, specific senders).” *Id.*, 7:32-34, 7:42-45. Other parts of the specification explain that “the electronic mail system may help rank search results and indicate to the user how likely each piece of content is to be of interest.” *Id.*, 8:9-12. Therefore, a POSA would have understood that the algorithm disclosed at 8:9-12 are the corresponding structure for the “*search module*.”

168. Additionally, a POSA would have looked to the disclosure of “search module 262” in the specification because a POSA would understand that traditional search criteria do not search the content “*in accordance with the determined relevance score.*”

D. “*identify at least one other of the plurality of users . . . that is cognate to the user*”

169. In my opinion, in the context of the ’217 Patent “*identify[ing] at least one other of the plurality of users . . . that is cognate to the user*” is identifying at least one user in a group of other users who share similar past user actions and assessments, and/or are defined by direct input by a user.

170. The specification defines that:

6. Cognate Group: for each user, over time, the system identifies a “cognate group” of the *n* other users regarded as most similar. **This group is defined** by similar past user actions and assessments, and/or a direct input by a user

Id., 25:65-26:2, emphasis added.

171. The express definition in the specification is supported by claims. For example, claim 8 (which depends on claim 1) recites “*identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user.*” Therefore, the claims expressly rely on the “historical actions” to “identify” those users that are “cognate to the user.” Likewise, claim 1 recites “a

second measure of relevance” based on “one or more actions” of cognate users; further supporting that the “identify[ing]” cognate users is based on past user actions and assessments.

172. A POSA would also have understood that the specification uses “cognate group” to consistently mean other users who share similar past user actions and assessments. For example, the specification explains that “each recipient may have their own cognate group of those the system regards as **most similar** to that recipient.” EX1001, 26:4-6. The “relevance analysis engine” may determine “cognate’ entities and users by automatic analysis of users’ actions.” EX1001, 15:3-8; 25:65-26:2, 42:64-67; 43:5-7; 43:30-35. Therefore, the specification additionally explains that “*identify[ing]*” and determining who are cognate users is based on “analysis of users’ actions.”

173. During an examiner telephonic interview, the “applicant[s] and examiner” also discussed how “[t]he arguably novel feature is that the claimed invention bases the ‘Relevance’ on the **actions of another user** ‘ON The Piece of Content.’ In other words, not just any general actions of another (*i.e.*, group of administrators adjusting values for [the] group).” EX1002, 306, emphasis added. Additionally, the Applicants “agree[d] to amend to further specific the ‘actions’ in the last limitation were based on ‘others.’” *Id.* Therefore, the identification of cognate users who performed similar past actions is part of the “novel feature” of

the claims and is reflected in the identification of a cognate user based on past user actions and assessments.

E. *Markush* group

174. Each independent claim requires that the “*second measure of relevance*” is “*based at least in part on one or more measures derived from **the group consisting of** . . .*” I understand that this claim limitation is a *Markush* group and lists specified alternatives in a patent claim. Therefore, I understand that the entire *Markush* Group is disclosed by the prior art if one alternative in the *Markush* group is in the prior art. Therefore, the prior art need only disclose one of Claim Elements–1[g][i]–[iv].

VII. DETAILED EXPLANATION OF GROUNDS FOR INVALIDITY

175. The sections below demonstrate in detail how claims 1-22 of the ’217 Patent are unpatentable over the prior art.

A. Grounds 1-3: Dumais With Or Without AAPA Or Marston Renders Claims 1-22 Obvious

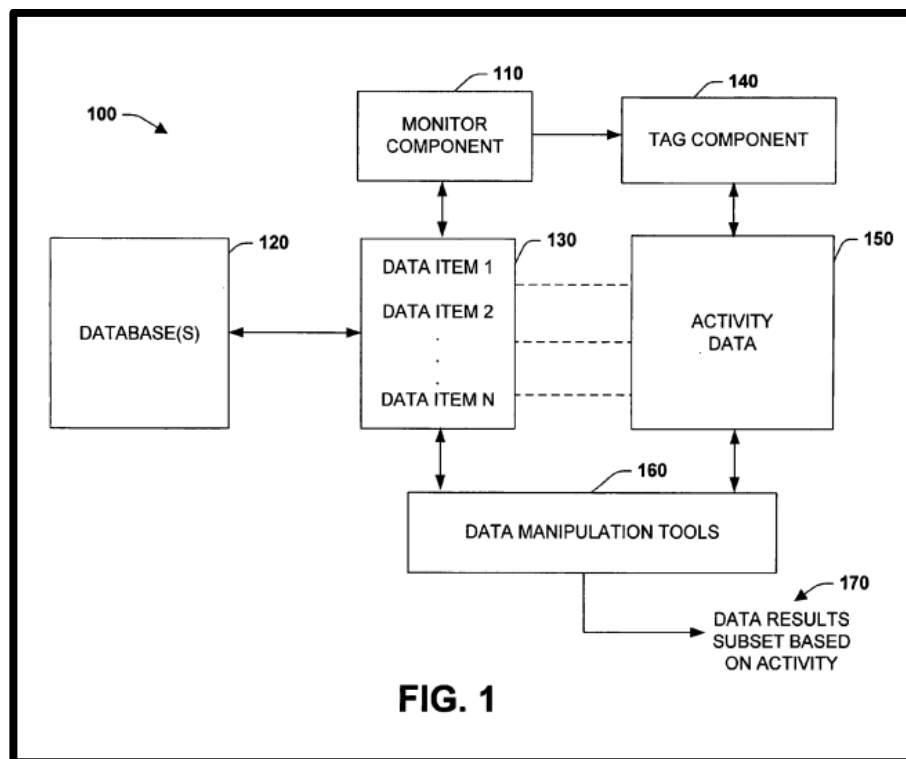
1. Overview of Dumais

176. U.S. Published Patent Application 2007/0016553A1 (Dumais) (EX1006) was filed on June 29, 2005, and identifies Susan T. Dumais and Eric J. Horvitz as its inventors. Dumais was published on January 18, 2007.

177. I understand that Dumais is prior art to the ’217 Patent at least because it was filed before the filing date of the ’217 Patent.

178. As explained in more detail in the section below, Dumais discloses “[v]arious components and processes [that] are provided to enable data processing on multiple data types where user activity or interaction with data is determined and employed to further process the data in accordance with the activity.” EX1006, [0019]. For example, Dumais discloses that “the activity or interaction can be monitored and subsequently tagged to a data item (*e.g.*, activity of file interactions assigned a weight and applied to a column in a database) to later be employed for searching, indexing, cataloging, ranking, or viewing of various data items (or item subsets) residing in a database.” *Id.* Dumais states that the “systems and methods described herein support a plurality of data processing applications,” including “processing data items such as documents, files, email messages, calendar appointments, web pages, sub-sections within the data items' or cross-item abstractions, for example.” *Id.*, [0031]

179. In Figure 1, Dumais depicts a system that “illustrates a data processing architecture that employs user activity or interaction data to perform various computer-related tasks.” *Id.*, [0022].

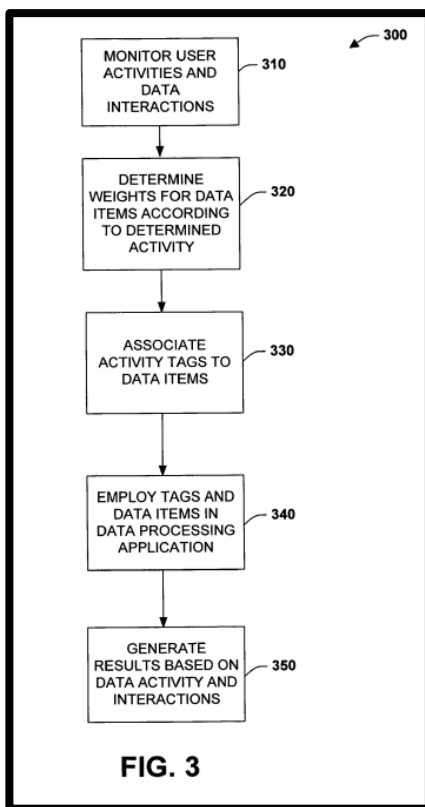


180. Dumais explains that the “monitor component 110 observes data interactions overtime with one or more databases 120 that store one or more data items 110,” with such monitoring occurring via a background and/or foreground component and are “employed to determine when the data items 130 are interacted with by users.” *Id.*, [0022]. “A tag component 140 assigns weights or scores according to monitored data activities.” *Id.*, [0023]. Dumais discloses that “[w]hen the weights or scores have been determined, the determined weight information for activity is associated or tagged to one or more data items and is illustrated as activity data 150,” and placed “in a column or columns of the database 120 to indicate the weighting or importance of a particular item identified in a row of the database 120 for the metadata tag of interest.” *Id.*, [0023]

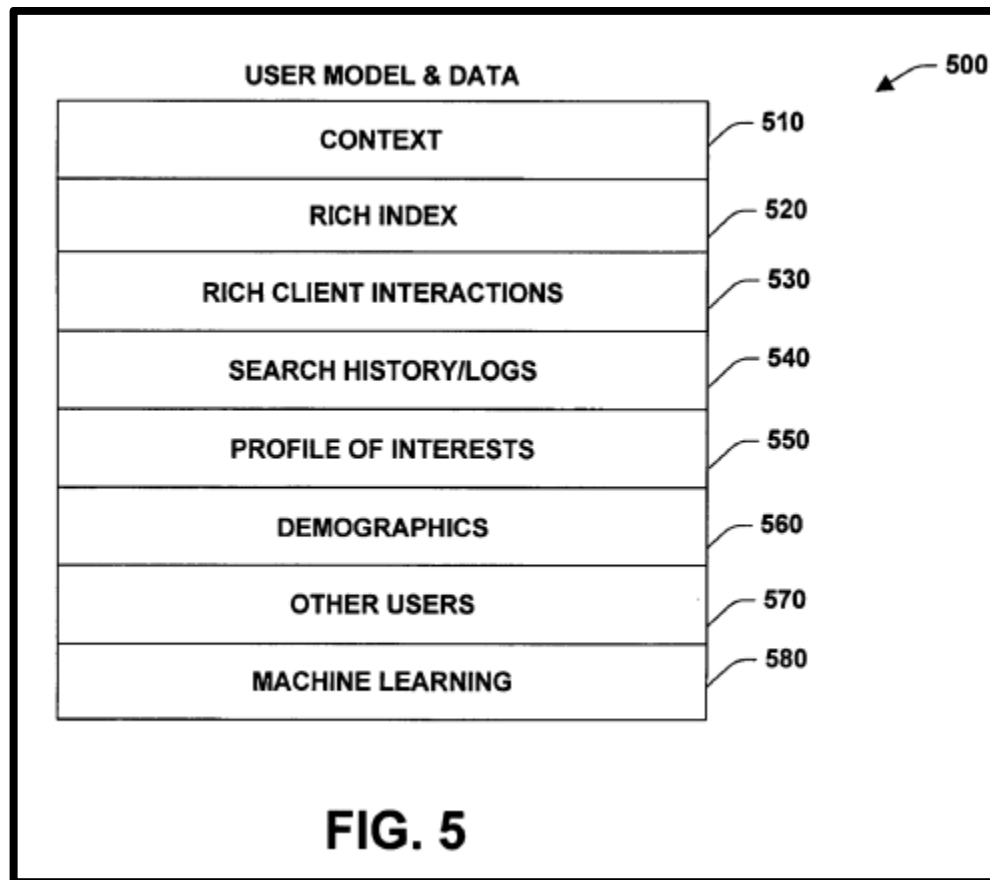
181. Dumais explains that the “tags and data items 130 can be applied with one or more data manipulation tools which can employ user activity information derived from the tags to augment information storage (*e.g.*, efficient index creation), information access (*e.g.*, searching, filtering or ranking of items) and information presentation (*e.g.*, to organize, arrange or present items) and so forth.” *Id.*, [0024]. Dumais also describes the user of content-based scores being assigned to documents. *Id.*, [0025].

182. Dumais states that the various processes disclosed include “analysis of user activities data items.” *Id.*, [0032]. This includes “automatically tagging a quantity or nature of interaction that data items have received from computer users and employing the tags to further process the data items in accordance with future data activities,” “storing data within an attentional annotation associated with the data items in a separate database or within a data structure embedded in the data items,” and “indexing procedures” “that weight subcomponents of data items differently for retrieval depending on a status of annotations indicating attention or interaction with data items.” *Id.*, [0032]. Dumais also discloses “a ranking score can be utilized for data retrieval, to yield more weight to terms or objects that appear in sections of a data item that a user has attended to or has interacted with.” *Id.*, [0033].

183. In Figure 3, Dumais depicts a process “for determining and applying user activity or interaction data,” reflecting the processes described above. *Id.*, [0037].



184. Dumais discloses a user model “that can be employed with user activity or interaction data” and can “differentiate personalized searches from generalized searches and to facilitate rich data processing according to determined activity data.” *Id.*, [0043]. Dumais explains that “[o]ne aspect in successful personalization is to build a model of the user that accurately reflects their interests and is easy to maintain and adapt to changes regarding long-term and short-term interests.” *Id.* This user model is depicted in Figure 5.



185. Dumais discloses that the “user model can be obtained from a variety of sources, including but not limited to:

1) From a rich history of computing context at 510 which can be obtained from local, mobile, or remote sources (*e.g.*, applications open, content of those applications, and detailed history of such interactions including locations). 2) From a rich index of content previously encountered at 520 (*e.g.*, documents, web pages, email, Instant Messages, notes, calendar appointments, and so forth). 3) From monitoring client interactions at 530 including recent or frequent contacts, topics of interest derived from keywords, relationships in an organizational chart, appointments, and so forth. 4) From a history or log of previous web pages or local/remote data sites visited including a history of previous search queries at 540. 5) From profile of user interests at 550 which can be specified explicitly or implicitly derived via background monitoring. 6) From demographic information at 560 (*e.g.*, location, gender, age, background, job category, and so forth).

Id., [0043]-[0049]

186. Dumais explains that “[m]odels can be derived for individuals or groups of individuals at 570 such as via collaborative filtering techniques that develop profiles by the analysis of similarities among individuals or groups of individuals,” and that “computations can be based on the content and/or usage of items.” *Id.*, [0052]. Dumais states that “[a]t 580, machine learning techniques can be applied to learn user characteristics and interests over time as well as how and when data is interacted with by users,” with the learning model including substantially “any type of system such as statistical/mathematical models and processes for modeling users and determining preferences and interests.” *Id.*, [0053].

187. Dumais states that “collaborative filter techniques applied at 570 of the user model 500,” “can include employment of collaborative filters to analyze data and determine profiles for the user.” *Id.*, [0055]. These “[c]ollaborative filtering systems generally use a centralized database about user preferences to predict additional topics users may desire.” *Id.* Dumais states that the “[c]ollaborative filtering is applied with the user model 500 to process previous user activities from a group of users that may indicate preferences for a given user that predict likely or possible profiles for new users of a system.” *Id.*

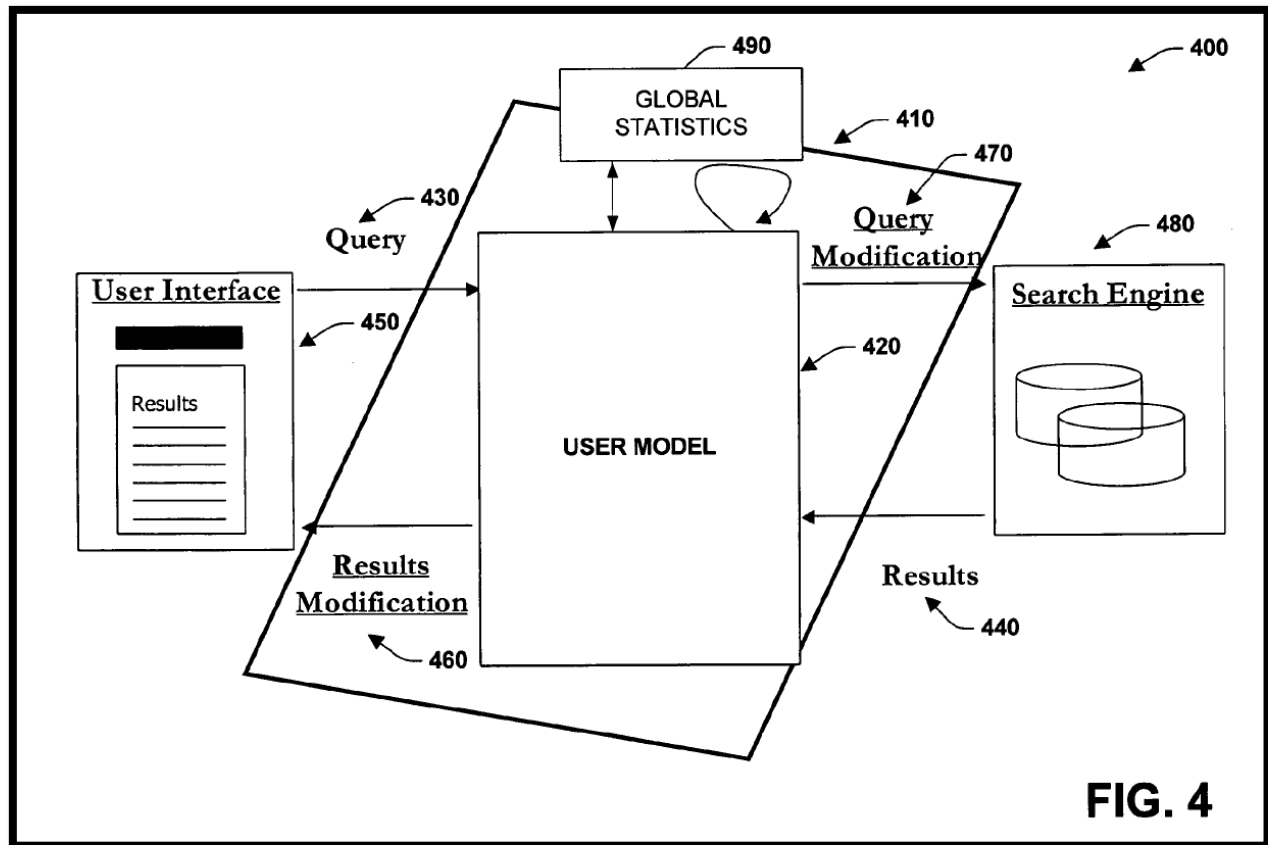
2. Claim 1 And Its Dependent Claims 2-5, 8-12

- a. ***[1pre]: A computer-implemented system for determining a relevance score of a piece of electronic content sent***

from a sender to a user, the relevance score determined with respect to the user, the computer-implemented system comprising:

188. In my opinion, Dumais discloses or renders obvious a “*computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user.*”

189. Dumais is a “*computer-implemented system.*” In at least Figure 1 (shown below) Dumais depicts “a system 100” that implements “a data processing architecture that employs user activity or interaction data to perform various computer-related tasks.” EX1006, [0022]. One example of this system is shown below in Figure 4:



190. Dumais also discloses Figure 8 (shown below) as a “schematic block diagram illustrating a suitable operating environment,” which includes “a computer 812” as part of an “exemplary environment 810 for implementing various aspects described herein.” *Id.*, [0017], [0070].

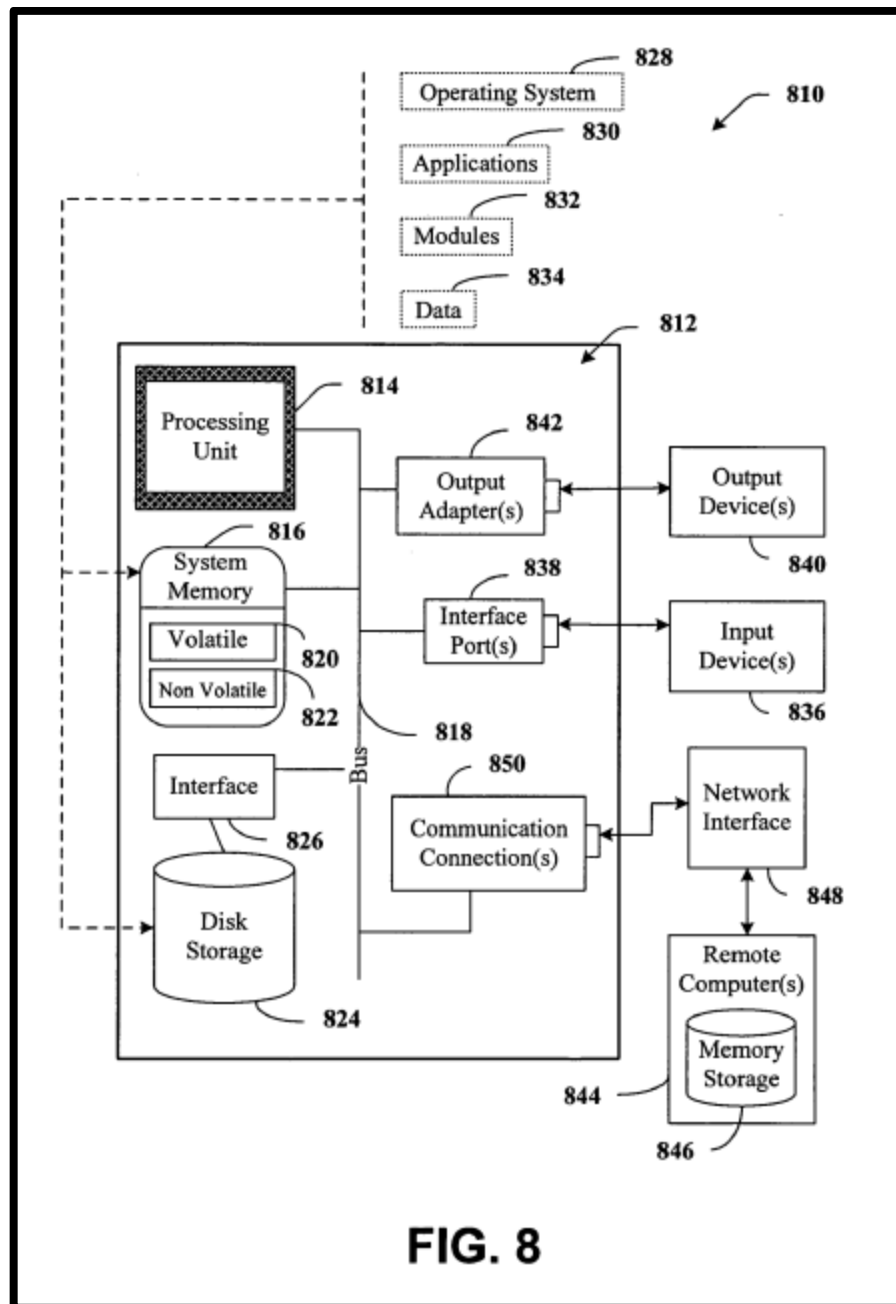


FIG. 8

191. Therefore, a POSA would have understood that Dumais is a “computer-implemented system.”

192. Dumais is capable of “processing data items such as documents, files, email messages, calendar appointments, web pages, sub-sections within the data

items' or cross-item abstractions, for example.” EX1006, [0031]. Therefore, a POSA would have understood that the data items of Dumais are “*a piece of electronic content.*” Moreover, the “*piece of electronic content*” is “*sent from a sender to a user.*” Dumais explains that the disclosed system monitors data items interacted with by multiple users in a multitude of ways which “can include observing when files are opened or closed, edited, added to or deleted from, read or written to, cut, pasted, last edited, **forwarded, replied to, sent to**, last viewed, the amount of time viewed, time interacted with over a time horizon, attentional annotations indicating how long the item 130 or different subcomponents of the item was the focus of attention, and so forth.” *Id.*, [0022], (emphasis added). Furthermore, emails are specifically listed as a data item that can be processed by the systems and methods described by Dumais. *Id.*, [0031]. A POSA would have understood that an email is a “*piece of electronic content*” and is “*sent from a sender to a user.*”

193. Dumais also determines “*a relevance score of a piece of electronic content.*” Dumais describes a number of “[m]ethods . . . to weight terms in an index, to compress indexes, [and] to influence the rank of items returned in a **search.**” EX1006, Abstract, (emphasis added). For example, Dumais discloses a “relevance feedback” score as one way to influence the rank of items returned in a search. The “relevance feedback” score is based on a two-cycle process where “a query generates

results that leads to a modified[/personalized] query.” EX1006, [0041]. The results then “usually includes some form of re-ranking and/or selection from a larger set of alternatives which can include a consideration or weighting from determined activity data.” *Id.* A POSA would have understood that the ranking used in the relevance feedback is a “*a relevance score of a piece of electronic content.*” In particular, the relevance feedback is a ranking of content, therefore, a POSA would have understood the ranking is a “*a relevance score.*”

194. Dumais also discloses using “personalization component 410” and “user model 500” to create a personalized search results based on statistical similarity and category matching. *Id.*, [0042], [0053] (“The learning models can include substantially any type of system such as statistical/mathematical models and processes for modeling users and determining preferences and interests.”) Therefore, a POSA would have understood that the personalized search results of Dumais are an additional “*relevance score*” as the purpose of Dumais’ invention is to influence the rank of items returned in a search to prioritize relevant objects. EX1006, [0003].

195. To the extent Patent Owner argues that a “*relevance score*” must be a numerical value, Dumais renders it obvious. In particular, Dumais explains that the “*relevance score*” uses a “ranking score.” EX1006, [0033], cl. 17 (“further comprising providing a ranking score used for retrieval”). A POSA would have

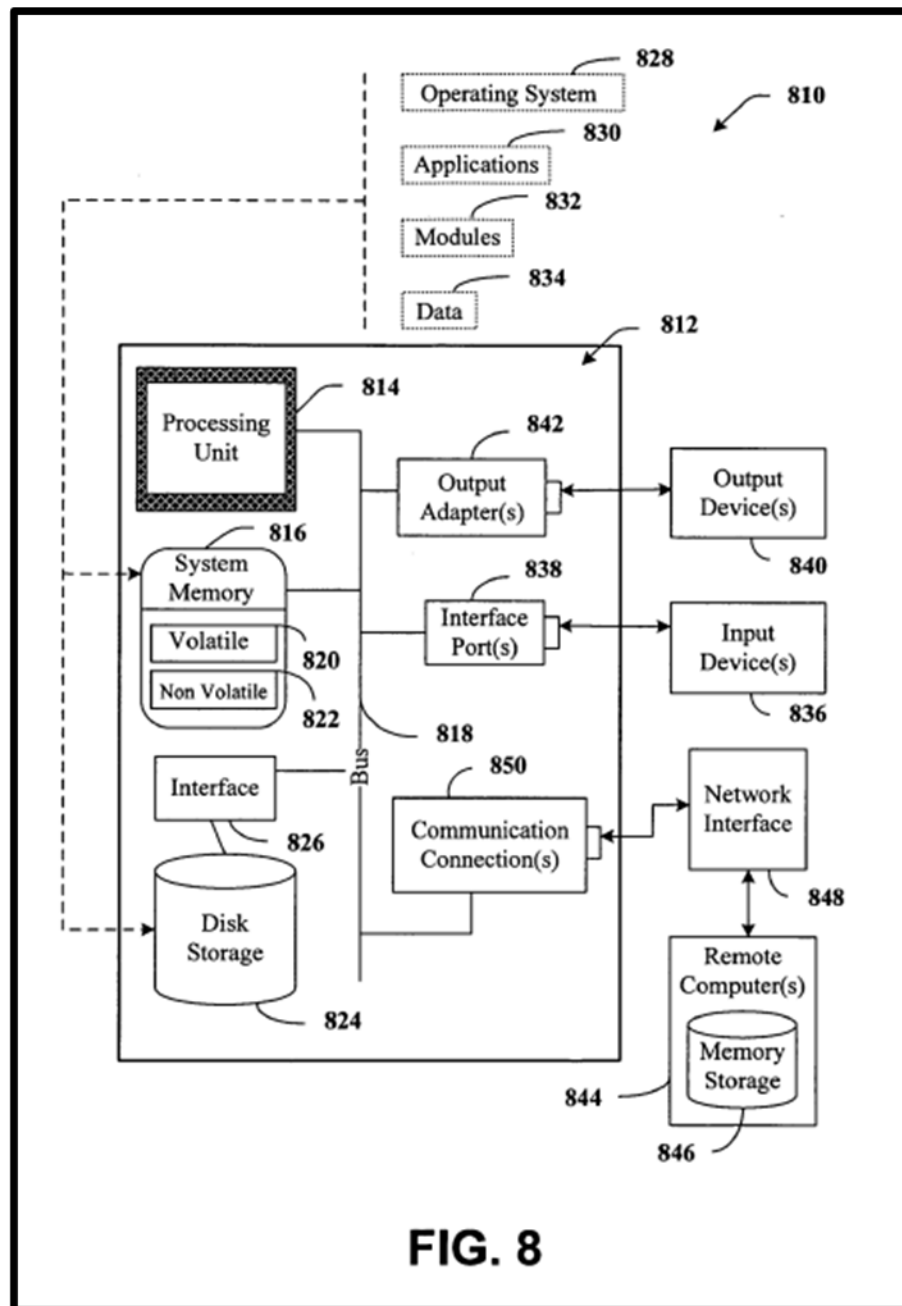
understood that a ranking is a numerical value. Moreover, the “*relevance score*” can be assigned with a probabilistic or logic-based approach. *Id.*, [0053]. A POSA would have understood that probabilistic computation can (and often do) involve computation of a number between 0 and 1, which indicates the likelihood of certain event occurring. Moreover, using numerical value as relevance score was well understood in the prior art, and therefore, it would have been obvious to use a numerical score. *Supra* §IV. Accordingly, a POSA would have understood that Dumais determines “*a relevance score of a piece of electronic content.*”

196. Dumais discloses a “*relevance score determined with respect to the user.*” Dumais teaches that the system includes “[a] personalization component 410 [which] includes a user model 420 based on user activity.” EX1006, [0040]. Personalized component 410 is used to personalize the results of a query. *Id.* Dumais also explains that the “ranking score” can be “used for retrieval.” *Id.*, c. 17. Therefore, a POSA would have understood that the “ranking score” are determined with respect to the user because they are used to personalize a search result. Moreover, the “ranking score” is based on “consideration or weighting from determined activity data” and therefore accounts for the user’s prior actions. *Id.*, [0041]. Therefore, a POSA would have understood the “*relevance score [is] determined with respect to the user,*” for this additional reason. *See also Id.*, [0039].

197. Accordingly, Dumais discloses or renders obvious a “*computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user.*”

b. ***[1a]: a computer processor; and***

198. In my opinion, Dumais discloses or renders obvious “*a computer processor*”. In Figure 8 (shown below), Dumais describes a “computer 812” as including “a processing unit 814,” which “can be any of various available processors. Dual microprocessors and other multiprocessor architectures also can be employed as the processing unit 814.” *Id.*, [0070]



199. Accordingly, Dumais discloses “a computer processor.”

- c. ***[1b]: a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules comprising:***

200. In my opinion, Dumais discloses or renders obvious “*a computer-readable storage medium storing computer program modules configured to execute on the computer processor.*”

201. As explained in claim limitation [1a], in Figure 8 (shown above) Dumais describes a “computer.” The disclosed “computer” includes “a processing unit 814, a system memory 816, and a system bus 818. The system bus 818 couples to system components including, but not limited to, the system memory 816 to the processing unit 814.” *Id.*, [0070]. Dumais goes on to explain that the “system memory 816 includes volatile memory 820 and nonvolatile memory 822,” and that the computer 812 can “also includes removable/non-removable, volatile/non-volatile computer storage media.” *Id.*, [0072]-[0073]. A POSA would have understood that system memory and removable/non-removable, volatile/non-volatile computer storage media are “*computer-readable storage medium.*”

202. Dumais also discloses that its “component[s] may be, but is not limited to being, a process running on a processor, a processor, an object, an executable, a thread of execution, a program, and/or a computer.” EX1006, [0020], [0072]. In Figure 8 (shown above) Dumais discloses an “[o]perating system 828, which can be stored on disk storage 824, acts to control and allocate resources of the computer system 812,” which includes “[s]ystem applications 830” which “take advantage of the management of resources by operating system 828 through program modules

832 and program data 834 stored either in system memory 816 or on disk storage 824.” *Id.*, [0074]. Therefore, a POSA would have understood that the applications, components and software described by Dumais are “*program modules configured to execute on the computer processor*” and are stored on the “*computer-readable storage medium.*” See also *id.*, [0020] (“these components can execute from various computer readable media having various data structures stored thereon.”)

d. ***[1c]: a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;***

203. In my opinion, Dumais discloses or renders obvious “*a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content.*”

204. As I explained above, the “*monitoring module*” is a means-plus-function term and the structure described by the specification for carrying out the claimed function is either (1) a “relational mail architecture” or (2) tags or flags within a “conventional email system.” To the extent this claim is not means-plus-function, then its scope would be much broader and Dumais would still disclose each limitation of the claim, as explained below.

205. Referring to Figure 1, Dumais explicitly discloses a “monitor component 110” that “observes [the user’s] data interactions over time with one or more databases 120 that store one or more data items 130.” *Id.*, [0022]. Dumais

explains that “Monitoring can occur via a background and/or foreground component (not shown) and employed to determine when the data items 130 are interacted with by users.” *Id.* For instance, the “monitor component 110” can track and observe “when files are opened or closed, edited, added to or deleted from, read or written to, cut, pasted, last edited, forwarded, replied to, sent to, last viewed, the amount of time viewed, time interacted with.” *Id.*, [0022]; *see also* [0019] (“For example, the activity or interaction can be monitored and subsequently tagged to a data item (*e.g.*, activity of file interactions assigned a weight and applied to a column in a database) to later be employed for searching, indexing, cataloging, ranking, or viewing of various data items (or item subsets) residing in a database.”). Therefore, Dumais is “*configured to track actions.*”

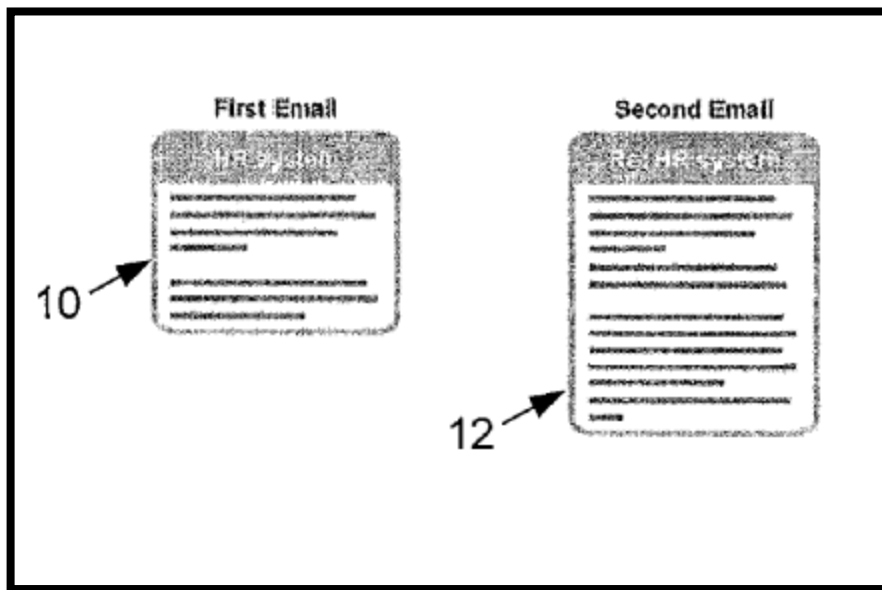
206. Dumais also discloses a “global database 490 of user statistics” which “can be associated with user activity or interaction data.” EX1006, [0040]. Dumais also explains that “[m]odels can be derived for individuals or groups of individuals at 570 such as **via collaborative filtering techniques** that develop profiles by the analysis of similarities among individuals or groups of individuals. Similarity computations can be based on the **content and/or usage of items.**” EX1006, [0052]. Therefore, a POSA would have understood that Dumais is “*configured to track actions by a plurality of users.*”

207. Dumais is also a “*an application for managing electronic content.*” For example, Dumais describes “data processing” and “information retrieval” systems. EX1006, [0010]-[0013]. Dumais also manages electronic content. EX1006, [0031] (“The systems and methods described herein support a plurality of data processing applications. This includes processing data items such as documents, files, email messages, calendar appointments, web pages, sub-sections within the data items' or cross-item abstractions, for example.”) Therefore. A POSA would have understood that Dumais is “*an application for managing electronic content.*” Likewise, a POSA would have understood that “global database 490 of user statistics” are the user statistics for “*a plurality of users **associated with an application for managing electronic content.***” EX1006, [0040] (“global database 490 of user statistics...can be associated with user activity or interaction data.”)

208. Moreover, “the activity or interaction can be monitored and subsequently **tagged to a data item.**” EX1006, [0019]. Also, “[a] tag component 140 assigns weights or scores according to monitored data activities.” *Id.*, [0023]. As explained above, when “the weights or scores have been determined, the determined weight information for activity is associated or tagged to one or more data items and is illustrated as activity data 150.” *Id.*, [0023], [0035]. Therefore a POSA would have understood that Dumais uses tags or flags to track user activity

throughout the system. Dumais is a “conventional email system” because, as explained above, it is system that manages email. EX1006, [0010]-[0013], [0031].

209. To the extent Patent Owners argue that Dumais is not a conventional email system, it would be obvious to include Dumais within a “conventional email system.” In particular, the ’217 patent admits that a “conventional” or “traditional” email system was known in the prior art. EX1001, 2:17 (“FIG. 1A shows a traditional prior art email system.”) (shown below).



210. Therefore, a “conventional email system” is applicant admitted prior art (AAPA). Accordingly, Dumais discloses the “*monitoring module*” under Petitioner’s construction.

211. A POSA would have been motivated to include Dumais in a conventional email system, at least because “conventional” email was well

understood and the ranking and weighting systems such as those described by Dumais were commonly used in conventional email system. *Supra* §IV. Moreover, because “conventional” email was ubiquitous a POSA would have understood that improving the functionality of “conventional” email would have a large potential market of users. Therefore, a POSA would have had a high likelihood of success, and such a combination would have been obvious to try.

212. Therefore, a POSA would have understood that the “monitor component 110” (in conjunction with tag component 140) is a “*monitoring module*” under both the plain and ordinary meaning and Petitioner’s construction.

213. Alternatively, it would have been obvious to combine Dumais with the relational mail system of U.S. Patent Application Publication 2004/0260710 (“Marston”). EX1043, [0003] (“This invention pertains in general to electronic messaging systems and in particular to a system using a relational model to store messages.”). I have been informed that Marston is prior art at least because it was published more than one year before the earliest possible priority date of the ’217 Patent.

214. Marston discloses “[a] messaging system uses a relational model to represent messages exchanged among end-users of the system.” EX1043, [0010]. In particular, Marston explains that each message and sub-message are stored “as a discrete object that can be individually referenced.” EX1043, [0022], [0010]. Each

message then includes a series of pointers to the “current submessage 38: and “history submessages.” EX1043, [0046].

215. The discussion of a relational mail system in Marston aligns nearly exactly with the '217 Patent. The '217 Patent includes a “comparison between traditional e-mail and email and electronic mail in a relational architecture”:

With traditional email, a first email 10 is replied to with a second email 12, in which the content of the first email 10 is duplicated—there is no link between the first email 10 and the second email 12. In a relational mail system according to one or more embodiments, a first electronic mail object 14 points to a first message 16, and a second electronic mail object 18, representing the reply to the first electronic mail 14, points to the first message 16 and a second message 20, where the second message 20 represents the reply content. Thus, in a relational mail system, electronic mail is transacted through the use of links, or “pointers,” among electronic mail objects as they are created over time.

EX001, 3:56-4:4.

216. As explained above, the specification of the '217 patent states that in a “relational mail architecture,” each piece of content “is managed as a single instance object during its life in the mail system.” *Id.*, 15:51-58. The “granularity” afforded by the “relational mail architecture” “may allow the electronic mail system to record all actions by users in the system.” *Id.*

217. Therefore, a POSA would have understood that the “relational mail architecture” of Marston is a “*monitoring module*.” In the combination of Dumais and Marston, the “relational mail architecture” of Marston would be combined and integrated with the content management application of Dumais, such that the messages of Dumais are stored and referenced using the relational mail architecture of Marston.

218. A POSA would have been motivated to combine Dumais and Marston. First, Marston and Dumais are analogous art to the '217 Patent at least because all three relate to email and content management systems and are, therefore, in the same field of endeavor. EX1043, [0003] (“This invention pertains in general to electronic messaging systems”); EX1001, Abstract (“In an electronic mail system...”); EX1006, [0031] (“The systems and methods described herein support a plurality of data processing applications. This includes processing data items such as documents, files, email messages, calendar appointments, web pages, sub-sections within the data items' or cross-item abstractions, for example.”).

219. Second, a POSA would have been motivated to include the “relational mail architecture” of Marston in the system of Dumais to take advantage of the benefits of a “relational mail architecture,” including: “

Because submessages are separate from the messages that contain them, different policies can be applied to individual submessages. Moreover, the messaging system stores each object (*e.g.*, message or

submessage) only once. The messaging system thus significantly reduces infrastructure costs by removing unnecessary duplicity, and provides enterprises with the content granularity they need to enforce regulatory compliance and other policies.

EX1043, Abstract.

220. Moreover, as explained below (*infra* §VII.B.4) a POSA would have had ample reasons to include the system of Dumais in the combination, including at least: (1) a POSA would have understood that Dumais would help counteract the proliferation of spam and irrelevant documents by identifying the most relevant documents for the user. EX1006, [0019]. [0043]; *supra* §IV.D; EX1030, 1, 2 (citing [1] EX1037 and [2] EX1038); EX1034, 6; EX1035, 1; EX1036. (2) A POSA would have been motivated to take advantage of the collaborative filtering techniques described in Dumais. Such collaborative filtering techniques were well-known to improve the accuracy of relevance calculations (*supra* §IV.B). (3) a POSA would have understood that the increasing utilization of electronic communication in the workplace and the equal increasing exploitation of spam messages at this time (early-2000's) would greatly enhance the ability of a designer of an electronic messaging system to include more sophisticated systems for managing a user's electronic messages such as Dumais and Marston.

221. Additionally, Dumais already stores emails using objects (EX1006, [0033]), therefore combining Dumais and Marston would be a matter of simple

substitution and a POSA would have had a high likelihood of success. Likewise, combining Dumais and Marston will be a combination of old elements, constituting nothing more than a simple substitution of one known element for another to obtain a predictable result. *Supra* §IV.

222. Accordingly, a POSA would have understood that Dumais discloses or renders obvious “*a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content.*”

- e. ***[1d]: a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content***

223. In my opinion, Dumais discloses or renders obvious “*a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.*”

224. As I explained above, the “*first relevance measurement module*” is a means-plus-function term and the structure described by the specification for carrying out the claimed function (while incomplete) is a “plurality of factors,” that can include dichotomous or cardinal scale factors. To the extent this claim is not means-plus-function, then its scope would be much broader and Dumais would still

disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

225. Dumais discloses “*a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.*” As explained above, in Dumais “the activity or interaction can be monitored and subsequently **tagged to a data item.**” EX1006, [0019], (emphasis added). Dumais also explains that a “**tag component 140** assigns weights or scores according to monitored data activities.” *Id.*, [0023], (emphasis added). The “determined weight information for activity is associated or tagged to one or more data items.” EX1006, [0023], [0035]. Therefore, a POSA would have understood the weights or scores are a “*first measure of relevance*” and are “*based at least in part on one or more actions of the user.*”

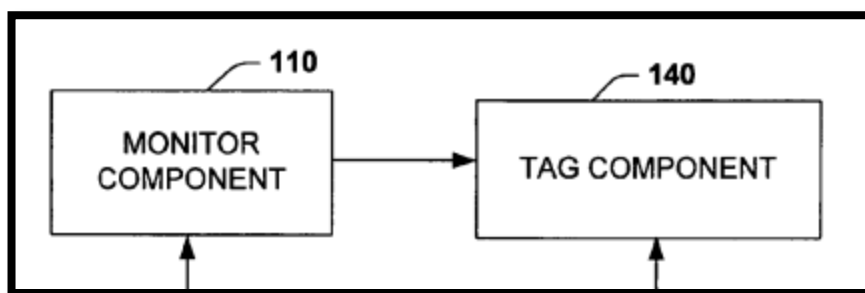
226. Dumais explains that the weights or scores can be “probabilistically assigned, if desired (or other weighting classification), and can reflect the amount or pattern of the user's interaction with a given piece of data or application.” EX1006, [0023]. In particular, “[a]s users process data overtime, their activity with the data can be monitored and weighted according to the type **and** intensity of the activity.” *Id.*, [0007], (emphasis added). Dumais explains that “scores or weights can be assigned over a broad range of file usage activities and for a **plurality of differing activities.**” *Id.*, [0008], (emphasis added). The differing activities can include, for

example, “creating, opening, viewing, scrolling, editing, printing, annotating, saving, forwarding, and so forth.” *Id.* A POSA would have understood, for example, that the above activities could be either dichotomous factors or cardinal scale factors. For example, “opening” can be dichotomous—was the file opened? (Yes or no)—and can also be cardinal scale—how many times was the file opened? (a number). Therefore, a POSA would have understood that Dumais discloses using a “plurality of factors,” including dichotomous factors or cardinal scale factors.

227. In particular, Dumais factors in many of the same dichotomous factors or cardinal scale factors as the ’217 patent. For example, some of the “plurality of differing activities” that can be accounted for in the weight are “creating, opening, viewing, scrolling, editing, printing, annotating, saving, forwarding, and so forth.” *Id.* The ’217 patent likewise factors in “opening” (EX1001, 29:2-3), “replies” (*id.*, 29:5-6), “clicks” (*id.*, 29:4-5), and “forwards” (*id.*, 29:12-13). Therefore, Dumais discloses the same types of factors as those used in the ’217 patent. Therefore, Dumais discloses “*first relevance measurement module*” (for example, tag component 140) under both the plain and ordinary meaning and Petitioner’s construction.

228. The “*first relevance measurement module [is also] coupled to the monitoring module.*” In particular, Dumais explains that “components” (such as tag component 140 and monitor component 110) “can execute from various computer

readable media having various data structures stored thereon” and “may communicate via local and/or remote processes such as in accordance with a signal having one or more data packets.” *Id.*, [0020]. Moreover, Dumais explains that “tag component 140 assigns weights or scores **according to monitored data activities.**” *Id.*, [0023], (emphasis added). Therefore, a POSA would have understood that tag component 140 and monitor component 110 are “coupled” at least because they physically execute from the same memory on the same processor and because they can communicate.



229. A POSA would have understood that Dumais discloses or renders obvious “a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.”

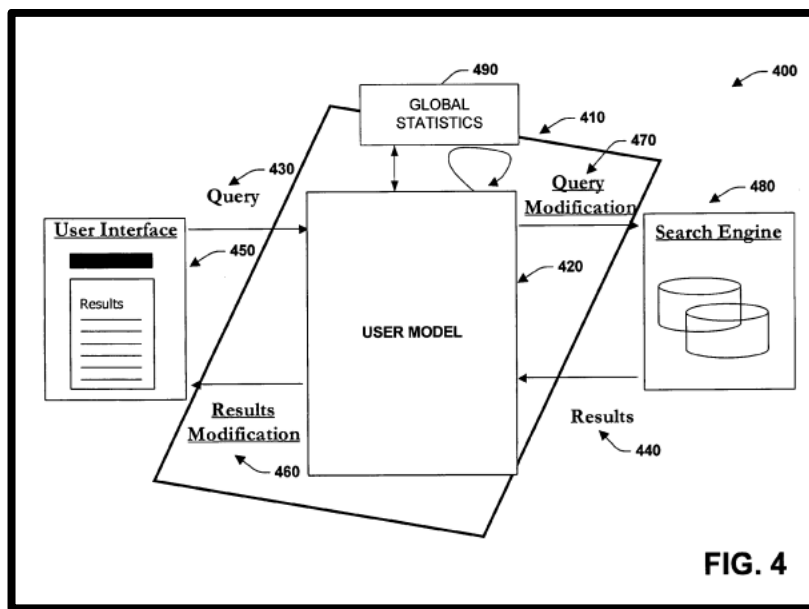
f. **[1e]: a second relevance measurement module coupled to the monitoring module**

230. In my opinion, Dumais discloses or renders obvious “a second relevance measurement module coupled to the monitoring module.”

231. As I explained above, the “*second relevance measurement module*” is a means-plus-function term which performs two functions: it must (1) identify a cognate user and (2) determine a second measure of relevance. I address each function in more detail in Sections VII.A.1.g through VII.A.1.l. To the extent this claim is not means-plus-function, then its scope would be much broader and Dumais would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

232. As I explain below, the “*second relevance measurement module*” is composed of various factors associated with “personalization component 410” and “user model 500.”

233. In particular, “personalization component 410” is composed of a “user model 420 based on user activity,” and “processing components (*e.g.*, retrieval algorithms modified in accordance with the user model) for using the model to influence search results by modifying a query 430 and/or modifying results 440 returned from a search” in order to “yield personalized results” (*i.e.*, the most relevant data items). *Id.*, [0040]-[0041]. With reference to Figure 4 (shown below), the processing components include “[a] global database 490 of user statistics may be maintained to facilitate updates to the user model 420.” *Id.*



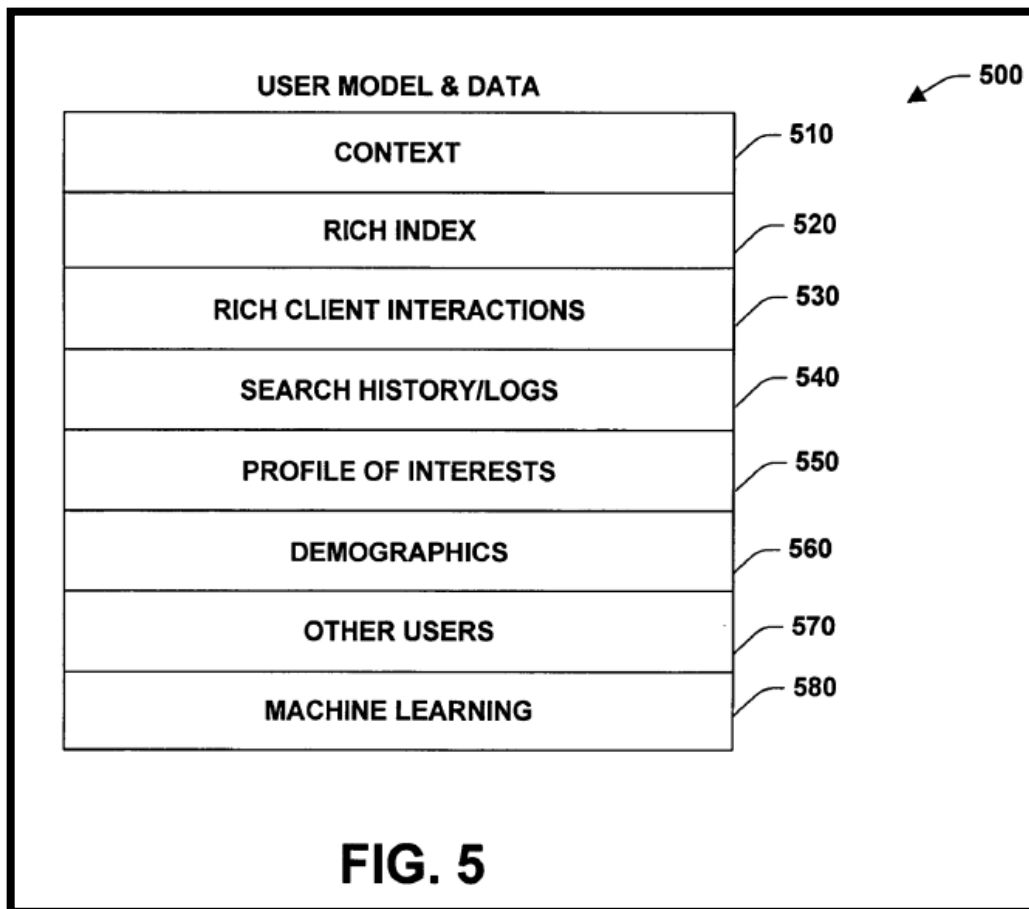
234. Moreover, Dumais teaches user model 500 personalizes searches (in the same way as above) and “can be employed with user activity or interaction data” and in combination with “the user model 500 can be based on many different sources of information.” *Id.*, [0043]. In particular:

- 1) From a rich history of computing context at 510 which can be obtained from local, mobile, or remote sources (*e.g.*, applications open, content of those applications, and detailed history of such interactions including locations).
- 2) From a rich index of content previously encountered at 520 (*e.g.*, documents, web pages, email, Instant Messages, notes, calendar appointments, and so forth).
- 3) From monitoring client interactions at 530 including recent or frequent contacts, topics of interest derived from keywords, relationships in an organizational chart, appointments, and so forth.

- 4) From a history or log of previous web pages or local/remote data sites visited including a history of previous search queries at 540.
- 5) From profile of user interests at 550 which can be specified explicitly or implicitly derived via background monitoring.
- 6) From demographic information at 560 (*e.g.*, location, gender, age, background, job category, and so forth).

Id., [0044]-[0049]

235. And additional factors such as those in Figure 5 (below):



236. Dumais explains that it is “not possible to describe every conceivable combination of components or methodologies” and that “one of ordinary skill in the

art may recognize that many further combinations and permutations are possible.” *Id.*, [0079]. Therefore, a POSA would have recognized that “personalization component 410” and “user model 500” could be used together in the same system along with tag component 140 and monitor component 110 (discussed above). In particular, both the “personalization component 410” and “user model 500” explain they are “based on user activity” (such as those provided by tag component 140 and monitor component 110). *Id.*, [0040], [0043] (“The user model 500 is employed to differentiate personalized searches from generalized searches and to facilitate rich data processing **according to determined activity data.**”) To the extent Patent Owner argues otherwise, it would have been obvious to combine “personalization component 410” and “user model 500” in order to take advantage of “user model 500” to achieve “successful personalization” with “personalization component 410” by “a model of the user that accurately reflects their interests and is easy to maintain and adapt to changes regarding long-term and short-term interests.” *Id.*, [0043]. Likewise, since both the “personalization component 410” and “user model 500” are “based on user activity” it would have been obvious to include tag component 140 and monitor component 110 in the combination.

237. As explained in Sections VII.A.1.g through VII.A.1.i, “personalization component 410” and “user model 500” described above is based on several different measures of relevance including the local importance, global importance, the

content, and actions of other users. Therefore, “personalization component 410” and “user model 500” are “*a second relevance measurement module*” under both the plain and ordinary meaning and Petitioner’s construction.

238. Moreover, the “*second relevance measurement module*” is coupled to the “*monitoring module*” for the same reason as above (*supra* ¶228). Moreover, as explained above, both “personalization component 410” and “user model 500” explains they are “based on user activity” (such as those provided by tag component 140 and monitor component 110). *Id.*, [0040], [0043] (“The user model 500 is employed to differentiate personalized searches from generalized searches and to facilitate rich data processing **according to determined activity data.**”) Therefore, a POSA would have understood “personalization component 410” and “user model 500” are “*coupled*” to the monitoring module, as the monitor component 110 is used to “observe[] data interactions.” *Id.*, [0022].

239. Accordingly, Dumais discloses or renders obvious “*a second relevance measurement module coupled to the monitoring module.*”

- g. ***[1f]: identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and***

240. In my opinion, Dumais discloses or renders obvious “*identify[ing] at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

241. As I explained above, identifying a cognate user is one of the claimed functions of the “*second relevance measurement module*.” The specification of ’217 patent states that a “cognate group” may be determined using “role or group based; collaborative filtering; fingerprinting; cluster models; search-based methods; frequency analysis; and importance value correlation.” EX1001, 43:30-35. To the extent this claim is not means-plus-function, then its scope would be much broader and Dumais would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

242. As I also explained above, “*identify[ing] at least one other of the plurality of users ... that is cognate to the user*” is identifying at least one user in a group of other users who share similar past user actions and assessments, and/or are defined by direct input by a user.

243. Dumais discloses the “[m]odels” (such as “personalization component 410” (which includes user model 420) and “user model 500”) “can be derived for individuals or groups of individuals.” EX1006, [0052]. For example, using “collaborative filtering techniques” (described in §IV.B) Dumais “develop[s] profiles by the analysis of similarities among individuals or groups of individuals.” *Id.*, [0052]. In particular:

Collaborative filtering systems generally use a centralized database about user preferences to predict additional topics users may desire. Collaborative filtering is applied with the user model 500 to process

previous user activities from a group of users that may **indicate preferences for a given user** that predict likely or possible profiles for new users of a system.

Id., [0055].

244. A POSA would have understood that because collaborative filtering is based on identifying “similarities among individuals” based on “previous user activities from a group of users” it must be identifying at least one user in a group of other users who share similar past user actions and assessments. *Id.*, [0052], [0055]. Therefore, Dumais discloses “*identify[ing] at least one other of the plurality of users ... that is cognate to the user*” under both the plain and ordinary meaning and Petitioner’s construction. Additionally, the claim only requires “*identify[ing] at least one other of the plurality of users*” therefore, more than one user can be identified. Accordingly, identifying a group of users includes “*identify[ing] at least one other... user.*”

245. Moreover, because the “[s]imilarity computations can be based on the content and/or **usage of items**” a POSA would have understood that at least one user “*is a recipient of the piece of electronic content*” because for collaborative filtering to function the users must have similar usage of items. *Id.*; *supra* §IV.B. Indeed, Dumais discloses a “global database 490 of user statistics” which “can be associated with user activity or interaction data.” *Id.*, [0040]. Dumais also explains that “[m]onitoring can occur via a background and/or foreground component (not shown)

and employed to determine when the data items 130 are interacted with by **users**” (plural). EX1006, [0022]. Therefore, Dumais is tracking the actions of multiple users on a single data item. A POSA would have understood that two users who interact with the same item offer the greatest indicator of relevance for that data item—*i.e.*, data about a specific data item is more valuable than data about a different data item.

246. Dumais also explains that “several algorithms” can be used for collaborative filtering including “correlation coefficients, vector-based similarity calculations, and statistical Bayesian methods can be employed.” *Id.*, [0055]. A POSA would have understood that in the context of collaborative filtering correlation coefficients, vector-based similarity calculations, and statistical Bayesian method similarity calculations often compare the similarity of two users’ interactions with the same objects to determine similarity between users. EX1028, 3:4-14; *supra* §IV.B. For example, elsewhere in Dumais she explains that a vector-based “similarity match” is where “users interests and content are represented as vectors and matched to items.” EX1006, [0042]. Therefore, a POSA would have understood that vector-based similarity calculations would closely match two users who had similar interactions with the same data item, more than users who had interactions with different data items. *See supra* ¶81.

247. Dumais also explains that one way to personalize a retrieval algorithm is to limit it “to those aspects of the user's corpus that pertain to the query (*e.g.*, documents that contain the query term or past interaction with data).” EX1006., [0051]. A POSA would have understood that a document with “past interaction[s]” would indicate that another user “*is a recipient of the piece of electronic content.*”

248. Dumais explains that “several algorithms” can be used for collaborative filtering including “correlation coefficients, vector-based similarity calculations, and statistical Bayesian methods can be employed.” *Id.*, [0055]. As explained above, the specification of '217 patent states that a “cognate group” may be determined using “role or group based; collaborative filtering; fingerprinting; cluster models; search-based methods; frequency analysis; and importance value correlation.” EX1001, 43:32-35. A POSA would have understood that Dumais uses at least collaborative filtering and “importance value **correlation.**”

249. Therefore, Dumais discloses function (1) of the “*second relevance measurement module*” under both the plain and ordinary meaning and Petitioner’s construction.

250. Accordingly, Dumais discloses or renders obvious “*identify[ing] at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

- h. ***[1g]: determine a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group consisting of:***

251. Dumais discloses or renders obvious “*determin[ing] a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group.*”

252. I understand that this claim limitation is a *Markush* group and lists specified alternative “*measures*” that can be used to calculate the “*second measure of relevance of the piece of electronic content.*” I address each “*measure*” in more detail in Sections VII.A.2.i through VII.A.2.l. I understand that the entire *Markush* group is disclosed by the prior art if one alternative in the *Markush* group is in the prior art. Therefore, the prior art need only disclose one of Claim Elements–1[g][i]–[iv].

253. It is my understanding that this claim element requires a “*second measure of relevance of the piece of electronic content*” using one of the “*measure*” described in Sections VII.A.2.i through VII.A.2.l. In particular, the “*second relevance measurement module*” is composed of various factors associated with “personalization component 410” and “user model 500.” Dumais discloses using “personalization component 410” and “user model 500” to create a personalized search results based on statistical similarity match and category matching. EX1006, [0040]–[0043], [0053] (“The learning models can include substantially any type of

system such as statistical/mathematical models and processes for modeling users and determining preferences and interests.”) Therefore, a POSA would have understood that the personalized search results of Dumais are a “*second measure of relevance of the piece of electronic content.*” Likewise, Dumais explains that “content-based scores can be assigned for documents.” *Id.*, [0025]. A POSA would have understood that the “content-based scores” of Dumais are another example of a “*second measure of relevance of the piece of electronic content.*” *Infra* §VII.A.2.k.

254. Dumais explains, with reference to Figure 5, that “a user model 500” is used to “differentiate personalized searches from generalized searches” and that is needs to “accurately reflects their interests and is easy to maintain and adapt to changes regarding long-term and short-term interests.” *Id.*, [0043]. To this end, the “user model can be obtained from a variety of sources,” as shown in Figure 5. *Id.*

255. In particular, Dumais explains that the “user model” and personalized search results can utilize a combination of content-based analysis [1[g][iii]], collaborative filtering [1[g][iv]], from monitoring an organizational chart [1[g][ii]], and monitoring client interactions [1[g][i]]. Therefore, Dumais discloses that the second relevance measure is based on one or more measures derived from the group consisting of: claim Elements–1[g][i]-1[g][iv].

256. Therefore, Dumais discloses function (2) of the “*second relevance measurement module*” under both the plain and ordinary meaning and Petitioner’s construction.

257. Accordingly, Dumais discloses or renders obvious “*determine[ing] a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group.*”

- i. ***[1g(i)]: a local importance describing an importance of the sender to the user,***

258. Dumais discloses or renders obvious “*a local importance describing an importance of the sender to the user.*”

259. As explained above, the structure described by the specification for carrying out the claimed “*local importance describing an importance of the sender to the user*” is a weighted function of a series of “assessments” as described in 31:21-32:33. *Supra* §VI.A.3. To the extent this claim is not means-plus-function, then its scope would be much broader and Dumais would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

260. Dumais explains that the user model 500 discussed above can be based on “monitoring client interactions at 530 including **recent or frequent contacts**, topics of interest derived from keywords, relationships in an organizational chart, appointments, and so forth.” EX1006, [0046], emphasis added. A POSA would have understood that client interactions 530 is a weighted function of a series of

“assessments” as described in 31:21-32:33. In particular, Dumais explains that “[a]t 580, machine learning techniques can be applied to learn user characteristics and interests over time.” *Id.*, [0053]. In particular:

statistical/mathematical models and processes for modeling users and determining preferences and interests including the use of Bayesian learning, which can generate Bayesian dependency models, such as Bayesian networks, naïve Bayesian classifiers, and/or other statistical classification methodology, including Support Vector Machines (SVMs), for example. Other types of models or systems can include neural networks and Hidden Markov Models, for example.

Id.

261. Therefore, a POSA reading Dumais would have understood that any number of statistical/mathematical models could be used to analyze client interactions 530. Of the various statistical/mathematical models available a POSA would have understood that a weighted function is one of the easier models to implement and use, and therefore it would have been obvious to try. Moreover, using a weighted sum on data like client interactions 530 was well understood and commonplace by this time. *Supra* §IV.C. Moreover, Dumais discloses a number of factors (or assessment) that can be used, including both “recent” and “frequent” contacts. The ’217 Patent explains that “[t]he individual importance component (IIC) may therefore be a weighted function of all these various elements of the individual recipient’s actions towards sender[s].” EX1001, 32:24-26. A POSA

would understand “recent” and “frequent” interaction with a contact is part of a “recipient’s actions towards senders.”

262. Moreover, as explained above (§VII.A.2.a), Dumais explains that the disclosed system monitors data items interacted with by multiple users in a multitude of ways which “can include observing when files are opened or closed, edited, added to or deleted from, read or written to, cut, pasted, last edited, **forwarded, replied to, sent to**, last viewed, the amount of time viewed, time interacted with over a time horizon, attentional annotations indicating how long the item 130 or different subcomponents of the item was the focus of attention, and so forth.” EX1006, [0022], emphasis added. Furthermore, emails are specifically listed as a data item that can be processed by the systems and methods described by Dumais. *Id.*, [0031]. Therefore, a POSA would have understood that “recent or frequent **contacts**” refers to email contacts and specifically to “*an importance of the sender to the user.*”

263. Therefore, Dumais discloses this claim limitation under both the plain and ordinary meaning and Petitioner’s construction.

264. Accordingly, Dumais discloses or renders obvious “*a local importance describing an importance of the sender to the user.*”

- j. ***[1g(ii)]: a global importance describing an importance of the sender within an organization with which the plurality of users are associated,***

265. Dumais discloses or renders obvious “*a global importance describing an importance of the sender within an organization with which the plurality of users are associated.*”

266. As explained above, the structure described by the specification for carrying out the claimed “*global importance describing an importance of the sender within an organization with which the plurality of users are associated*” are calculations (1)-(4) described in 32:46-47, 33:1-11, 33:21-28. *Supra* §VI.A.3. To the extent this claim is not means-plus-function, then its scope would be much broader and Dumais would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

267. Dumais explains that the user model 500 explained above can be based on “monitoring client interactions at 530 including recent or frequent contacts, topics of interest derived from keywords, **relationships in an organizational chart**, appointments, and so forth.” *Id.*, [0046]. A POSA would have understood that “relationships in an organization chart” is one way to determine the “*importance of the sender within an organization with which the plurality of users are associated.*” For example, a POSA would have known that “[i]nformation about the structure of organizational relationships relative to the user drawn from an organization chart such as: [m]anagers the user reports to, [m]anagers of the managers of users, [and p]eople who report to the user.” EX1028, 11:24-28; *supra* §IV.C. The ‘217 patent

similarly assign global importance by “directly assigned values.” EX1001, 33:22. Therefore, Dumais uses at least one of calculations (1)-(4) described in 32:46-47, 33:1-11, 33:21-28.

268. Moreover, Dumais “can include observing when files are opened or closed, edited, added to or deleted from, read or written to, cut, pasted, last edited, **forwarded, replied to, sent to**, last viewed, the amount of time viewed, time interacted with over a time horizon, attentional annotations indicating how long the item 130 or different subcomponents of the item was the focus of attention, and so forth.” EX1006, [0022], emphasis added. Furthermore, emails are specifically listed as a data item that can be processed by the systems and methods described by Dumais. *Id.*, [0031]. Therefore, a POSA would have understood that the “relationships in an organization chart” could be used to “*describe[e] an importance of the sender within an organization.*”

269. Therefore, Dumais discloses this claim limitation under both the plain and ordinary meaning and Petitioner’s construction.

270. Accordingly, Dumais discloses or renders obvious “*a global importance describing an importance of the sender within an organization with which the plurality of users are associated.*”

- k. ***[1g(iii)]: a content relevance determined responsive to content of the piece of electronic content, and***

271. Dumais discloses or renders obvious “*a content relevance determined responsive to content of the piece of electronic content.*”

272. As explained above, the structure described by the specification for carrying out the claimed “*a content relevance determined responsive to content of the piece of electronic content*” are “statistical techniques” for correlating certain words or the frequencies of words. *Supra* §VI.A.3. To the extent this claim is not means-plus-function, then its scope would be much broader and Dumais would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

273. Dumais explains that “content-based scores can be assigned for documents.” EX1006, [0025]. For example, “a score can be assigned based on the similarity of a user's query to the content of the document.” *Id.* A POSA would have understood that content-based scores are “*a content relevance determined responsive to content of the piece of electronic content.*”

274. Dumais also explained that “personalization component 410” can include “statistical similarity match (in which users interests and **content** are represented as vectors and matched to items), and category matching (in which the users' interests and **content** are represented and matched to items using a smaller set of descriptors).” *Id.*, [0042], emphasis added. A POSA would have understood that at least the “**statistical** similarity match” is a “statistical technique” for correlating

certain words or the frequencies of words. In particular, Dumais explains that user interests and content are represented as vectors and matched to items. This approach of using vectors to represent content and user profiles, and then determining a relationship between those vectors was well understood and common at the time, as explained above. *Supra* §IV.A. Dumais also explicitly mentions that the “[s]imilarity computations can **be based on the content** and/or usage **of items**.” *Id.*, [0052]; see *supra* ¶81.

275. Therefore, Dumais discloses this claim limitation under both the plain and ordinary meaning and Petitioner’s construction.

276. Accordingly, Dumais discloses or renders obvious “*a content relevance determined responsive to content of the piece of electronic content.*”

1. ***[1g(iv)]: one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and***

277. Dumais discloses or renders obvious “*one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

278. As explained above, the structure described by the specification for carrying out the claimed “*one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user*” are “based on a weighted average

of the IRC's” and therefore, use a weighted average of the same techniques described above for the “*first measurement module.*” *Supra* §VI.A.3. To the extent this claim is not means-plus-function, then its scope would be much broader and Dumais would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

279. As explained above, Dumais discloses collaborative filtering (*supra* §IV.B) and “*the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user*” in the form of analyzing the activity of a group of users, as discussed above. *Supra* §VII.A.2.g.

280. As discussed above (§VII.A.2.g.), using “collaborative filtering techniques” (described in §IV.B) Dumais “develop[s] profiles by the analysis of similarities among individuals or groups of individuals.” *Id.*, [0052]. Therefore, as explained above, Dumais’ collaborative filtering techniques includes “*one or more actions on the piece of electronic content of the at least one other of the plurality of users.*”

281. Dumais explains that user model 500 can be based “derived for individuals or **groups of individuals** at 570 such as via collaborative filtering techniques that develop profiles by the analysis of similarities among individuals or **groups of individuals**. Similarity computations can be **based on** the content and/or **usage of items.**” *Id.*, [0052], emphasis added. Accordingly, and as explained above

(§VII.A.2.g), Dumais discloses “*one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

282. Moreover, user model 500 “can be employed with user activity or interaction data.” EX1006, [0043]. Therefore, a POSA would have understood that user model 500 uses same techniques described above for the “*first measurement module.*” *Supra* §VI.A.3. In particular, the “*first measurement module*” evaluates differing activities such as, “creating, opening, viewing, scrolling, editing, printing, annotating, saving, forwarding, and so forth.” *Id.* A POSA would have understood that Dumais discloses using a “plurality of factors,” including dichotomous factors or cardinal scale factors. *Id.* Dumais explains that “user model 500 to process previous user activities from a group of users that may indicate preferences for a given user that predict likely or possible profiles for new users of a system. Several algorithms including techniques based on correlation coefficients, vector-based similarity calculations, and statistical Bayesian methods can be employed.” EX1006, [0055]. A POSA would have understood that “correlation coefficients, vector-based similarity calculations, and statistical Bayesian methods” are often used to calculate the relative weights of data items, as they indicate a level of similarity or importance. Therefore, it would have been obvious to a POSA to use a weighted mean or average to apply a level of importance to each user’s activity

based on the “correlation coefficients, vector-based similarity calculations, and statistical Bayesian methods” disclosed in Dumais. Moreover, using a weighted mean for collaborative filtering was well-known and common, therefore, a POSA would have known it offered a predictable and obvious to try solution. Therefore, Dumais discloses this claim limitation under both the plain and ordinary meaning and Petitioner’s construction.

283. Accordingly, Dumais discloses or renders obvious “*one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

- m. ***[1h]: a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.***

284. In my opinion Dumais discloses “*a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.*”

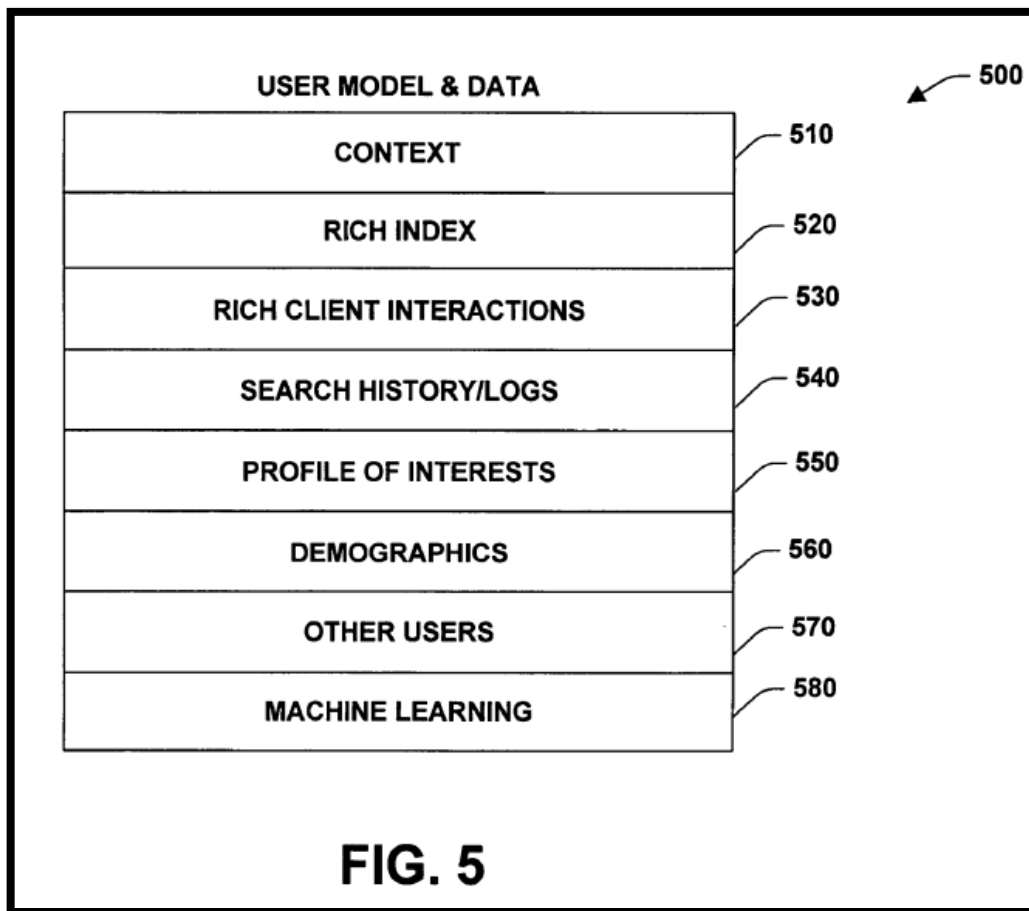
285. As explained above, the structure described by the specification for carrying out the claimed “*relevance analysis module*” (while incomplete) is a series

of “inputs” (such as “the user's own IRC, the global and cognate relevance scores, and the combined importance relating to that mail.”) EX1001, 26:49-51; 35:62-36:6; *Supra* §VI.A.4. To the extent this claim is not means-plus-function, then its scope would be much broader and Dumais would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

286. As I explain in Section §VII.A.2.e, Dumais discloses a “*a first measure of relevance*” in the form of “weights or scores” based on user activity.

287. As I also explained in Sections §§VII.A.2.f, VII.A.2.h, Dumais discloses a “*second measure of relevance*” in the form of the personalized search results and content-based scores of Dumais. In Sections VII.A.2.i through VII.A.2.l I explain how the “*second measure of relevance*” is impacted by local importance, global importance, content relevance, and one or more actions of other users.

288. Dumais when describing the user model of Figure 5 states that it “can be obtained from a variety of sources” before providing a list of sources. EX1006, [0043]-[0049]; Fig. 5.



289. Dumais explains that “user model 500” can be “employed with user activity or interaction data” (i.e., the “*first measure of relevance*”). User model 500 is additionally “based on many different sources of information” as shown in Figure 5 above (i.e., the “*second measure of relevance*”). *Id.*, [0050]. Dumais also explains that “user model 500 is employed to differentiate personalized searches from generalized searches.” Therefore, a POSA would have understood the personalized searches enabled jointly by “user model 500” and the “user activity or interaction data” is a “*relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first*

determined measure of relevance and on the second determined measure of relevance.”

290. Moreover, Dumais “differential weighting of document regions” can be a “ranking” to “give more weight to terms that appear in documents or sections of a document that have been edited or the user has spent lots of time reading.” *Id.*, [0025]. Activity data 150 (*i.e.*, the “*first measure of relevance*”) “can be employed to identify regions or terms of interest.” *Id.* The activity data is used in conjunction with “content-based scores” (*i.e.*, the “*second measure of relevance*”) to create an overall ranking. *Id.* Therefore, this ranking is a “*relevance score of the piece of electronic content sent from the sender to the user*” that is “*based at least in part on the first determined measure of relevance and on the second determined measure of relevance.*” I note that, as I explain above, there is no requirement that Claim Elements—1g[i]–[ii], and 1g(iv) are used in the second measure as the second measure includes the *Markush* group.

291. Dumais also discloses a “relevance feedback” score which is a way to influence the rank of items returned in a search. The “relevance feedback” score is based on a two-cycle process where “a query generates results that leads to a modified[/personalized] query.” *Id.*, [0041]. The results then “usually includes some form of re-ranking and/or selection from a larger set of alternatives which can include a consideration or weighting from determined activity data.” *Id.* A POSA

would have understood that the ranking used in the relevance feedback is a “*relevance score of the piece of electronic content sent from the sender to the user.*”

292. Dumais explains:

Relevance feedback is a two-cycle variation of this process, wherein a query generates results that leads to a modified query (using explicit or implicit judgments about the initial results set) which yields personalized results that are personalized to a short-term model based on the query and result set. Longer-term user models can also be used in the context of relevance feedback. Further, query modifications also refer to alterations made in algorithm(s) employed to match the query to documents. **In another aspect, results modification take a user’s input as-is to generate a query to yield results which are then modified (via user model) to generate personalized results. It is noted that modification of results usually includes some form of re-ranking and/or selection from a larger set of alternatives which can include a consideration or weighting from determined activity data.** Modification of results can also include various types of agglomeration and summarization of all or a subset of results.

Id., [0041], emphasis added.

293. Therefore, the relevance feedback accounts for the “personalized [search] results” generated by “personalization component 410” and “user model 500” (*i.e.*, the “*second measure of relevance*”) and then re-ranks those results based on “consideration or weighting from determined activity data (*i.e.*, the “*first measure of relevance*”). Likewise, since the relevance feedback is re-ranked, a POSA would

understand it is a ranking. Accordingly, the relevance feedback score is “*based at least in part on the first determined measure of relevance and on the second determined measure of relevance.*”

294. Moreover, as explained above, the inputs (such as “the user's own IRC, the global and cognate relevance scores, and the combined importance relating to that mail”) are used to calculate the scores discussed above. EX1001, 26:49-51; 35:62-36:6. Therefore, Dumais discloses “*the relevance analysis module*” under both the plain and ordinary meaning and Petitioner’s construction.

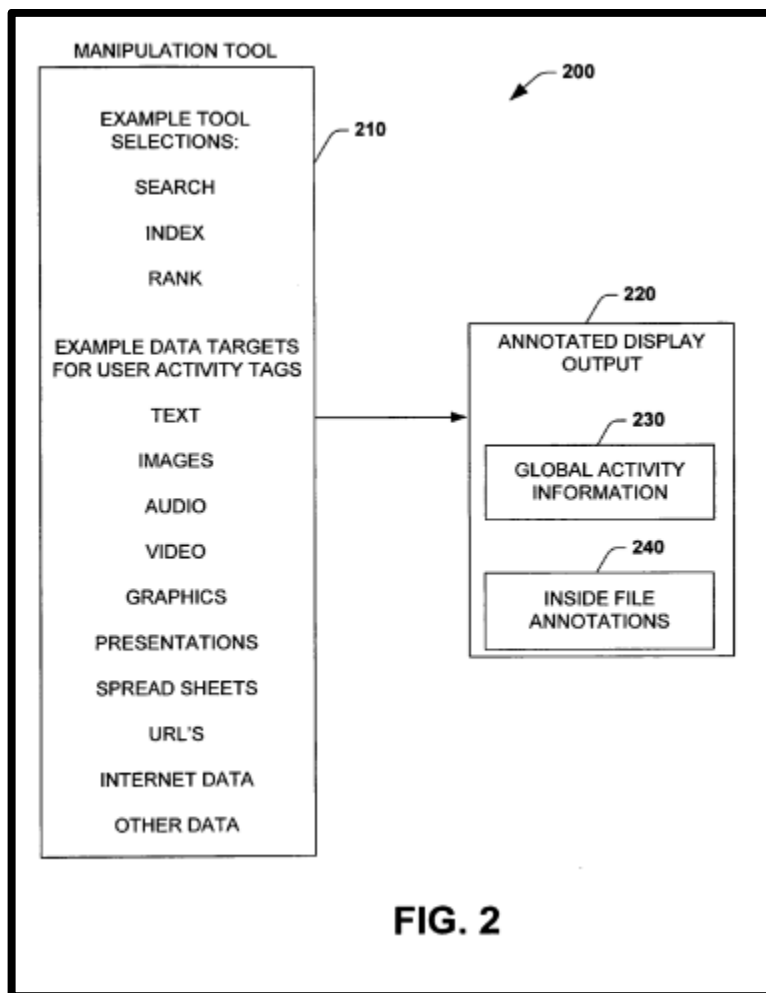
295. Accordingly, Dumais discloses or renders obvious “*a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.*”

- n. ***[2]: The system of claim 1, further comprising: a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.***

296. In my opinion, Dumais discloses or renders obvious “*a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.*”

297. As explained above, the structure described by the specification for carrying out the claimed “*content presentation module*” is “mail presentation module 260” *Id.*, 7:28-34 and Figures 9 through 20. *Supra* §VI.B. To the extent this claim is not means-plus-function, then its scope would be much broader and Dumais would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

298. Dumais discloses “*a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score.*” Referring to Figure 2 (shown below), Dumais explains that the “output 220 from the tool 210 can be a file or an actual **user interface display**,” stating that “if the tool were employed as a search engine within a database, the output could be a **display of returned results.**” EX1006, [0036], emphasis added.



299. Dumais discloses “to present to the user a value describing the determined relevance score.” Referring to Figure 2, Dumais describes the use of highlighting and annotations to present the user with this described value:

This may include highlighting or applying graphics to a file to indicate that one file or grouping of files have been selected because of their **increased activity with the user**. In an e-mail search tool for example, the tool 210 may be applied to search for all files that have the keyword computer and have had at least one graphical image associated with the file in the past month. Searches can be crafted in a plurality of ways and can include combinations of content searching, activity-based

searching, and or combinations thereof. For instance, in this example, three e-mails out of a set often **e-mails may be highlighted in one color as having a higher activity score than the other seven e-mails which are delineated in a different color.** In another aspect at 240, information within a returned file or data set can be highlighted or annotated to indicate usage activity (*e.g.*, paragraph within a file selected with different font format to highlight usage areas within the document).”

Id., [0036]

300. It also would have been obvious to display the “*determined relevance score*” because Dumais is (1) already displaying a list of documents ranked according to that score, and (2) doing so was commonplace. *Infra* §VII.B.5.n.

301. Dumais also discloses the “*content presentation module*” under both the plain and ordinary meaning and Petitioner’s construction because Dumais’ email inbox works in the same way as “mail presentation module 260”—*i.e.*, “provide a user his/her electronic mail (along with features therewith) in accordance with the relevance and importance scores determined by the relevance analysis engine 252.” EX1001, 6:55-60.

302. Accordingly, Dumais discloses or renders obvious “*a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.*”

- o. ***[3]: The system of claim 1, further comprising: a search module configured to search the electronic content in accordance with the determined relevance score.***

303. In my opinion, Dumais discloses “a search module configured to search the electronic content in accordance with the determined relevance score.”

304. As explained above, the structure described by the specification for carrying out the claimed “search module” is that “the electronic mail system may help rank search results and indicate to the user how likely each piece of content is to be of interest.” *Id.*, 8:10-12; *supra* §VI.C. To the extent this claim is not means-plus-function, then its scope would be much broader, and Dumais would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

305. In reference to Figure 4, Dumais explicitly states that “[t]he system 100 depicts a general diagram for **personalizing search results**, [and]... for using the model to influence **search results** by modifying a query 430 and/or modifying results 440 returned from a **search**.” EX1006, [0040], emphasis added. As explained above, “personalization component 410” and “user model 500” are used to “influence search results ... or modify[] results 440 returned from a search” by ranking and re-ranking results. *Supra* §VII.B.5.m. Therefore, Dumais discloses “a search module configured to search the electronic content in accordance with the determined relevance score.”

306. Moreover, as explained at length above, modifying the search results in Dumais is intended to help rank search results and indicate to the user how likely each piece of content is to be of interest. EX1006, [0043] (“The user model 500 is employed to differentiate personalized searches from generalized searches and to facilitate rich data processing according to determined activity data. One aspect in successful personalization is to build a model of the user that accurately reflects their interests and is easy to maintain and adapt to changes regarding long-term and short-term interests.”) Therefore, Dumais discloses this claim limitation under both the plain and ordinary meaning and Petitioner’s construction.

307. Accordingly, Dumais discloses or renders obvious “*a search module configured to search the electronic content in accordance with the determined relevance score.*”

p. ***[4]: The system of claim 1, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.***

308. In my opinion, Dumais in combination with Marston discloses or renders obvious “*wherein the piece of electronic content comprises an electronic mail object in a relational mail system.*”

309. As explained above (§VII.A.2.d), Marston explains that each message and sub-message are stored “as a discrete object that can be individually referenced.”

EX1043, [0022], [0010]. Moreover, a POSA would have been motivated to include the “relational mail architecture” of Marston in the system of Dumais.

310. Therefore, the combination discloses “*the piece of electronic content*” (i.e., the email content of Dumais) being “*an electronic mail object in a relational mail system*” (i.e., organized in the “relational mail architecture” of Marston).

311. Accordingly, the combination discloses or renders obvious “*wherein the piece of electronic content comprises an electronic mail object in a relational mail system.*”

q. ***[5]: The system of claim 1, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.***

312. In my opinion, Dumais discloses or renders obvious “*wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.*”

313. As discussed above Dumais explicitly mentions that “[t]he systems and methods described herein support a plurality of data processing applications. This includes processing **data items such as documents, files, email messages, calendar appointments, web pages**, sub-sections within the data items or cross-item abstractions, for example.” *Id.*, [0031], emphasis added. Accordingly, Dumais discloses or renders obvious “*wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.*”

- r. ***[8]: The system of claim 1, wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user.***

314. In my opinion Dumais discloses or renders obvious “*wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user.*”

315. As explained above (§§VII.A.4.c, VII.A.4.i), a POSA would have understood that because the collaborative filtering of Dumais is based on identifying “similarities among individuals” based on “previous user activities from a group of users” it must be identifying at least one user in a group of other users who share similar past user actions and assessments. *Id.*, [0052], [0055].

316. Accordingly, Dumais discloses or renders obvious “*wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user.*”

- s. ***[9]: The system of claim 8, wherein the at least one other of the plurality of users is cognate to the user, and the user is not cognate to the at least one other of the plurality of users.***

317. In my opinion Dumais discloses or renders obvious “*wherein the at least one other of the plurality of users is cognate to the user, and the user is not cognate to the at least one other of the plurality of users.*”

318. As explained above (§VII.A.2.g), Dumais discloses the “[m]odels” (such as “personalization component 410” (which includes user model 420) and “user model 500”) “can be derived for individuals or groups of individuals.” *Id.*, [0052]. For example, using “collaborative filtering techniques” (described in §IV.B) Dumais “develop[s] profiles by the analysis of similarities among individuals or groups of individuals.” *Id.*, [0052]. In particular:

Collaborative filtering systems generally use a centralized database about user preferences to predict additional topics users may desire. Collaborative filtering is applied with the user model 500 to process previous user activities from a group of users that may indicate preferences for a given user that predict likely or possible profiles for new users of a system.

Id., [0055].

319. A POSA would have understood that because collaborative filtering is based on identifying “similarities among individuals” based on “content and/or usage of items” and because these similarities are being used to “predict likely or possible profiles” there are many instances where User A may be cognate to User B, but User B would not be cognate to User A. Indeed, Dumais explains that “a

retrieval algorithm could be limited to those aspects of the user's corpus that pertain to the query (*e.g.*, documents that contain the query term or past interaction with data). Similarly, email may be analyzed from the previous 1 month, whereas web accesses from the previous 3 days, and the user's content created within the last year.” *Id.*, [0051].

320. Therefore, User B could limit their collaborative filtering to the “previous 3 days.” If User A and B worked together closely over the last 3 days (but never before) then User A would be cognate to User B. But if User A sets their collaborative filtering to the “previous 1 month” or year, the overall low importance of User B would likely mean User B would not be cognate to User A. Moreover, since collaborative filtering was well-known allowing User A to be cognate to User B, but not vice versa would have been obvious.

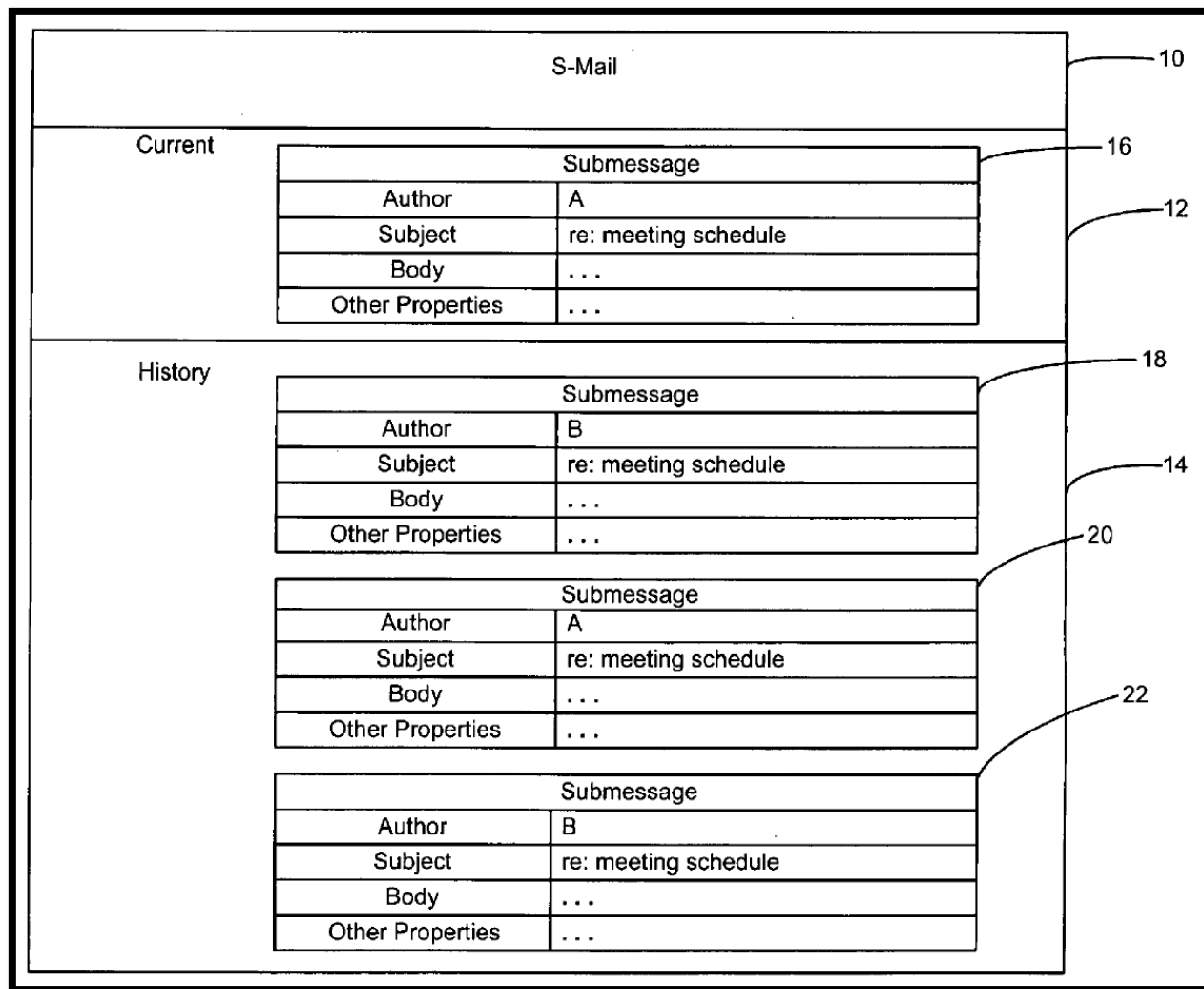
321. Likewise, for a User C and D, User C could be a power user who consumes and interacts with a significant amount of content. Therefore, User C would have a high likelihood of being cognate with many users. But a User D may only use the system sparsely and be cognate to fewer people. In which case User C could be cognate to User D, but User D may not be cognate to User C.

322. Accordingly, Dumais discloses or renders obvious “*wherein the at least one other of the plurality of users is cognate to the user, and the user is not cognate to the at least one other of the plurality of users.*”

- t. ***[10]: The system of claim 4, wherein the electronic mail object includes one or more submessages.***

323. In my opinion, Dumais in combination with Marston discloses or renders obvious “*wherein the electronic mail object includes one or more submessages.*”

324. As explained above (§VII.A.2.d), Marston explains that each message and sub-message are stored “as a discrete object that can be individually referenced.” EX1043, [0022], [0010]. Marston also explains that each message object includes a series of pointers to the “current submessage 38: and “history submessages.” EX1043, [0046], [0035]. For example, as shown in Figure 2 of Marston:



325. As shown above, the “history portion 14 contains a list of individual submessages 18,20,22 which set the context for the current submessage 16.” EX1043, [0036].

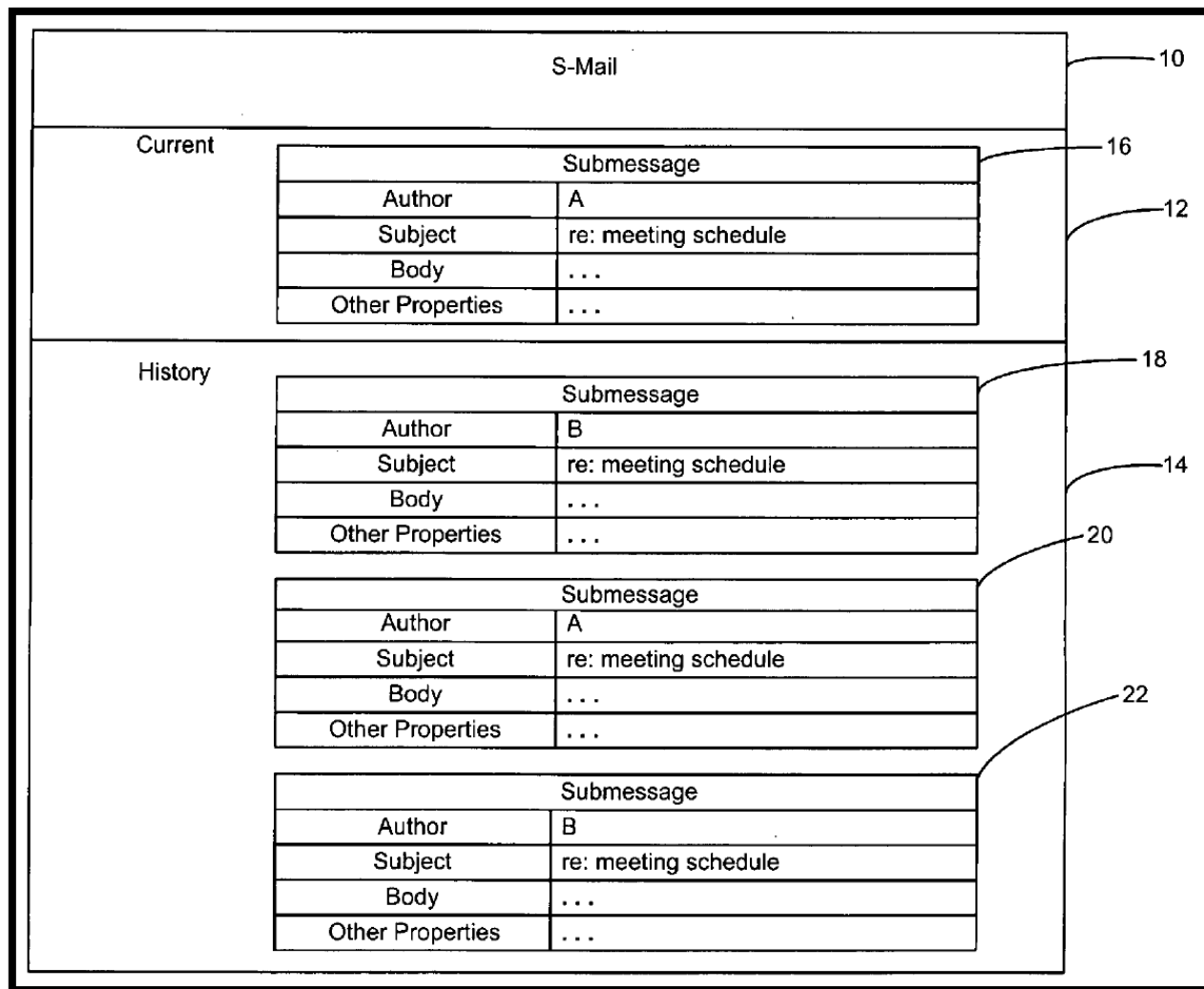
326. Dumais also discloses submessages in the form of “forwarded [and] replied to” messages. EX1006, [0022]. Therefore, the submessages of Dumais are stored and referenced using the relational mail architecture of Marston.

327. Accordingly, Dumais in combination with Marston discloses or renders obvious “*wherein the electronic mail object includes one or more submessages.*”

- u. ***[11]: The system of claim 10, wherein the submessages are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.***

328. In my opinion Dumais in combination with Marston discloses or renders obvious “*wherein the submessages are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.*”

329. As explained above (§VII.A.2.d), Marston explains that each message includes a series of pointers to the “current submessage 38: and “history submessages.” EX1043, [0046]. As shown in Fig. 2:



330. Therefore, the “submessages are represented in the electronic mail object as references to submessage content.”

331. Moreover, in Claim 25 of Marston it expressly discloses “storing messages sent among the end-users in a data store of a messaging system, wherein each message includes one or more submessages and wherein the data store stores the messages and submessages.” EX1043, c. 25. Therefore, the “submessage content [is] stored in a data store of the relational mail system.”

332. Accordingly, Dumais in combination with Marston discloses or renders obvious “*wherein the submessages are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.*”

- v. ***[12]: The system of claim 4, wherein the electronic mail object has an associated job code representing a business process with which the electronic mail object is associated.***

333. In my opinion, Dumais in combination with Marston discloses or renders obvious “*wherein the electronic mail object has an associated job code representing a business process with which the electronic mail object is associated.*”

334. Marston explains that the sub-message object can include a “job code” that is:

one or more fields that hold codes that can be used to index the message given the particular business processes and/or workflows utilized by the client application, end-user, and/or end-user's enterprise.

EX1043, [0039].

335. Accordingly, Dumais in combination with Marston discloses or renders obvious “*wherein the electronic mail object has an associated job code representing a business process with which the electronic mail object is associated.*”

3. Claim 6 and its Dependent Claims 13-17

- a. ***[6pre]: A computer program product for determining a relevance score of a piece of electronic content sent from***

a sender to a user, the relevance score determined with respect to the user, the computer-program product having a computer-readable storage medium having computer program instructions encoded thereon comprising:

336. In my opinion, Dumais discloses “A computer program product for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-program product having a computer-readable storage medium having computer program instructions encoded thereon.”

337. As explained above (§III.C), claims 6 and 1 overlap significantly. For all the reasons stated above in Sections VII.A.2.a-VII.A.2.d, Dumais would meet this limitation. In particular, a POSA would recognize that a “computer implemented system” can be a “computer program product.”

- b. ***[6a]: a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;***

338. In my opinion, Dumais discloses “a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content.”

339. For all the reasons stated above in Section VII.A.2.d, Dumais would meet this limitation.

- c. ***[6b]: a first relevance measurement module coupled to the monitoring module and configured to determine a***

first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content;

340. In my opinion Dumais discloses “a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.”

341. For all the reasons stated above in Section VII.A.2.e, Dumais would meet this limitation.

d. ***[6c]: a second relevance measurement module coupled to the monitoring module and configured to:***

342. In my opinion Dumais discloses “a second relevance measurement module coupled to the monitoring module.”

343. For all the reasons stated above in Section VII.A.2.f, Dumais would meet this limitation.

e. ***[6d]: identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and***

344. In my opinion Dumais discloses “identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.”

345. For all the reasons stated above in Section VII.A.2.g, Dumais would meet this limitation.

- f. ***[6e]: determine a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group consisting of:***

346. In my opinion Dumais discloses “*determine a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group.*”

347. For all the reasons stated above in Section VII.A.2.h, Dumais would meet this limitation.

- g. ***[6e(i)]: a local importance describing an importance of the sender to the user***

348. In my opinion Dumais discloses “*a local importance describing an importance of the sender to the user.*”

349. For all the reasons stated above in Section VII.A.2.i, Dumais would meet this limitation.

- h. ***[6e(ii)]: a global importance describing an importance of the sender within an organization with which the plurality of users are associated***

350. In my opinion Dumais discloses “*a global importance describing an importance of the sender within an organization with which the plurality of users are associated.*”

351. For all the reasons stated above in Section VII.A.2.j, Dumais would meet this limitation.

- i. ***[6e(iii)]: a content relevance determined responsive to content of the piece of electronic content, and***

352. In my opinion Dumais discloses “a content relevance determined responsive to content of the piece of electronic content.”

353. For all the reasons stated above in Section VII.A.2.k, Dumais would meet this limitation.

- j. ***[6e(iv)]: one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and***

354. In my opinion Dumais discloses “one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.”

355. For all the reasons stated above in Section VII.A.2.l, Dumais would meet this limitation.

- k. ***[6(f)]: a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.***

356. In my opinion Dumais discloses “a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in

part on the first determined measure of relevance and on the second determined measure of relevance.”

357. For all the reasons stated above in Section VII.A.2.m, Dumais would meet this limitation.

- l. ***[13]: The computer program product of claim 6, further comprising: a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.***

358. In my opinion Dumais discloses “a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.”

359. For all the reasons stated above in Section VII.A.2.n, Dumais would meet this limitation.

- m. ***[14]: The computer program product of claim 6, further comprising: a search module configured to search the electronic content in accordance with the determined relevance score.***

360. In my opinion Dumais discloses “a search module configured to search the electronic content in accordance with the determined relevance score.”

361. For all the reasons stated above in Section VII.A.2.o, Dumais would meet this limitation.

- n. ***[15]: The computer program product of claim 6, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.***

362. In my opinion Dumais discloses “*wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.*”

363. For all the reasons stated above in Section VII.A.2.q, Dumais would meet this limitation.

- o. ***[16]: The computer program product of claim 6, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.***

364. In my opinion Dumais in combination with Marston discloses or renders obvious “*wherein the piece of electronic content comprises an electronic mail object in a relational mail system.*”

365. For all the reasons stated above in Section VII.A.2.p, Dumais in combination with Marston discloses or renders obvious this limitation.

- p. ***[17]: The computer program product of claim 16, wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.***

366. In my opinion Dumais in combination with Marston discloses or renders obvious “*wherein the electronic mail object includes one or more*

submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.”

367. For the reasons stated above in Sections VII.A.2.t and VII.A.2.u, Dumais in combination with Marston discloses or renders obvious this limitation.

4. Claim 7 and its Dependent Claims 18-22

- a. ***[7pre]: A computer-implemented method for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented method comprising:***

368. In my opinion Dumais discloses “*a computer-implemented method for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented method.*”

369. As explained above (§III.C), claims 1 and 7 overlap significantly. For all the reasons stated above in Section VII.A.2.a, Dumais would meet this limitation. In particular, a POSA would have understood that the “*computer implemented system*” of claim 1 executes a “*computer implemented method.*”

- b. ***[7a]: tracking actions by a plurality of users associated with an application for managing electronic content;***

370. In my opinion Dumais discloses “*tracking actions by a plurality of users associated with an application for managing electronic content.*”

371. For all the reasons stated above in Section VII.A.2.d, Dumais would meet this limitation.

- c. ***[7b]: identifying at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user,***

372. In my opinion Dumais discloses “*identifying at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

373. For all the reasons stated above in Section VII.A.2.g, Dumais would meet this limitation.

- d. ***[7c]: determining a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.***

374. In my opinion Dumais discloses “*determining a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.*”

375. For all the reasons stated above in Section VII.A.2.e, Dumais would meet this limitation.

- e. ***[7d]: determining a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group consisting of:***

376. In my opinion Dumais discloses “*determining a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group.*”

377. For all the reasons stated above in Section VII.A.2.f, Dumais would meet this limitation.

- f. ***[7d(i)]: a local importance describing an importance of the sender to the user***

378. In my opinion Dumais discloses “*a local importance describing an importance of the sender to the user.*”

379. For all the reasons stated above in Section VII.A.2.i, Dumais would meet this limitation.

- g. ***[7d(ii)]: a global importance describing an importance of the sender within an organization with which the plurality of users are associated,***

380. In my opinion Dumais discloses “*a global importance describing an importance of the sender within an organization with which the plurality of users are associated.*”

381. For all the reasons stated above in Section VII.A.2.j, Dumais would meet this limitation.

- h. ***[7d(iii)]: a content relevance determined responsive to content of the piece of electronic content, and***

382. In my opinion Dumais discloses “*a content relevance determined responsive to content of the piece of electronic content.*”

383. For all the reasons stated above in Section VII.A.2.k, Dumais would meet this limitation.

- i. ***[7d(iv)]: one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and***

384. In my opinion Dumais discloses “*one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

385. For all the reasons stated above in Section VII.A.2.l, Dumais would meet this limitation.

- j. ***[7e]: determining the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.***

386. In my opinion Dumais discloses “*determining the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.*”

387. For all of the reasons stated above in Section VII.A.2.m, Dumais would meet this limitation.

- k. ***[18]: The method of claim 7, further comprising: presenting the piece of electronic content to the user in accordance with the determined relevance score and presenting to the user a value describing the determined relevance score.***

388. In my opinion Dumais discloses “*presenting the piece of electronic content to the user in accordance with the determined relevance score and presenting to the user a value describing the determined relevance score.*”

389. For all the reasons stated above in Section VII.A.2.n, Dumais would meet this limitation.

- l. ***[19]: The method of claim 7, further comprising: searching the electronic content in accordance with the determined relevance score.***

390. In my opinion Dumais discloses “*searching the electronic content in accordance with the determined relevance score.*”

391. For all the reasons stated above in Section VII.A.2.o, Dumais would meet this limitation.

- m. ***[20]: The method of claim 7, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.***

392. In my opinion Dumais in combination with Marston discloses or renders obvious “*wherein the piece of electronic content comprises an electronic mail object in a relational mail system.*”

393. For all the reasons stated above in Section VII.A.2.p, Dumais in combination with Marston discloses or renders obvious this limitation.

- n. ***[21]: The method of claim 20, wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.***

394. In my opinion Dumais in combination with Marston discloses or renders obvious “*wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.*”

395. For the reasons stated above in Sections VII.A.2.t and VII.A.2.u, Dumais in combination with Marston discloses or renders obvious this limitation.

- o. ***[22]: The method of claim 7, wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the one other of the plurality of users with respect to historical actions of the user.***

396. In my opinion Dumais discloses “*wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the one other of the plurality of users with respect to historical actions of the user.*”

397. For all the reasons stated above in Section VII.A.2.r, Dumais would meet this limitation.

B. Grounds 4-5: The combination of Kircher and Krug with or without Marston renders claims 1-22 of the '217 patent obvious

398. As explained below, claims 1-3, 5-9, 13-15, 18-19 and 22 of the '217 Patent would have been obvious based on the combination of Kircher and Krug. In the combination Kircher discloses a system for “prioritizing [] electronic messages,” such as email. EX1007, [0039]. Kircher “monitor[s] a user's actual response to receiving an electronic message” and iteratively ranks messages according to the user’s response. *Id.*, [0046], [0102]. Using this ranking Kircher presents an ordered list of emails to the user based on their ranking. *Id.*, [0049], Fig. 3B. Krug likewise uses the “usage behavior” of an individual or a “group of users” to build a user profile. EX1008, 4, 6. In Krug, “each object is assigned at least one object profile that describes properties of the object.” *Id.*, [0016]. Krug then calculates “comparison value,” which is indicative of the relevance of the objects, by comparing the object profiles and the user profile. *Id.*, [0020], [0048], Fig. 1. As explained in more detail below (*infra* §VII.B.3), in the combination, the filtering and ranking techniques of Kircher and Krug would be combined. Moreover, the user profile and object profile comparison system disclosed in Krug would be incorporated into and combined with the electronic message sorting and ranking system disclosed in Kircher.

399. It would have also been obvious to include the “relational mail architecture” of Marston into the system of Kircher and Krug. Marston explains that

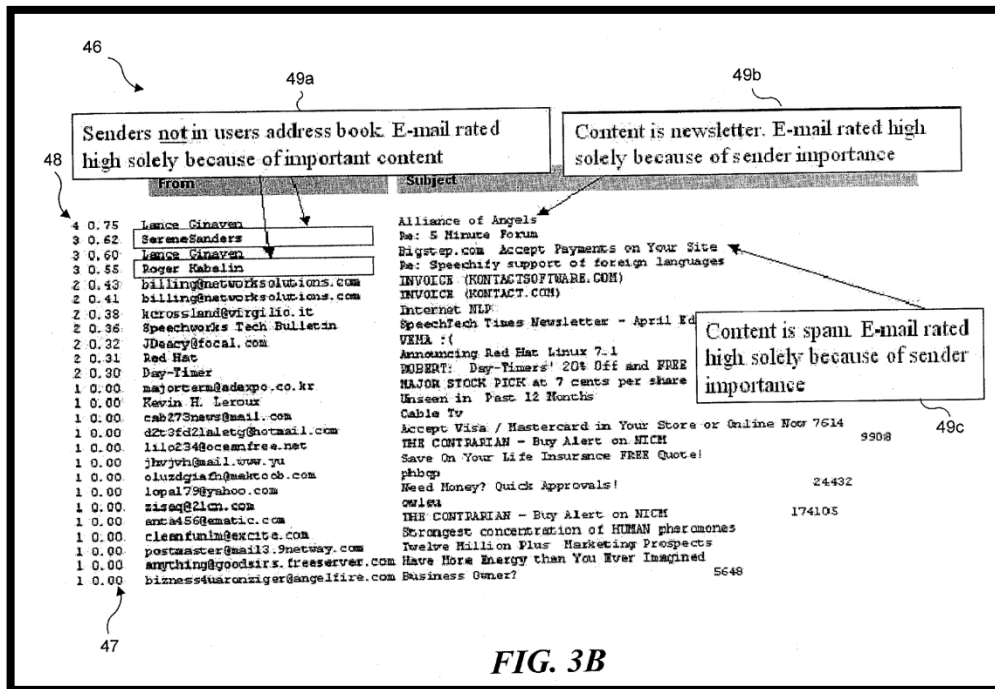
in a relational mail architecture each message and sub-message are stored “as a discrete object that can be individually referenced.” EX1043, [0022], [0010]. Therefore, the combination of Marston with Kircher and Krug would disclose or render obvious claims 4, 10-12, 16-17, and 20-21.

1. Overview of Kircher

400. United States Published Patent Application 2003/0195937A1 (Kircher) (EX1007) was filed on April 16, 2002, and identifies Robert C Kircher Jr., and Surendra Bhatia as its inventors. Kircher was published on October 16, 2003.

401. I understand from counsel that Kircher is prior art to the '217 Patent at least because it was published more than one year before the earliest possible filing date of the '217 Patent.

402. Kircher “is directed to a method for processing electronic messages, to rank messages based upon probable importance to the recipient.” EX1007, [0010]. For example, Kircher discloses that the method “evaluates the messages based on determinable attributes and user-defined parameters to produce a numerical result corresponding to a ranking of the importance of each electronic message received.” *Id.* In Figure 3B, Kircher depicts a “schematic representation of an email inbox after the contents of the inbox have been prioritized, in accord with the present invention.” *Id.*, [0026].



403. Kircher explains that “the messages have been ranked according to the likely importance of each message to the recipient.” *Id.*, [0049]. In particular, “column 48 indicates the importance of each email by a ranking number” and “column 47 includes the numerical value assigned to each email.” *Id.*, [0050]-[0051]

404. Kircher explains that the invention employs “fuzzy logic” to evaluate a plurality of criteria including “the importance of the sender of the electronic message, the degree of personalization of the electronic message with respect to the recipient, and the importance of the content of the electronic message.” *Id.*, [0015], [0048], [0040], [0044], [0059]-[0062], Figs. 5A, 5B, 5C. For example, Kircher “prioritizes the incoming messages using fuzzy logic,” allowing the user to “no longer need to sort through multiple electronic messages to determine which

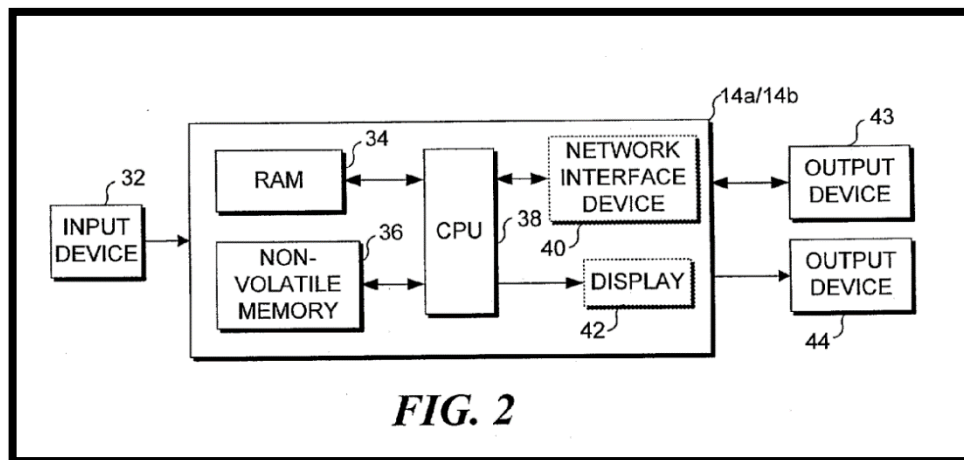
messages have a high priority.” *Id.*, [0039], Fig. 1. Kircher discloses that this “fuzzy logic” can be “individually employed determine at least one of plurality of criteria,” or “each criterion is evaluated before fuzzy logic is employed, and the fuzzy logic is employed to generate a single numerical value corresponding to a ranking of the message’s importance based on all of the criteria evaluated,” or a combination of both where fuzzy logic evaluates “each individual criteria, and then to generate a single numerical value corresponding to a ranking of the message’s importance based on all the criteria evaluated.” *Id.*, [0015], [0055]-[0058], Fig. 4.

405. Kircher also discloses the ability to analyze message content. *Id.*, [0066]-[0071], Fig. 7. Using various forms of content analysis, Kircher creates a final email content code vector is set based on the individual counts collected and used in further analysis in both “analyzing the importance of the content of the email,” and “the extent to which an email message is personalized with respect to the recipient.” *Id.*, [0071], [0076]-[0084], Fig. 7, Fig. 9, Fig. 10.

406. Kircher also analyzes the importance of a message’s sender. *Id.*, [0072]-[0076], Fig. 8. For example, Kircher determines a base value based on set criteria of whether the sender is VIP—as identified in the user’s address book— or if the sender is replying to an email from the user. *Id.*, [0072]-[0075]. This information contributes to Kircher’s calculation of the overall importance of the email. *Id.*, [0085]-[0091], Fig. 11, [0092], Fig. 12.

407. Kircher discloses a dynamic update routine “that enables the system to learn and refine the choice of categories to which an electronic message is assigned in the future, based on a user’s response to a message that was forwarded to the user.” *Id.*, [0046], [0094]-[0108], Fig. 1, Fig. 13, Fig. 14. This feature is “enabled by monitoring a user’s actual response to receiving an electronic message,” and updating the user’s preferences and address book based on responses “different than the expected response corresponding to the category selected in the logical process of block 16b.” *Id.*, [0046], [0057], [0094]-[0108], Fig. 13, Fig. 14.

408. Kircher discloses “a storage medium on which is stored a plurality of machine instructions defining a computer program,” and a system which includes “a memory in which a plurality of machine instructions defining an executable application are stored, a display, and a processor that is coupled to the display and to the memory to access the machine instructions,” the processor executing “the machine instructions, carrying out a plurality of functions generally consistent with the method steps described above.” *Id.*, [0021], [0047]. Kircher discloses that the computing device “might be any of a number of different types of devices for processing electronic messages.” *Id.*, [0047], Fig. 2. For example, in Figure 2, Kircher depicts “a block diagram of a computing device useful for implementing the present invention.” *Id.*, [0024].



409. A “network interface 40” can be included as an optional device which enables the “computing device 14a/14b to receive and process and electronic message transmitted over some form of network (*e.g.*, email, voice data, and fax data) can be employed. *Id.*

2. Overview of Krug

410. International Patent Application WO 03/023650A2 (“Krug”) was filed on September 6, 2002. Krug additionally claims priority to German Patent Application 101 43 940.7 filed September 7, 2001. Krug identifies Peter Krug as the sole inventor and was published on March 20, 2003.

411. I understand from counsel that Krug is prior art to the ’217 Patent at least because it was published more than one year before the earliest possible filing date of the ’217 Patent.

412. The claimed invention in Krug “relates to a method and a device for determining relevant objects from a plurality of objects for a user’s search query.”

EX1008, [0001]. Krug discloses that the “object of the present invention is to provide a method and a device for determining relevant objects” and can be presented to the user “according to their relevance and presenting the objects in the order of their relevance, starting with the most relevant object.” *Id.*, [0004], [0128] [0130].

413. Krug discloses each user has a “user profile” that “describes characteristic properties of the user.” *Id.*, [0011], [0056], Fig. 2. The user profile is broken into two parts: a static and a dynamic part. *Id.*, [0034]. The static part of the user profile is set when the user registers for an account. *Id.*, [0057]. But “after the user has registered and can adapt to the user's usage behavior through the user's interactions with objects by changing the dynamic portion using the object profiles of the objects the user accesses.” *Id.*, [0034].

414. Krug discloses that the “objects are available for access and interaction with users on a computer network, in particular the Internet.” *Id.*, [0006]. “Several types of objects are provided . . . in particular HTML, WMTL or XHTML documents.” *Id.* Krug discloses that “each object is assigned at least one object profile that describes properties of the object.” *Id.*, [0016], [0081]. “The object profile can be created taking into account at least one user profile, in particular, from the profiles of any group of users . . . expediently created from the user profiles and/or user behavior of the users who have accessed or interacted with the object.” *Id.* Krug

discloses that the object profile “represents a model of the typical user of an object, in particular, it is designed as an average user profile of the users who have accessed the object.” *Id.*

415. Krug explains that comparison value indicative of the relevance of the objects can be calculated by comparing the object profiles and the user profile. *Id.*, [0019], [0020], [0048], Fig. 1. “[F]or each object for which a comparison is carried out, a comparison value is determined based on the match between the determined user profile and the object profile,” where the comparison value of the object can be used to rate the relevance of the object to the search query. *Id.*, [0019] [0020], [0053], Fig. 1. Krug discloses the method “uses this match to assign the object a higher relevance compared to other objects that have been accessed more frequently by other users.” *Id.*, [0019], [0020]. Krug discloses that “the comparison values of the objects are evaluated to determine at least one relevant object.” *Id.*, [0023].

416. Krug discloses that the comparison values of the individual objects can be determined by taking into account influencing variables including: “relevance weight” (“the frequency with which the objects are accessed by the users and/or the temporal derivation of the access frequencies”); “action equivalence” (“importance of an object”); and user assessment of the object. *Id.*, [0027]-[0029], [0104-0129], Fig. 6a. Krug discloses that these values could be calculated as a product or sum,

and even “weighted according to their respective importance and included in this calculation.” *Id.*, at [0030], [0104]-[0129], Fig. 6a.

417. Krug discloses the use of “user groups” each of which are “provided with their own profile.” *Id.*, [0031]. “The profile of a user group is expediently created on the basis of the user profiles of the group members, in particular, as an average user profile of the group members.” *Id.*, [0031], [0049], [0092]-[0093]. Krug discloses that “a user can select the profile of a user group in order use their characteristic properties to rate the relevance of the objects.” *Id.* Krug discloses that “user groups” can also be used to determine the “action equivalence”, and that “by selecting a corresponding reference group, the objects that have the highest usage intensity in the reference group can be determined.” *Id.*, [0032], [0110]-[0111].

418. Krug discloses that the method “provides for the user profile of a user to be designed to change over time in order to capture changes in the user’s properties and in his usage behavior ... the user’s behavior can influence the user profile.” *Id.*, [0033]. [0061]-[0096], Fig. 3. Krug discloses “[t]o adapt to changing usage behavior of the user, a dynamic portion of the user profile can be updated after each user interaction with an object.” *Id.*, [0034], [0059], [0061]-[0096], Fig 3. Krug discloses the ability to “take into account a rating of the object by the user,” and that the “influence of the usage intensity of the object and/or the rating of the

object can occur for each user individually, for a group of users or for all users. *Id.*, [0033], [0081]-[0096], Fig. 3.

419. Krug discloses “for the object profile to be determined using a clustering method, wherein the user profiles of the users who have access the object are taken into account.” *Id.*, [0038]. “The object profile can be determined taking into account these typical user profiles ... wherein the user profiles of non-typical users are not taken into account,” reducing “the influence of random accesses by non-typical users on the object profile.” *Id.*, [0039].

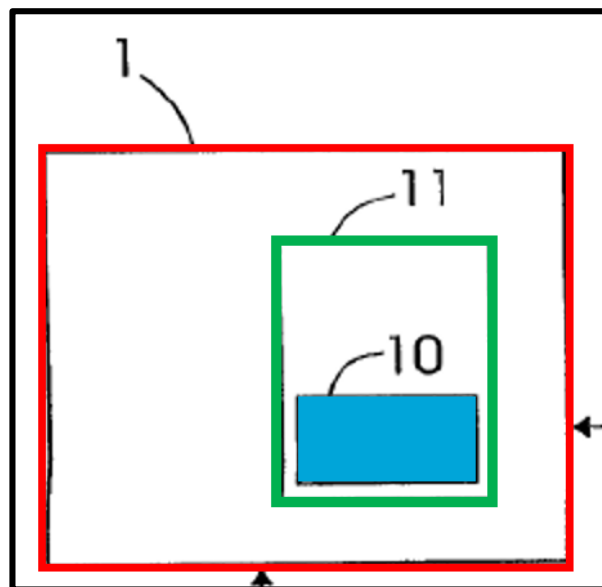
420. Krug discloses the use of a full-text analysis method to determine the similarity between the respective textual content of the electronic documents and the search text, allowing for the pre-selection of objects “which are then subjected to a further relevance rating.” *Id.*, [0041]-[0042], [0050]-[0052], [0090]-[0098], Fig. 1, Fig. 4a, Fig. 4b.

421. Krug discloses that the “objects are available for access and interaction with users on a computer network, in particular the Internet.” *Id.*, [0006]. “Several types of objects are provided . . . in particular HTML, WMTL or XHTML documents.” *Id.* Krug discloses that the “documents can be displayed on a data display device, in particular, any terminal device equipped with a web browser and connected to the Internet.” *Id.*

3. The Combination of Kircher and Krug

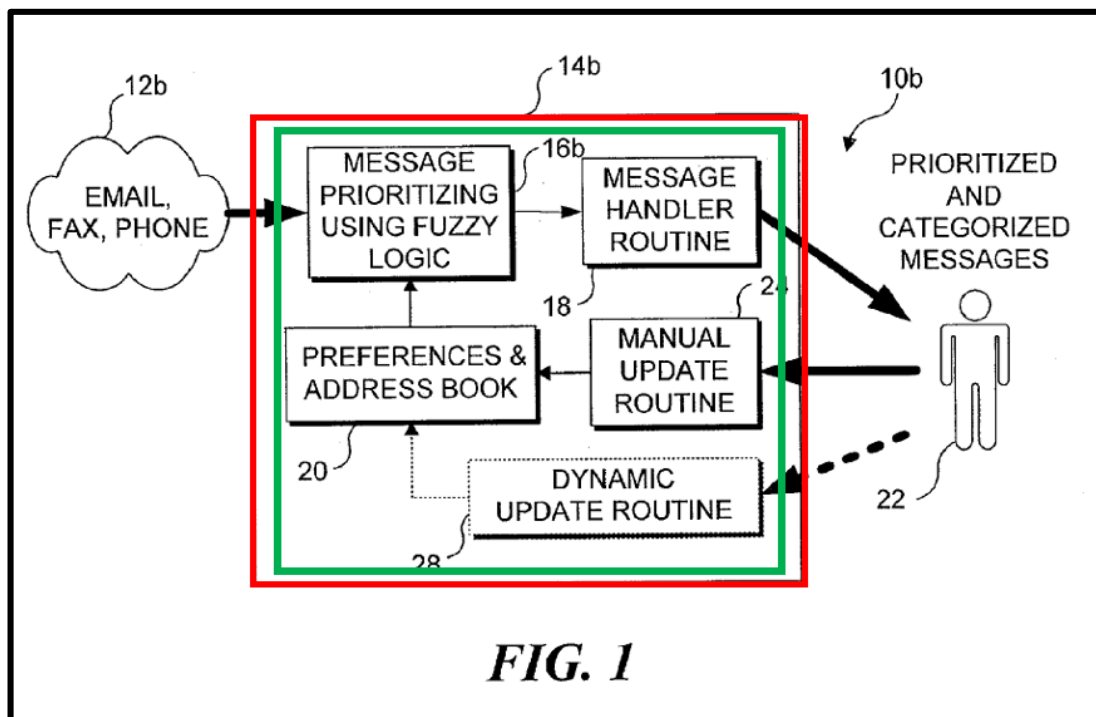
422. As explained below, a POSA would have been motivated to combine Kircher and Krug. *Supra* §VII.B.4. In the combination of Kircher and Krug, the email management application (including its prioritization and filtering techniques) of Kircher would be combined with the prioritization and filtering techniques of Krug.

423. Krug discloses a computer program that analyzes the relevance of “objects” (*i.e.*, electronic content) in the system, then sorts and ranks those objects according to their relevance. *Id.*, [0130]. Krug explains that it can be added to an existing document management system (in Krug a web browser (**green**)) as a plug-in (**blue**), as shown below. *Id.*, [0099] (“A software program according to the invention is installed on the user computer 1 as a **plug-in 10** for a commercially available Internet browser 11.”)



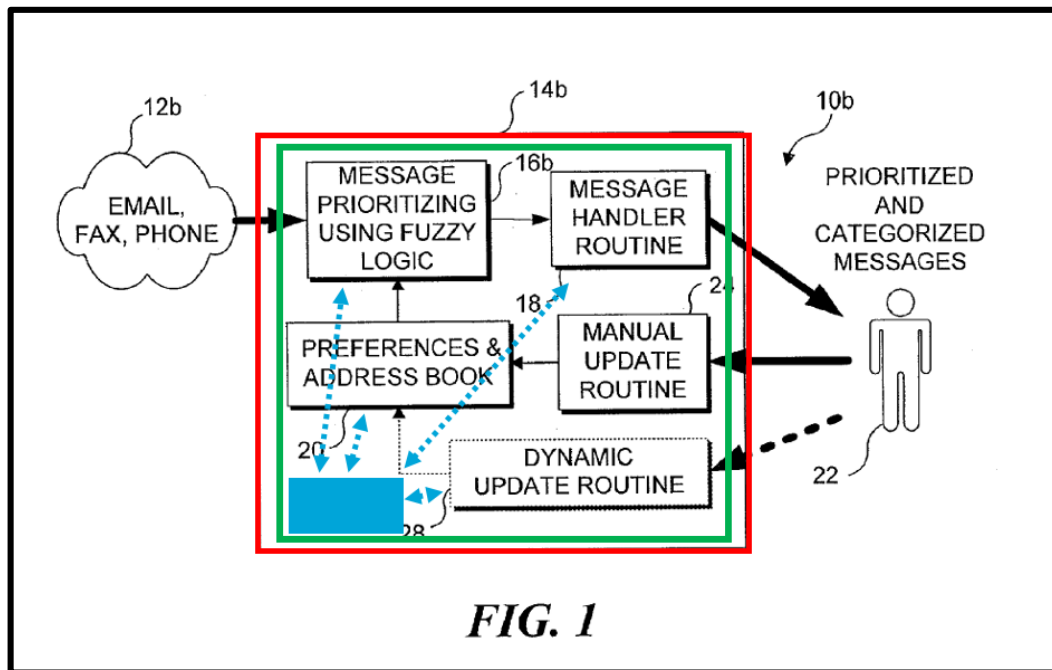
424. Krug explains that “[t]he software program 10 logs the user's access to and interactions with objects 4 on the Internet using the Internet browser 11” and that the “usage intensities and intrinsic values for the objects that the user has accessed or interacted with are stored on the user computer 1 (client) in a memory region 12.” *Id.*, [0099], [0101]. Therefore, a POSA would have understood that the relevance measurement and ranking system of Krug is run on the client computer and uses software program/plugin 10.

425. Kircher describes a “system 10 b” that receives and ranks “email, faxes, and telephone messages comprising electronic messages 12 b are received by a computing device 14 b.” EX1007, [0039]. Moreover, Kircher explains that “computing device 14 b” includes a “plurality of machine instructions defining a computer program” which are executed by a processor (shown in Figure 2). *Id.*, [0021]. Therefore, like with Krug, Kircher includes “computing device 14 b” (**Red**) that includes “a computer program” (**Green**) for managing and prioritizing electronic messages.

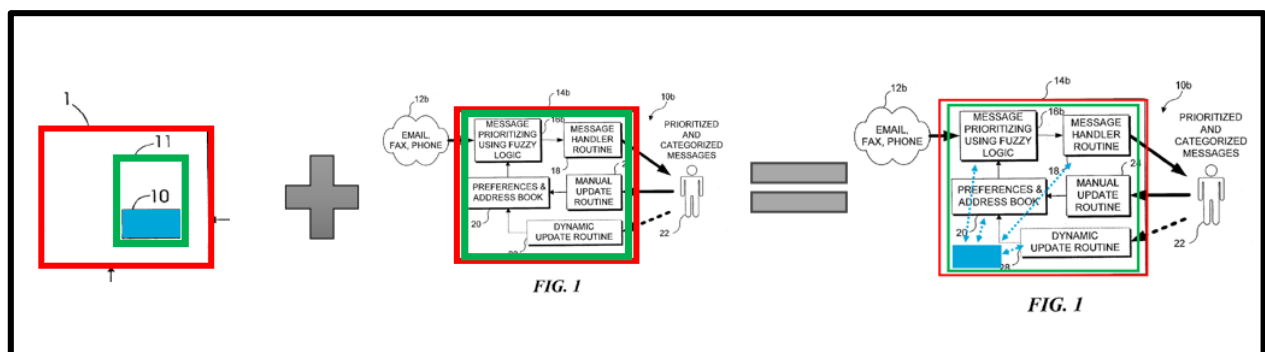


426. Kircher also explains that it “employs fuzzy logic in ranking the electronic messages.” *Id.*, [0012]. “Systems utilizing fuzzy logic typically include more than one rule. An entire group of rules is collectively known as a _rulebase_or _knowledge base_.” *Id.*, [0044]. A POSA would have understood it would be easy and predictable to integrate additional rules into the fuzzy logic of Kircher, because Kircher specifically envisions “more than one rule” and “[a]n entire group of rules.” *Id.*

427. Therefore, it would be a matter of simple substitution to include the plug-in that embodies the invention of Krug (Blue) (including its relevance measurement and ranking system) into the “computer program” (Green) of Kircher (including the fuzzy logic of Kircher), for example, as shown below.



428. Indeed, as shown below, such a combination is simply a combination of the known elements of Krug and Kircher, with each performing their known functions and yielding a predictable result. Accordingly, a POSA would have had a high degree of confidence and a reasonable likelihood of success in making the combination Kircher and Krug.



429. Moreover, both Kircher and Krug are software installed on a user computer (EX1008, [0099]; EX1007, [0021]), therefore, a POSA would have been

easily able to combine and include the functionality of Krug into the system of Kircher.

430. Indeed, both Krug and Kircher envision sorting and ranking electronic content by their relative relevance using a numerical relevance score. For example, Figure 3b (shown below) Kircher depicts a “a schematic representation of an email inbox after the contents of the inbox have been prioritized.” EX1007, [0026]. In the inbox shown in Figure 3B, the “messages have been ranked according to the likely importance of each message to the recipient.” *Id.*, [0049]. Each email is also assigned multiple numerical values (shown in **purple**); in “column 48 the numerical value corresponds to an expected user action” and “column 47 indicates the ranking of the email.” *Id.*, [0052].

	47	48	49a	49b
			Senders not in users address book. E-mail rated high solely because of important content	Content is newsletter. E-mail rated high solely because of sender importance
			From	Subject
	4 0.75		Lance Cinaven	Alliance of Angels
	3 0.62		Serene Sanders	Re: 5 Minute Forum
	3 0.60		Lance Cinaven	Bigstep.com Accept Payments on Your Site
	3 0.55		Roger Kabelein	Re: Speechify support of foreign languages
	2 0.43		billing@networksolutions.com	INVOICE (CONTACTSOPHIRE.COM)
	2 0.41		billing@networksolutions.com	INVOICE (CONTACT.COM)
	2 0.38		krussland@virgilio.it	Internet NLP
	2 0.36		Speechworks Tech Bulletin	SpeechTech Times Newsletter - April Ed
	2 0.32		JDeacy@focal.com	VENA : (
	2 0.31		Red Hat	Announcing Red Hat Linux 7.1
	2 0.30		Day-Timer	DOBERT: Day-Timers' 20% Off and FREE
	1 0.00		majortara@adampo.co.kr	MAJOR STOCK PICK at 7 cents per share
	1 0.00		Kevin H. Leroux	Unseen in Past 12 Months
	1 0.00		cab273news@mail.com	Cable Tv
	1 0.00		d2t3fd2laletg@hotmail.com	Accept Visa / Mastercard in Your Store or Online Now 7614
	1 0.00		lilic234@comcast.net	THE CONTRARIAN - Buy Alert on NICH
	1 0.00		jhrjvh@mail.vvv.yu	Save On Your Life Insurance FREE Quote!
	1 0.00		oluzdgiac@maicoob.com	phbcp
	1 0.00		lopal79@yahoo.com	Need Money? Quick Approvals!
	1 0.00		sisaq@21cn.com	24432
	1 0.00		amc456@emetic.com	owies
	1 0.00		cleamfain@excite.com	THE CONTRARIAN - Buy Alert on NICH
	1 0.00		postmaster@mail3.pnetway.com	Strongest concentration of HUMAN pheromones
	1 0.00		anything@goodstars.freemove.com	Twelve Million Plus Marketing Prospects
	1 0.00		business4u@cominiger@angelfire.com	Have More Energy than You Ever Imagined
	1 0.00			5648

49c

FIG. 3B

431. Likewise, Krug explains that “[t]he presentation of relevant objects can be carried out by **sorting the objects according to their relevance and presenting the objects in the order of their relevance**, starting with the most relevant object.” EX1008, [0130], emphasis added. For example, as shown in Figure 6 Krug sorts each “object” (in this case links) by a numerical value representing their relevance (shown in **purple**).

Usage intensity/intrinsic value			Absolute intrinsic value		
Object	IA	WU	Object		WO
http://www.microsoft.com	1,8	1,98	O1	http://www.microsoft.c	0,11
http://www.mirrow.net	1,79	1,12	O2	http://www.mirrow.net	1,12
http://www.friends.ur	1,63	1,98	...		1,8
http://www.jaroslaw.com	1,62	1,08	...		1,4
http://www.alibi.net	1,6	1,58	...		1,5
http://www.jabaona.com	1,47	1,35	Oj		1,35
http://www.sportsworld.de	1,42	2,03			2,30
http://www.ibm.com	1,42	1,78	...		1,78
http://www.xtoy.com	1,11	1,45	...		1,45
http://www.hacker.net	1,01	1,87	...		1,87
http://www.javanet.com	0,9	1,76	...		1,76
http://www.fengshui.de	0,89	0,12			0,12
http://www.hasi.com	0,81	1,58	On	http://www.geistpunkt	1,8

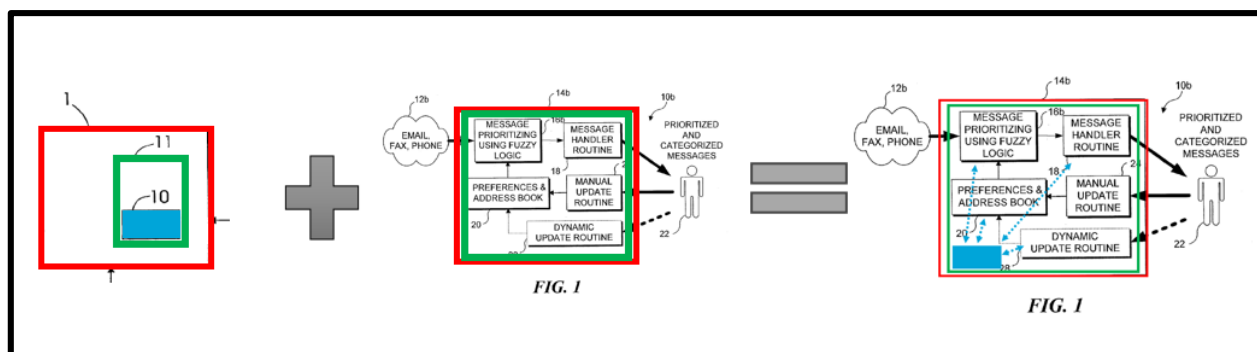
432. Therefore, it would have been obvious to include the numerical rankings of Krug into the system of Kircher. In particular, a POSA would have understood that it was commonplace to combine multiple types of relevance measures together (*supra* §IV.D) and would have known that combining the relevance ranking of Krug with the relevance ranking of Kircher would have been straightforward, with a high likelihood of success.

433. Likewise, and for the same reasons, where Kircher and Krug disclose analogous functionality, such as a ranking, tracking user actions filtering, etc., a POSA would prioritize efficiency and common sense in implementing the individual, nonredundant features into the combined system to obtain the benefits of both. Therefore, the filtering and ranking techniques of Kircher and Krug would be combined. Moreover, the user profile and object profile comparison system disclosed in Krug would be incorporated into and combined with the electronic message sorting and ranking system disclosed in Kircher.

4. Motivations to Combine

434. A POSA would have ample reasons and motivations to combine Kircher and Krug.

435. Indeed, as explained above (*supra* ¶426), combining the systems of Kircher and Krug (including their filtering and ranking techniques) would have been simple substitution and a POSA would have had a high likelihood of success in making the combination.



436. Additionally, Kircher and Krug are analogous art to the '217 Patent. For example, Kircher, Krug, and the '217 Patent are all in the same field of endeavor—*i.e.*, email and content management systems. EX1001, Abstract (“In an electronic mail system....”); EX1007, [0010] (“The present invention is directed to a method for processing electronic messages, to rank messages based upon probable importance to the recipient.”); EX1008, Abstract (“The invention relates to a method and a device for determining at least one relevant object from a plurality of objects for a search query.”). Moreover, Kircher and Krug are reasonably pertinent to the problem the '217 Patent was attempting to solve—*i.e.*, counteracting the proliferation of spam and irrelevant documents by identifying the most relevant documents for the user. *Compare* EX1001, 1:26-30 (“Given the heavy use of electronic mail, many email users receive hundreds of different emails a day. Oftentimes, much of the email received by an individual is irrelevant (or more colloquially, is “junk”) and serves as a nuisance that the individual must navigate through”) *with* EX1007, [0002] (“Electronic messaging system traffic has increased dramatically in the past twenty years. . . . It is not uncommon for individuals in a busy work environment to receive hundreds of email messages each day. Unfortunately, many of these email messages are spam, *i.e.*, unsolicited email messages from strangers, or of relatively low priority and of little interest to the recipient.”); EX1008, [0002] (“The amount of information available on the Internet

is constantly increasing. ... All too often, this simple similarity measure results in the user being presented with a large number of "useless" documents in the content of which the search terms appear more or less randomly, but the topic of which does not match the user's expectations.”)

437. A POSA also would have recognized that the combination of Kircher and Krug is merely a combination of old elements. Automated electronic content filtering and sorting based on user preference and message content was not new in 2006. *Supra* §IV. These elements had been in existence for at least a decade before the earliest possible filing date of the '217 Patent in the form of spam filtering software and internet search engines. *Id.* Because these components had been in existence for so long, a POSA would have recognized that combining these prior art references constituted nothing more than a simple substitution of one known element for another to obtain a predictable result.

438. Indeed, as explained above (*supra* ¶428), the combination is merely a combination of the known elements of Krug and Kircher, with each performing their known functions and yielding a predictable result. Therefore, the combination is obvious to try and simply old elements.

439. Moreover, a POSA would have been motivated to combine Kircher and Krug to take advantage of Krug's collaborative filtering techniques. Krug explains that “the usage intensity for accessing the objects can be used as an "intrinsic value"

of an object, which describes the relative importance of the object.” EX1008, [0027]. Moreover, “the intrinsic value of an object can be determined separately for each user, for a group of users, or for all users collectively for a specific object.” *Id.* Therefore, Krug calculates the relevance value of each object based the usage of that object by a group of users. Such collaborative filtering techniques were well-known to improve the accuracy of relevance calculations (*supra* §IV.B) and, therefore, a POSA would have been motivated to combine Krug’s techniques with Kircher’s to gain the benefits of both. *Supra* §IV.D,

440. A POSA would have been motivated to combine Kircher and Krug to take advantage the high accuracy relevance ranking and processing techniques disclosed by both systems. Kircher explains that a known issue with several prior art systems was a failure to “‘learn’ a recipient’s preferences based on the recipient’s response to the messages.” EX1007, [0005]-[0007]. A POSA would have understood that “it would be desirable to provide a system and method that employ a more useful prioritization paradigm” by learning based on user actions and more accurately ranking and processing future messages. *Id.* As explained above (*supra* ¶432), combining the ranking and sourcing techniques would have been simple substitution and predictable.

441. A POSA would have been motivated to combine Kircher and Krug because both references seek to eliminate or reduce the amount of spam and

irrelevant documents presented to the user, while highlighting important content. EX1007, [0002]; EX1008, [0002]. As explained above, by this time it was well-known that systems which combined multiple techniques for filtering often outperform existing systems that relied on a single technique. *Supra* §IV.D; EX1030, 1, 2 (citing [1] EX1037 and [2] EX1038); EX1034, 6; EX1035, 1; EX1036. Therefore, a POSA would have at least been motivated to try combining Kircher and Krug.

442. A POSA would have also understood the combining multiple techniques for filtering was well-known and predictable. EX1011, 1 (“In addition to content-based filtering, the Tapestry system was designed and built to support collaborative filtering”); EX1030, 2 (“GroupLens implements a hybrid collaborative filtering system for Usenet news that supports content-based filters.”). For example, one common way to combine multiple techniques was through a weighted mean. EX1030, 2, 4 (“Our approach is extensible to additional filtering methods by allowing each method to be added as a separate weight in the weighted average.”) These techniques were well understood and predictable and, therefore, a POSA would have had a reasonable expectation of success when combining Kircher and Krug.

443. Likewise, a POSA would have been motivated to combine the teachings of Kircher and Krug because at the time, the use of “Web enabled pagers, smart

phones, and personal digital assistants (PDAs) [was] becoming widespread,” and “sorting through hundreds of electronic messages on such a small display to separate the important messages from the spam and relatively unimportant messages is thus both difficult and time consuming.” EX1007, [0003]. Therefore, a POSA would have been motivated to look to sorting techniques such as those described in Kircher and Krug to allow users to sort through large volumes of content on smaller devices.

444. A POSA would have recognized that there was a demand for an increasingly sophisticated computer system that could automate assigning a relevance score to an electronic message. Thus, a POSA would have recognized the value of combining the electronic content sorting and categorizing system disclosed in Kircher with the sorting and personalization system disclosed in Krug. Also, a POSA would have understood that the increasing utilization of electronic communication in the workplace and the equal increasing exploitation of spam messages at this time (early-2000’s) would greatly enhance the ability of a designer of an electronic messaging system to include more sophisticated systems for managing a user’s electronic messages, as suggested by Kircher. *Id.*, [0002]-[0009].

445. I discuss additional motivations to combine Kircher and Krug in Section §§IV, VII.B.5.h.

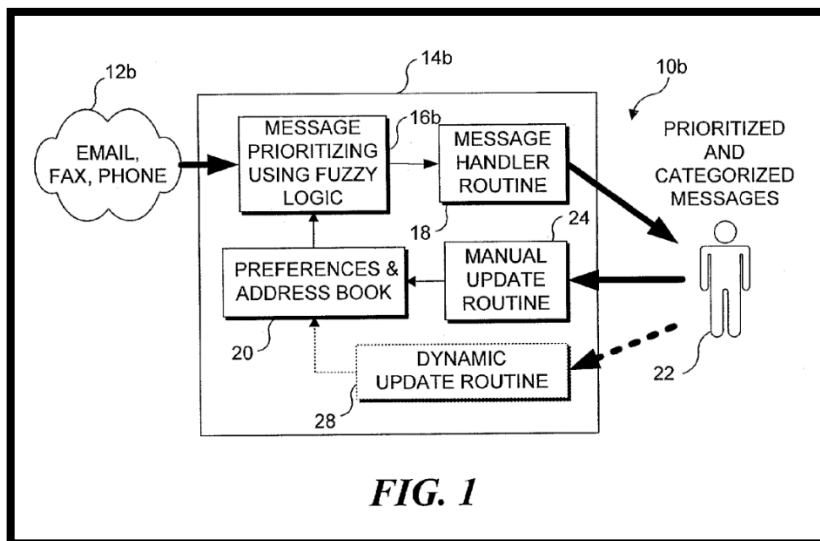
446. Thus, a POSA would have been highly motivated to combine the electronic message sorting and ranking system of Kircher with the electronic content sorting and ranking system of Krug.

5. Claim 1 And Its Dependent Claims 2-5, 8-12

- a. ***[1pre]: A computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented system comprising:***

447. In my opinion, the combination of Kircher and Krug discloses or renders obvious a “*computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user.*”

448. Kircher is a “*computer-implemented system.*” In at least Figure 1 (shown below) Kircher depicts “a system 10b” that is implemented on a “[c]omputing device 14b [that] executes a message handler routine 18 and a manual update routine 24 to implement the present invention.” EX1007, [0039]; [0024] (Fig 2. depicting “a block diagram of a computing device useful for implementing the present invention.”)



449. Kircher also explains that:

Other aspects of the present invention are directed to a storage medium on which is stored a plurality of machine instructions defining a computer program. When the plurality of **machine instructions are executed by a processor**, they cause the processor to **execute steps generally consistent with method described above**. Still other aspects of the present invention are directed to a system for ranking the importance of electronic messages before the electronic messages are reviewed by the recipient. The system includes a memory in which a plurality of machine instructions defining an executable application are stored, a display, and a processor that is coupled to the display and to the memory to access the machine instructions. **The processor executes the machine instructions, carrying out a plurality of functions generally consistent with the method steps described above.**

Id., [0021]

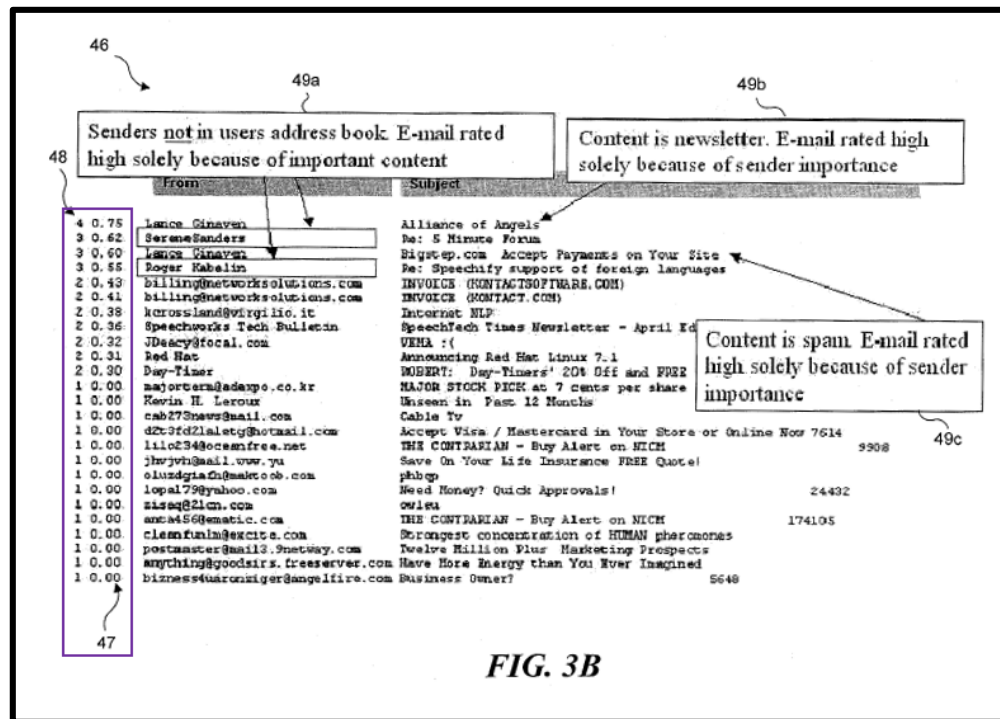
450. Therefore, a POSA would have understood that Kircher is a “*computer-implemented system*.”

451. As explained above, (§VII.B.3), in the combination the invention of Krug (as included in its plug-in) (including its relevance measurement and ranking system) would be combined with the “computer program” of Kircher (including the fuzzy logic of Kircher). Therefore, the combination of Kircher and Krug discloses a “*computer-implemented system*.”

452. In Krug, each user has a “user profile” that “describes characteristic properties of the user.” EX1008 , [0011], [0056], Fig. 2. The user profile is broken into two parts: a static and a dynamic part. *Id.*, [0034]. The static part of the user profile is set when the user registers for an account. *Id.*, [0057]. But “after the user has registered” the “user’s usage behavior through the **user’s interactions with objects** [] chang[es] the dynamic portion.” *Id.*, [0034], emphasis added. Likewise, “each object is assigned at least one **object profile** that describes properties of the object.” *Id.*, [0016], [0081], emphasis added. In Krug, an “object’ is a “*piece of electronic content*.” *Id.*, [0006], [0040] (“Expediently, at least a portion of the objects are embodied as electronic documents, in particular, HTML, WTML or XHTML documents, the respective contents of which include text, graphics, images, sound and/or speech.”)

453. Krug discloses a “comparison value” which is “based on the match between the determined user profile and the object profile.” *Id.*, [0020]. The “comparison value” is used to “rate the relevance of the object” and “can assume values between 0 and 100.” *Id.*, [0054]. Therefore, the “comparison value” of Krug is “*a relevance score of a piece of electronic content.*”

454. Kircher explains that his invention is “directed to a method for processing electronic messages, **to rank messages** based upon probable importance to the recipient.” EX1007, [0010], emphasis added. In particular, in Figure 3B (shown below), Kircher depicts “an email inbox 46” which contains numerous emails. EX1007, [0049]. A POSA would have understood that an email is a “*piece of electronic content.*” Kircher also explains that “column 48 indicates the importance of each email by a **ranking number**” and “column 47 includes the **numerical value assigned to each email**” (**purple**). *Id.*, [0050]-[0051], emphasis added.



455. Therefore, in the combination the “comparison value” of Krug would be combined and integrated into the “ranking number” (column 48) and “numerical value assigned to each email” (column 47) (**purple**) of Kircher, such that the emails of Kircher are ranked (at least in part) using the comparison value of Krug. Accordingly, a POSA would have understood that the combination determines “a relevance score of a piece of electronic content.”

456. Krug also explains that the “comparison value” is “determined with respect to the user.” Krug notes that “[t]he relevance of the object **for the user** can be determined individually using the comparison between the user profile and the object profile.” EX1008, [0044], emphasis added. In particular, because “the characteristic properties of the user are incorporated in the relevance rating of the

objects, **the same search query can lead to different results for different users.**”

Id., emphasis added. Therefore, a POSA would understand that because the comparison values of Krug account for the user profiles, each comparison value is “*determined with respect to the user.*”

457. Kircher also discloses that the “*relevance score [is] determined with respect to the user.*” Kircher explains that “the messages have been ranked according to the likely importance of each message **to the recipient.**” EX1007, [0049], emphasis added. For example, a ranking may be assigned (such as the ranking depicted in column 48 above) “indicating an expected response of the recipient, such as read, reply, and save, or simply read.” *Id.*, Abstract; *see also Id.*, [0052] (“In column 48, the numerical value corresponds to an expected user action in regard to the email message, while the number in column 47 indicates the ranking of the email.”) Therefore, a POSA would have had a high expectation of success in combining the ranking source of Kircher with the comparison value of Krug because both are relevance source for pieces of content and are calculated with respect to the user.

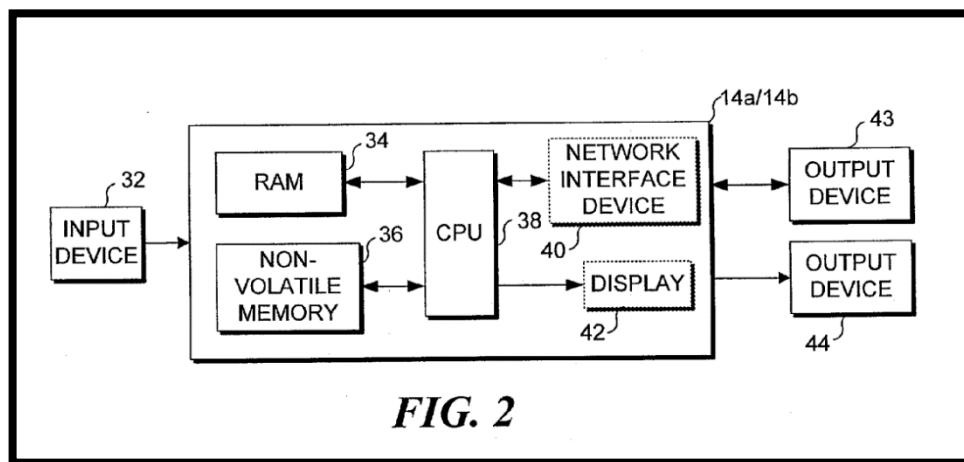
458. Moreover, the “*piece of electronic content*” is “*sent from a sender to a user.*” As explained above, in Figure 3B (shown above), Kircher depicts “an email inbox 46” which contains numerous emails. *Id.*, [0049]. Figure 3B also includes a “From” column. A POSA would have understood that an email is a “*piece of*

electronic content” and is “*sent from a sender to a user.*” In addition, Kircher explains that one potential relevance of an email can be the identity of the “sender.” *See, e.g., Id., Abstract.* Therefore, in the combination, the ranking of the emails of Kircher would include a “*piece of electronic content*” that is “*sent from a sender to a user.*”

459. Accordingly, the combination of Kircher and Krug disclose or render obvious a “*computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user.*”

b. **[1a]: a computer processor; and**

460. In my opinion, the combination of Kircher and Krug discloses or renders obvious “*a computer processor.*” In Figure 2 (shown below), Kircher describes “a computing device useful for implementing the present invention” which includes “a central processing unit (CPU) 38.” *Id.*, [0047].



461. Accordingly, the combination of Kircher and Krug disclose or render obvious a “*computer processor.*”

- c. ***[1b]: a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules comprising:***

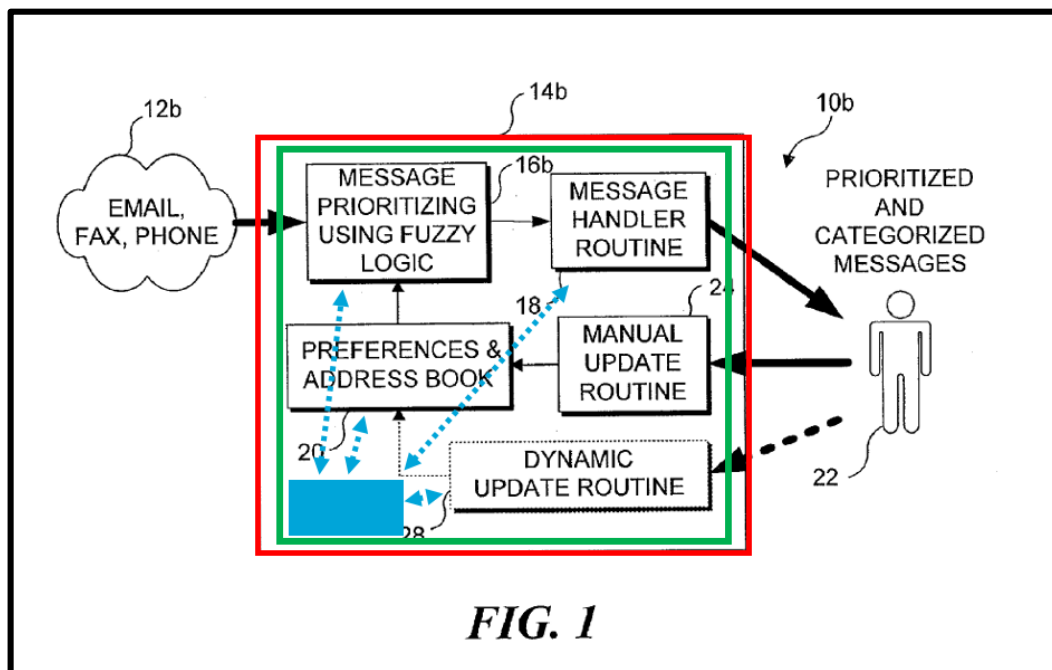
462. In my opinion, the combination of Kircher and Krug discloses or renders obvious “*a computer-readable storage medium storing computer program modules configured to execute on the computer processor.*”

463. As explained above (§VII.B.5.b), in Figure 2 (shown above) Kircher describes “a computing device.” The disclosed describes “computing device” includes “a central processing unit (CPU) 38, **random access memory (RAM) 34, and a nonvolatile memory 36.**” EX1007, [0047], emphasis added. A POSA would have understood that RAM and nonvolatile memory are “*computer-readable storage medium.*”

464. Kircher also explains that the “system includes a memory” which includes “a plurality of machine instructions defining an executable application.” *Id.*, [0021]. Moreover, the processor (*supra* §VII.B.5.b) is coupled to the memory and can “access the machine instructions.” *Id.*, [0047]. “The processor executes the machine instructions, carrying out a plurality of functions generally consistent with the method steps described” in Kircher. *Id.* Therefore, a POSA would have

understood that Kircher discloses “a computer-readable storage medium storing computer program modules configured to execute on the computer processor.”

465. As explained above (§VII.B.3), the plug-in that embodies the invention of Krug (**Blue**) (including its relevance measurement and ranking system) would be combined with the “computer program” (**Green**) of Kircher (including the fuzzy logic of Kircher), for example, as shown below.



466. In the combination, the invention of Krug (**Blue**) (i.e., software program 10) would be integrated into the “computer program” (**Green**) of Kircher and stored on the “computer-readable storage medium” and executed by the processor of Kircher.

- d. **[1c]: a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;**

467. In my opinion, the combination of Kircher and Krug discloses or renders obvious “*a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content.*”

468. As I explained above, the “*monitoring module*” is a means-plus-function term and the structure described by the specification for carrying out the claimed function is either (1) a “relational mail architecture” or (2) tags or flags within a “conventional email system.” To the extent this claim is not means-plus-function, then its scope would be much broader and Kircher and Krug would still disclose each limitation of the claim, as explained below.

469. Krug is “*configured to track actions.*” In Figure 3, Krug describes the process for “updating of user profiles and object profiles through user interactions.” EX1008, [0061]. Krug explains that when a user accesses an object (*Id.*, [0061]) “usage analysis is performed for determining an intensity factor for the user’s interaction with the object.” *Id.*, [0063]. “[U]ser’s interaction” are, for example, “navigating within the electronic document (*e.g.*, scrolling), pressing buttons (*e.g.*, clicking) or entering information in fields.” *Id.*, [0007], [0061] (“The user can interact with the object by paging, scrolling or clicking buttons.”), [0028] (explaining that user’s interactions are also called “action equivalence”). In particular:

An intensity factor I for the interaction is determined based on the active time for accessing the object by the user or the active time for the interaction with the object and/or the rating for the object. The intensity factor I indicates how strong the user's interaction with the object was.

Id., [0063].

470. Accordingly, a POSA would have understood that Krug tracks “[t]he user's interaction” to calculate an intensity factor I for the interaction. Therefore, Krug is “*configured to track actions.*”

471. Krug goes on to explain that “intensity factors I of the respective interactions and/or the interaction times ... can be transferred to the central computer.” *Id.*, [0064]. The central computer can then calculate “absolute usage intensity matrix $I^A(U,O)$ ” that contains the “the usage intensity $I^A(U_j,O_k)$ of the k -th object by the j -th user.” *Id.*, [0071]. Therefore, Krug also discloses “*tracking actions by a plurality of users*” (*i.e.*, j -th users). *See also Id.*, [0032] (“user groups can also be used to determine the action equivalence.”)

472. Krug also teaches that “[t]he intensity values for each object used are stored” either on the client computer or server. *Id.*, [0064]. “[E]ach usage of an object by a user leads to a change in the profile of the object” (*i.e.*, the object profile). *Id.*, [0082]. In particular, the object profile is adjusted based on each user profile that accesses the object. *Id.* The “degree of adjustment is a function of the usage

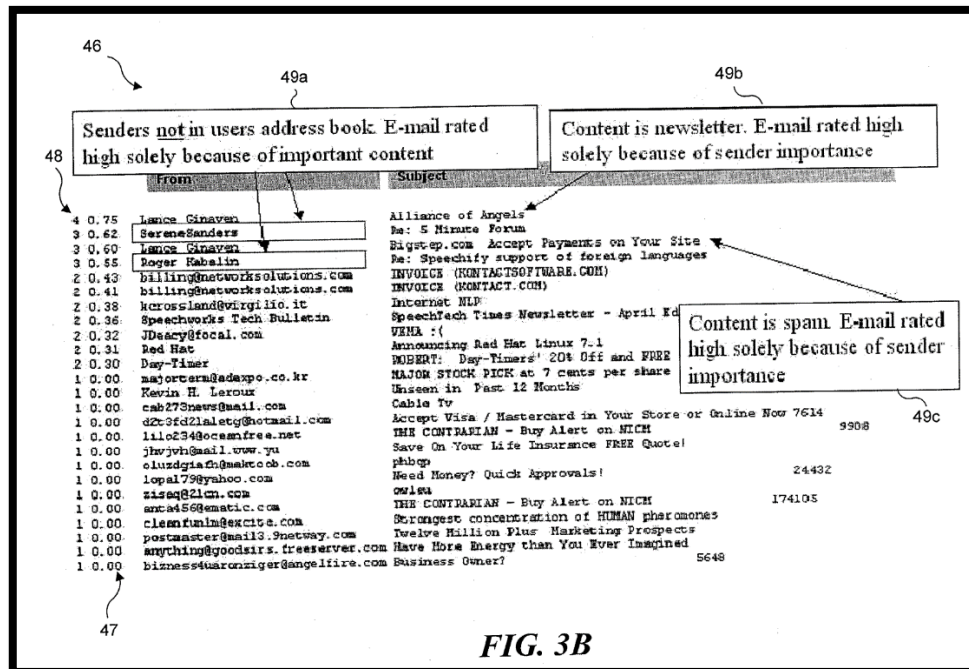
intensity (intensity factor I)” and “the frequency and temporal sequence of the accesses.” *Id.* Krug defines the object profile as follows:

$O_m^{(k)} = (O_{1,m}^{(k)}, \dots, O_{n,m}^{(k)})$, where $O_m^{(k)}$ is the vector of profile values of the k -th object after the m -th interaction.

Id., [0083].

473. A POSA would have understood that the object profile stores each n -value $O_{n,m}^{(k)}$ of every interaction with object k . Therefore, a POSA would have understood that the “object profile” is a flag or tag because it “describes properties of the object” (*i.e.*, it includes one or more characters containing information about a file, record, type, or other structure (EX1041, 168, 460)). Moreover, the “object profile” is used to “track what happens to the content” throughout the system. EX1001, 16:31-39.

474. Kircher discloses a “conventional email system.” For example, Kircher explains that “[i]n a system 10 b, **email**, faxes, and telephone messages comprising electronic messages 12 b are received by a computing device 14 b.” EX1007, [0039], emphasis added. Kircher also describes and depicts “email inbox” and discusses email messages at length. *Id.*, [0025]-[0026], [0101]-[0109]; Fig. 3A-B (below).



475. A POSA, therefore, would have understood that Kircher discloses a “conventional email system.” Moreover, Kircher discloses “systems and methods for managing electronic message.” *Id.*, [0009]. Therefore, a POSA would have understood that the “conventional email system” of Kircher is “an application for managing electronic content.” A POSA would have understood that the users of Krug and Kircher are “associated with” the application. Accordingly, the combination of Kircher and Krug disclose a “monitoring module” under both the plain and ordinary meaning and Petitioner’s construction.

476. As explained above, a POSA would have also been motivated to combine the collaborative filtering (*supra* §IV.B) techniques of Krug into the system of Kircher at least because it was well-known that integrating collaborative filtering

techniques improved the relevance determinations of document management systems. (*supra* §IV.D). Therefore, in the combination, the user tracking techniques of Krug would be integrated into the e-mail system of Kircher.

477. Kircher is also “*configured to track actions.*” Kircher discloses a dynamic update routine which monitors “a user’s **actual response to receiving an electronic message,**” which “enables the system to learn and refine the choice of categories to which an electronic message is assigned in the future.” *Id.*, [0046], emphasis added. Kircher explains that the dynamic update routine compares the “actual user action (AUA) in response to the receipt of the email with the EUA” (“expected user actions”). *Id.*, [0094], [0046]. Kircher explains that for the EUA:

For a specific email message, an **EUA=4** indicates that the recipient is expected to **read** the email, reply to the email, and save the email. An **EUA=3** indicates that the recipient is expected to **read and save** the email. An **EUA=2** indicates that the recipient is expected to **only save** the email, and an **EUA=1** indicates that the recipient is expected to **delete the email without reading it.**

Id., [0093].

478. Therefore, a POSA would have understood that a set value for the EUA of 4, 3, 2, and 1 correspond to specific actions which the user is **expected** to perform. Kircher explains the same is true for the AUA. Like the EUA, the “value of the AUA corresponds to the actual response of the recipient in response to the email

message.” *Id.*, [0094]. The system then “determines if the value representing the AUA (*i.e.*, 4, 3, 2, or 1) for a message I less the value of the EUA for message I.” *Id.* Therefore, a POSA would have understood that the AUA is a set value (*i.e.*, 4, 3, 2, or 1) that represent specific **tracked user actions**. Therefore, a POSA would have understood that Kircher is “*configured to track actions*.”

479. Kircher also tracks and stores the EUA and AUA for each message in the system. For example, as explained above the system “determines if the value representing the AUA (*i.e.*, 4, 3, 2, or 1) for a **message I** less the value of the EUA for **message I**.” *Id.*, [0094]. Therefore, a AUA is stored for “**message I**.” Kircher also explains that the EUA and AUA are continuously compared and re-compared throughout the iterative process described in Figures 13 and 14. *Id.*, [0094]-[0108] (explaining that the AUA and EUA can be compared for messages over the last 30 days).

480. Therefore, a POSA would have understood that the AUA value is “flag” and “tag” because it used to interpret or signal information and characteristics about a given message—*i.e.*, the action the user performed on the message. EX1041, 168, 460.

481. As explained above, where Kircher and Krug disclose analogous functionality, they would be combined to take advantage of both systems. In particular, because both systems track user actions and interactions, a POSA would

have a high expectation of success in combining the tracking functionality of both systems.

482. Accordingly, the combination of Kircher and Krug discloses or renders obvious “*a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content.*”

- e. ***[1d]: a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content;***

483. In my opinion, the combination of Kircher and Krug discloses or renders obvious “*a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.*”

484. As I explained above, the “*first relevance measurement module*” is a means-plus-function term and the structure described by the specification for carrying out the claimed function (while incomplete) is a “plurality of factors,” that can include dichotomous or cardinal scale factors. To the extent this claim is not means-plus-function, then its scope would be much broader and Kircher and Krug would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

485. Krug discloses “*a first measure of relevance of the piece of electronic content*” in the form of an “action equivalence.” EX1008, [0028], [0107] (defining factor HA(k) “the action equivalence of the object.”) In particular, Krug explains that the “action equivalence” “increases the importance of objects with high usage intensity” and is based on the “usage intensity (intensity factor I)” of an individual user or any user group. *Id.* In the case of an individual user the “action equivalence allows the user's personal favorites, *i.e.*, the objects with the highest usage intensity by the user, to be determined.” *Id.*, [0109]. The action equivalence “makes it easier [for the user] to find personal favorites” because those objects/documents will “have a **higher comparison value** and are therefore **potentially among the relevant objects.**” *Id.*, emphasis added. Therefore, a POSA would have understood that the “action equivalence” is “*a first measure of relevance of the piece of electronic content*” at least because it impacts the overall “comparison value” (which itself is a rate the relevance of the object) and can help users identify their favorite documents. *Supra* §VII.B.5.a.

486. Moreover, Krug explains that the “action equivalence” is based on the “usage intensity (intensity factor I)” of an individual user or any user group. *Id.*, [0082]. As explained above, Krug tracks “[t]he user’s interaction” to calculate an intensity factor I for the interaction. *Supra* §VII.B.5.d. The “usage intensity (intensity factor I)” is based on more than the user interactions alone. Krug explains

that “[t]he intensity factor I for an interaction is determined by analyzing the user’s interaction, taking into account the actual active time for interaction with the object and/or the user’s rating of the object,” using the following formula and factors:

$$I_{m+1} = f(t_{m+1}, B_{m+1}); \text{ where}$$

I_{m+1} is the intensity factor of the $m+1$ -th interaction;
 t_{m+1} is the active interaction time;
 B_{m+1} is the user rating for the object; and
 f increases with both parameters.

Id., [0069].

487. Therefore, a POSA would have understood that “action equivalence” is based on “usage intensity (intensity factor I)” and, therefore, is “*based at least in part on one or more actions of the user on the piece of electronic content.*”

488. Moreover, the “action equivalence” is based on the “usage intensity (intensity factor I)” of an individual user or any user group. In turn, the “usage intensity (intensity factor I)” is based on a “plurality of factors,” including dichotomous factors or cardinal scale factors. For example, as shown above, the “usage intensity (intensity factor I)” is calculated as a function of the user’s “active interaction time” and the user’s “rating for the object.” *Id.*, [0069]. A POSA would understand that “active interaction time” is a cardinal scale factor as time is a continuous variable and “may be placed into suitable functions $f(xC_{rj})$ that are

between 0 and 1.” EX1001, 29:13-14. The user’s “rating for the object” is generated using search engine 3, and is based on a match or comparison between a search term and the contents of the object. EX1008, [0098]. A POSA would have understood that the user’s “rating for the object” could be either a continuous or dichotomous factor. For example, it could be the number of search hits in a document, or whether or not a search hit appears. *Id.*, [0002]. A POSA would understand that the rating is a second factor used to calculate the “usage intensity (intensity factor I).” Therefore, a POSA would have understood that the “action equivalence” is based on a “plurality of factors,” including dichotomous or cardinal scale factors, and thus, is a “*first relevance measurement module*” under both the plain and ordinary meaning and Petitioner’s construction.

489. Moreover, Krug discloses that the “*first relevance measurement module [is] coupled to the monitoring module.*” As explained above, the combination of Krug and Kircher discloses a “*monitoring module*” in the form of the “usage intensity (intensity factor I).” Therefore, the “*first relevance measurement module*” is coupled to the “*monitoring module*” because both functions are part of the “action equivalence” calculation.

490. Moreover, Kircher also discloses “[t]he system includes a memory in which a plurality of machine instructions defining an executable application are stored, a display, and a processor that is coupled to the display and to the memory to

access the machine instructions.” EX1007, [0021]. Kircher goes on to explain that “[t]he processor executes the machine instructions, carrying out a plurality of functions generally consistent with the method steps described above.” *Id.* Therefore, a POSA would have understood the “*first relevance measurement module*” is coupled to the “*monitoring module*” because (in the combination) they are both executed by the same computer and are part of the same code base. Likewise, they are coupled because the “*first relevance measurement module*” uses the tracking functionality of the monitoring module to determine a relevance score. *Supra* §VII.B.5.c.

491. Accordingly, the combination of Kircher and Krug discloses or renders obvious “*a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.*”

f. ***[1e]: a second relevance measurement module coupled to the monitoring module;***

492. In my opinion, the combination of Kircher and Krug discloses or renders obvious “*a second relevance measurement module coupled to the monitoring module.*”

493. As I explained above, the “*second relevance measurement module*” is a means-plus-function term which performs two functions: it must (1) identify a

cognate user and (2) determine a second measure of relevance. I address each function in more detail in Sections VII.B.5.g through VII.B.5.l. To the extent this claim is not means-plus-function, then its scope would be much broader and Kircher and Krug would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

494. As I explain below, the “*second relevance measurement module*” is composed of various factors associated with the “comparison value.” In particular, the “comparison value” is calculated using the following formula:

$$\mathbf{TRm(k)} = \rho \left((W\mathbf{Om(k)}, z1), (W\mathbf{Cm(k)}, z2), (W\mathbf{Um(k)}, z3), (G\mathbf{Rm(k)}, z4), (O\mathbf{Cm(k)}, z5), (d(\mathbf{Us(j)}, \mathbf{Om(k)}), z6), (H\mathbf{A(k)}, z7) \right), \quad \text{where}$$

ρ is a function that increases with all parameters and decreases with the sixth parameter;

$z1, \dots, z4$ are the weights for the corresponding criteria of TR; and

$d(\mathbf{Us(j)}, \mathbf{Om(k)})$ is the difference of the profile aspects of the k-th object $\mathbf{Om(k)}$ and the j-th user $\mathbf{Us(j)}$ after m interactions.

EX1008, [0106].

495. Where the following applies to the individual criteria:

W_{Om}(k) is the absolute intrinsic value of the k-th object;
W_{Um}(k) is the user-specific intrinsic value of the k-th object;
W_{Cm}(k) is the intrinsic value of any user group for k-th object;
GR_m(k) is the initial priority of an object;
OC_m(k) is the community weight of the object; and
HA(k) is the action equivalence of the object.

Id., [0107].

496. As explained in Sections VII.B.5.g through VII.B.5.l, the ranking described above is based on several different measures of relevance including the local importance, global importance, the content, and actions of other users. Therefore, the “comparison value” ranking is the “*second relevance measurement*.” And each of the “*measures*” below are included in the final calculation of the “comparison value.”

497. Moreover, the “*second relevance measurement module*” is coupled to the “*monitoring module*” for the same reason as above (*supra* ¶489). In particular, the “comparison value” of Krug also uses usage intensities described above and executes on the computer processor.

498. Therefore, the combination of Kircher and Krug disclose a “*second relevance measurement module*” under both the plain and ordinary meaning and Petitioner’s construction.

499. Accordingly, the combination of Kircher and Krug discloses or renders obvious “a second relevance measurement module coupled to the monitoring module.”

- g. ***[1f]: identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and***

500. In my opinion, the combination of Kircher and Krug disclose or render obvious “*identify[ing] at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

501. As I explained above, identifying a cognate user is one of the claimed functions of the “*second relevance measurement module.*” The specification of ’217 Patent states that a “cognate group” may be determined using “role or group based; collaborative filtering; fingerprinting; cluster models; search-based methods; frequency analysis; and importance value correlation.” EX1001, 43:30-37. To the extent this claim is not means-plus-function, then its scope would be much broader and Kircher and Krug would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

502. As I also explained above, “*identify[ing] at least one other of the plurality of users . . . that is cognate to the user*” is identifying at least one user in a group of other users who share similar past user actions and assessments, and/or are defined by direct input by a user.

503. As explained above, each user has a “user profile” that “describes characteristic properties of the user.” EX1008, [0011], [0056], Fig. 2. The user profile is broken into two parts: a static and a dynamic part. *Id.*, [0034]. The static part of the user profile is set when the user registers for an account. *Id.*, [0057]. But “after the user has registered” the “user's usage behavior through the **user's interactions with objects** [] chang[es] the dynamic portion.” *Id.*, [0034], emphasis added. An example of the user profile of Krug is shown below:

Aspect	Static value	Dynamic value
Sex – female	100	58
Age < 20 years	0	10
Age 20 – 40 years	100	85
Age > 40 years	0	5
Politics	40	20
Sports	30	10
Education	40	30
Technology	10	70

Id., Fig. 2.

504. Krug explains that the “aspect” column for every user profile in the system is the same so that user profiles can be **easily compared**. *Id.*, [0014].

505. Krug describes how “the intrinsic value of an object can be determined separately for each user, **for a group of users, or for all users collectively for a specific object.**” *Id.*, [0027], emphasis added. Krug explains that “user groups” (*i.e.*, a cognate group) can each be “provided with their own user profile” such that the entire cognate group has a profile. *Id.*, [0031]. For example, “[t]he groups of users can be specified (for example, all women) or determined automatically (for example, **all users who access a specific object**).” *Id.* Therefore, a POSA would understand that in the combination “user groups” are a “*plurality of users that is a recipient of the piece of electronic content.*”

506. Moreover, Krug explains that “[t]he assignment to a group can be initiated by a user himself, *i.e.*, it can be done explicitly, for example, by logging in to a group or community.” *Id.*, [0031]. Therefore, a POSA would understand that Krug discloses identifying a “cognate group” by “direct input by a user.” EX1001, 25:65-26:10. Therefore, for at least this reason Krug discloses “*identify[ing] at least one other of the plurality of users ... that is cognate to the user*” under both the plain and ordinary meaning and Petitioner’s construction.

507. Krug also explains that “the assignment can also be made implicitly, *e.g.*, based on the presence of certain properties of the user.” EX1008, [0031]. For example, Krug explains that “group profiles are assigned to the user groups, each of which is an average user profile of the group.” *Id.*, [0056]. The group profiles

“characterize usage behavior and properties of the users to whom they are assigned” and may be assigned based on the user’s “behavior.” *Id.*, [0056], [0011]. For example, “using the clustering method,” the user profiles for “users who have accessed the object” may be assigned to one or “a plurality of typical user profiles.” *Id.*, [0038]. A POSA would understand the typical user profiles are a cognate group because each user within that groups usage of the object is “typical.” *Id.*, [0039]. Moreover, a POSA would have understood that these typical interactions account for other users who share similar past user actions and assessments because the group profiles “characterize usage behavior” of the users within the group. *Id.*, [0044], [0039] (explaining that “non-typical users are not taken into account” when calculating the object profile). Accordingly, a POSA would have understood that the “user groups”/“typical user profile” of Krug are a group of other users who share similar past user actions and assessments, and/or are defined by direct input by a user. Therefore, Krug discloses “*identify[ing] at least one other of the plurality of users ... that is cognate to the user*” under both the plain and ordinary meaning and Petitioner’s construction for this additional reason.

508. Krug, thus, discloses “*identify[ing] at least one other of the plurality of users ... that is cognate to the user*” because each member of the “user groups”/“typical user profile” is “*at least one*” of the users who have accessed a document, and are cognate to the user (*i.e.*, as part of a user group).

509. As explained above, a cognate group may be determined using “role or group based; collaborative filtering; fingerprinting; cluster models; search-based methods; frequency analysis; and importance value correlation.” EX1001, 43:30-37. Krug explains “using the clustering method,” the user profiles for “users who have accessed the object” may be assigned to one or “a plurality of typical user profiles.” EX1008, [0038]. A POSA would have also understood that “typical user profiles” are an example of importance value correlation. Moreover, Krug explains that a user may be assigned to a user group automatically based on “the presence of certain properties of the user.” *Id.*, [0031]. For example, “[t]he groups of users can be specified (for example, all women) or determined automatically (for example, all users who access a specific object).” *Id.* A POSA would understand “all women” and “all users who access a specific object” are examples of role or group-based determinations. Krug also discloses collaborative filtering (see above). Krug discloses identifying a cognate user as one of the claimed functions of the “*second relevance measurement module*.”

510. Therefore, the combination of Kircher and Krug disclose function (1) of the “*second relevance measurement module*” under both the plain and ordinary meaning and Petitioner’s construction.

511. Accordingly, the combination of Kircher and Krug discloses or renders obvious “*identify[ing] at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

- h. ***[1g]: determine a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group consisting of:***

512. In my opinion, the combination of Kircher and Krug discloses or renders obvious “*determine[ing] a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group.*”

513. I understand that this claim limitation is a *Markush* group and lists specified alternative “*measures*” that can be used to calculate the “*second measure of relevance of the piece of electronic content.*” I address each “*measure*” in more detail in Sections VII.B.5.i through VII.B.5.l. I understand that the entire *Markush* group is disclosed by the prior art if one alternative in the *Markush* group is in the prior art. Therefore, the prior art need only disclose one of Claim Elements–1[g][i]–[iv].

514. It is my understanding that this claim element requires a “*second measure of relevance of the piece of electronic content*” using one of the “*measure*” described in Sections VII.B.5.i through VII.B.5.l. In particular, the “*second relevance measurement module*” is composed of various factors associated with the

“comparison value.” The factors used to calculate the “comparison value” in Krug are discussed in Sections VII.B.5.i through VII.B.5.l, and include for example:

$TR_m(k) = \rho((W_{Om}(k), z_1), (W_{Cm}(k), z_2), (W_{Um}(k), z_3), (GR_m(k), z_4), (OC_m(k), z_5), (d(Us(j), Om(k)), z_6), (HA(k), z_7))$, where

ρ is a function that increases with all parameters and decreases with the sixth parameter;

$z_1, \dots, z_4$ are the weights for the corresponding criteria of TR; and

$d(Us(j), Om(k))$ is the difference of the profile aspects of the k-th object $Om(k)$ and the j-th user $Us(j)$ after m interactions.

EX1008, [0106].

515. Where the following applies to the individual criteria:

$W_{Om}(k)$ is the absolute intrinsic value of the k-th object;
 $W_{Um}(k)$ is the user-specific intrinsic value of the k-th object;
 $W_{Cm}(k)$ is the intrinsic value of any user group for k-th object;
 $GR_m(k)$ is the initial priority of an object;
 $OC_m(k)$ is the community weight of the object; and
 $HA(k)$ is the action equivalence of the object.

EX1008, [0107].

516. As explained above (§VII.B.3), the plug-in that embodies the invention of Krug (including its relevance measurement and ranking system) would be combined with the “computer program” of Kircher (including the fuzzy logic of

Kircher). Therefore, the sender importance of Kircher would be combined with the “comparison value” of Krug.

517. Additionally, and for the reasons discussed below, a POSA would have understood that “individual criteria” used to calculate the comparison value are themselves “*a second measure of relevance of the piece of electronic content.*”

518. A POSA would have been motivated to combine the “sender importance” of Kircher into the “comparison value” of Krug. In particular, in the context of email (as in the combined system), a POSA would have known that relevance can be affected by how important the sender of the message is to the receiver. *See, e.g.*, EX1034, 4 (discussing results of a survey where “[s]ender characteristics and message content influenced users’ perceptions of message importance”). In general, the more important the sender was to the receiver, the more important the email was to the receiver. Using sender importance was also a well-known and well understood way to evaluate the relevance of emails. *See e.g.*, EX1026, [0025], [0027]; EX1028, 11:21-22, 11:24-28; *supra* §IV.C. Therefore, a POSA would have understood both the value of including “sender importance” and have a high expectation of success in integrating it into the combined system. *See supra* ¶97.

519. Additionally, a POSA would have been motivated to include the sender importance of Kircher into the combination of Kircher and Krug. In particular,

“local importance” and “global importance” would be just be one additional factor used to calculate the comparison value:

$TR_m(k) = \rho((WO_m(k), z_1), (WC_m(k), z_2), (WU_m(k), z_3), (GR_m(k), z_4), (OC_m(k), z_5), (d(Us(j), Om(k)), z_6), (HA(k), z_7))$, where

ρ is a function that increases with all parameters and decreases with the sixth parameter;

$z_1, \dots, z_4$ are the weights for the corresponding criteria of TR; and

$d(Us(j), Om(k))$ is the difference of the profile aspects of the k-th object $Om(k)$ and the j-th user $Us(j)$ after m interactions.

EX1008, [0106].

520. Therefore, a POSA would have understood that including “local importance” and “global importance” would have a high likelihood of success, and would yield a predictable result. In particular, by this time, it was commonplace to combine multiple ranking techniques together. *Supra* §IV.D.

521. Therefore, the combination of Kircher and Krug discloses function (2) of the “*second relevance measurement module*” under both the plain and ordinary meaning and Petitioner’s construction.

522. Accordingly, the combination of Kircher and Krug discloses or renders obvious “*determine[ing] a second measure of relevance of the piece of electronic content as based at least in part on one or more measures derived from the group.*”

- i. ***[1g(i)]: a local importance describing an importance of the sender to the user,***

523. In my opinion, the combination of Kircher and Krug discloses or renders obvious “a local importance describing an importance of the sender to the user.”

524. As explained above, the structure described by the specification for carrying out the claimed “local importance describing an importance of the sender to the user” is a weighted function of a series of “assessments” as described in EX1001 31:21-32:33. *Supra* §VI.A.3. To the extent this claim is not means-plus-function, then its scope would be much broader and Kircher and Krug would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

525. Kircher explains that “an important aspect of the present invention is determining how to quantify the senders [sic] ‘importance.’” EX1007, [0048]. Kircher illustrates in Figure 8 that the analysis of sender importance is “made up of two parts.” *Id.*, [0072]. In the first part, “a base value is determined for the sender.” *Id.* For example:

If the sender is a VIP the sender importance is highest (equal to 1.0), if the sender is identified in the user's address book, [then] the sender importance is somewhat lower (equal to 0.6), and if the sender is replying to an email from the user the sender importance is slightly lower yet (equal to 0.55). If the sender matches none of the above characteristics, the sender importance is zero.

Id.

526. In the second part of the analysis “the sender importance is adjusted based on additional factors, such as whether the sender copied the email to a person identified as a VIP in the user's address book (sender importance increased by 0.7), or whether the sender copied the email to a person identified in the user's address book (sender importance increased by 0.5).” *Id.*

527. A POSA reading these sections of Kircher would understand that Kircher is using a weighted function of a series of “assessments.” For example, being listed on a VIP list in the user’s address book is assigned a set weight of 0.7. The analysis for sender importance, therefore, combines this weight into an overall analysis of sender importance, which is the overall function of a series of “assessments” the assessments being, for example is the sender on the VIP list, whether someone in the address book is copied, etc.

528. In particular, Kircher is performing many of the same assessments used to calculate the local importance in the ’217 patent. For example, one of the factors consider by Kircher is “if the sender is replying to an email from the user, [then] the sender importance is slightly lower yet (equal to 0.55).” *Id.*, [0072]. Likewise, the ’217 patent calculates “the “attention ratio of t/L for electronic mail objects opened, which is the time spent reading the mail in relation to its length.” EX1001, 31:41-43.

529. As explained above (§VII.B.5.h), a POSA would have been motivated to include the sender importance of Kircher into the combination of Kircher and Krug. In particular, “local importance” would just be one additional factor used to calculate the comparison value:

$TR_m(k) = \rho((W_{Om}(k), z_1), (WC_m(k), z_2), (WU_m(k), z_3), (GR_m(k), z_4), (OC_m(k), z_5), (d(Us(j), Om(k)), z_6), (HA(k), z_7))$, where

ρ is a function that increases with all parameters and decreases with the sixth parameter;

$z_1, \dots, z_4$ are the weights for the corresponding criteria of TR; and

$d(Us(j), Om(k))$ is the difference of the profile aspects of the k-th object $Om(k)$ and the j-th user $Us(j)$ after m interactions.

EX1008, [0106].

530. Therefore, the combination of Kircher and Krug discloses this claim limitation under both the plain and ordinary meaning and Petitioner’s construction.

531. Accordingly, the combination of Kircher and Krug discloses or renders obvious “a local importance describing an importance of the sender to the user.”

j. ***[1g(ii)]: a global importance describing an importance of the sender within an organization with which the plurality of users are associated,***

532. In my opinion, the combination of Kircher and Krug discloses or renders obvious “a global importance describing an importance of the sender within an organization with which the plurality of users are associated.”

533. As explained above, the structure described by the specification for carrying out the claimed “*global importance describing an importance of the sender within an organization with which the plurality of users are associated*” are calculations (1)-(4) described in 32:46-47, 33:1-11, 33:21-28. *Supra* §VI.A.3. To the extent this claim is not means-plus-function, then its scope would be much broader and Kircher and Krug would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

534. Kircher explains that “an important aspect of the present invention is determining how to quantify the senders [sic] ‘importance.’” EX1007, [0048]. For example, as explained above, the highest base value is assigned if “the sender is a VIP.” *Id.*, [0072]. A POSA would have understood that assigning VIP status to one or more people is “*a global importance describing an importance of the sender.*” In particular, the ’217 patent similarly assign global importance by “directly assigned values.” EX1001, 33:22. Therefore, the combination uses at least one of calculations (1)-(4) described in 32:46-47, 33:1-11, 33:21-28.

535. It also would have been obvious to a POSA to the organizational chart of a company as a measure of importance. In particular, as explained above (§IV.C), using “[i]nformation about the structure of organizational relationships relative to the user drawn from an organization chart such as: [m]anagers the user reports to, [m]anagers of the managers of users, [and p]eople who report to the user,” is was

known and well understood in the industry. EX1028, 11:24-28. Therefore, a POSA would have been motivated to include organizational relationships into the combined system, because such systems were common and well-understood.

536. As explained above (§VII.B.5.h), a POSA would have been motivated to include the sender importance into the combination of Kircher and Krug. In particular, “*global importance*” would just be one additional factor used to calculate the comparison value:

$TRm(k) = \rho((WOm(k), z1), (WCm(k), z2), (WUm(k), z3), (GRm(k), z4), (OCm(k), z5), (d(Us(j), Om(k)), z6), (HA(k), z7))$, where

ρ is a function that increases with all parameters and decreases with the sixth parameter;

$z1, ..., z4$ are the weights for the corresponding criteria of TR; and

$d(Us(j), Om(k))$ is the difference of the profile aspects of the k-th object $Om(k)$ and the j-th user $Us(j)$ after m interactions.

EX1008, [0106].

537. Therefore, the combination of Kircher and Krug disclose this claim limitation under both the plain and ordinary meaning and Petitioner’s construction.

538. Accordingly, the combination of Kircher and Krug discloses or renders obvious “a *global importance describing an importance of the sender within an organization with which the plurality of users are associated.*”

- k. ***[1g(iii)]: a content relevance determined responsive to content of the piece of electronic content, and***

539. In my opinion, the combination of Kircher and Krug discloses or renders obvious “*a content relevance determined responsive to content of the piece of electronic content.*”

540. As explained above, the structure described by the specification for carrying out the claimed “*a content relevance determined responsive to content of the piece of electronic content*” are “statistical techniques” for correlating certain words or the frequencies of words. *Supra* §VI.A.3. To the extent this claim is not means-plus-function, then its scope would be much broader and Kircher and Krug would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

541. As explained above, in Krug the “usage intensity (intensity factor I)” is calculated as a function of the user’s “active interaction time” and the user’s “rating for the object.” EX1008, [0069]. The user’s “rating for the object” is generated using search engine 3 and is based on a match or comparison between a search term and the contents of the object. *Id.*, [0098]; *supra* §VII.B.5.e.

542. Krug explains that “[d]etermining the similarity between the respective textual content of the objects, in particular, the content of electronic documents, and a search text can be carried out, for example, by means of **a full-text analysis method.**” *Id.*, [0041], emphasis added. For example, “search text and/or search term can be compared to the textual content of electronic documents using a

similarity measure for character strings, such as the Levenshtein distance, wherein omissions and/or insertions of words may be permitted.” *Id.* A POSA would have understood that “Levenshtein distance” is a “statistical technique[]” for correlating the similarity of certain words between two strings. EX1042. To the extent Patent Owner argues that the “Levenshtein distance” does not satisfy the claim, Krug allows for a variety of full-text analysis methods, and a POSA would have been motivated to use a “statistical technique” at least because statistical content analysis was well-known and well understood at the time. *Supra* §IV.A.

543. Krug explains that “an initial priority of the object is determined based on the search engine results” where the search engines are “various (full-text) search engines.” EX1008, [0115]. A POSA would have understood this initial priority is “*a content relevance*” and is “*determined responsive to content of the piece of electronic content.*” The initial priority (delineated as $GR_m(k)$) is one of the factors used to calculate the comparison value:

$TR_m(k) = \rho((WO_m(k), z1), (WC_m(k), z2), (WU_m(k), z3), (GR_m(k), z4), (OC_m(k), z5), (d(Us(j), Om(k)), z6), (HA(k), z7))$, where

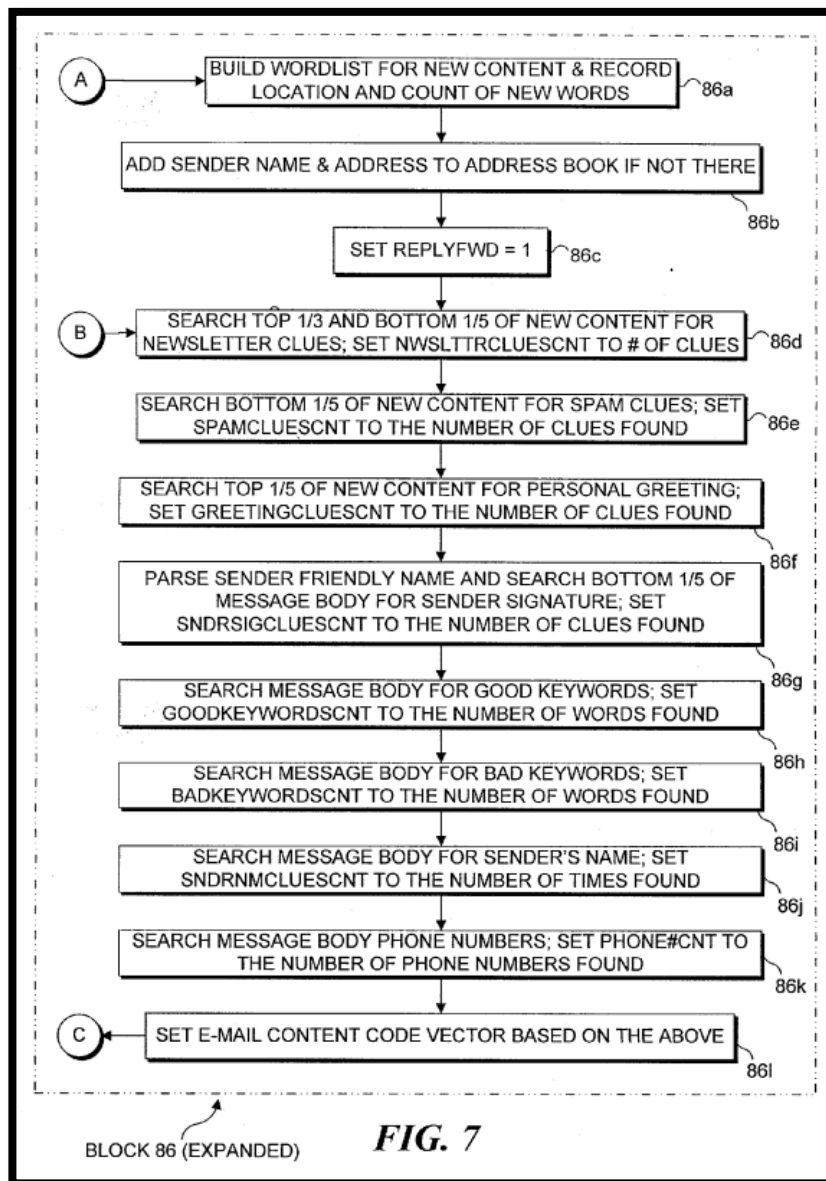
ρ is a function that increases with all parameters and decreases with the sixth parameter;

$z1, ..., z4$ are the weights for the corresponding criteria of TR; and

$d(Us(j), Om(k))$ is the difference of the profile aspects of the k-th object $Om(k)$ and the j-th user $Us(j)$ after m interactions.

Id., [0106].

544. Kircher also discloses that “FIG. 7 [below] shows twelve steps that are employed to analyze the message content,” which results in an email code vector based on the information developed in the twelve steps. EX1007, [0066], [0071], Fig. 7; *see supra* ¶81. Kircher also discloses that “[o]ther clues that are used to evaluate the importance of an email are based on characteristics of spam, newsletters, and the anticipated content of an important message.” *Id.*, [0048]. In particular, the process described by Kircher includes searching for and identifying “good” and “bad” words in the content and other “clues” concerning its purpose. EX1007, [0063], [0066]. Therefore, a POSA would have understood that Kircher discloses “*a content relevance determined responsive to content of the piece of electronic content.*”



545. Therefore, the combination of Kircher and Krug discloses this claim limitation under both the plain and ordinary meaning and Petitioner's construction.

546. Accordingly, the combination of Kircher and Krug discloses or renders obvious *"a content relevance determined responsive to content of the piece of electronic content."*

1. ***[1g(iv)]: one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and***

547. In my opinion, the combination of Kircher and Krug discloses or renders obvious “*one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

548. As explained above, the structure described by the specification for carrying out the claimed “*one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user*” are “based on a weighted average of the IRC's” and therefore, use a weighted average of the same techniques described above for the “*first measurement module.*” *Supra* §VI.A.3. To the extent this claim is not means-plus-function, then its scope would be much broader and Kircher and Krug would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

549. As explained above, the combination of Kircher and Krug discloses collaborative filtering (*supra* §IV.B) and discloses “*at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user*” in the form of a user group, as discussed above. *Supra* §VII.B.5.g.

550. As discussed above (§VII.B.5.d), Krug calculates an “absolute usage intensity matrix $I^A(U,O)$ ” that contains the “the usage intensity $I^A(U_j,O_k)$ of the k-th object by the j-th user.” EX1008, [0071]. Therefore, the absolute usage intensity matrix $I^A(U,O)$ includes “*one or more actions on the piece of electronic content of the at least one other of the plurality of users.*”

551. As also explained above (§VII.B.5.e), the “action equivalence” “increases the importance of objects with high usage intensity.” *Id.*, [0028], [0107] (defining factor $HA(k)$ “the action equivalence of the object.”) In particular, the “action equivalence” is based on the “usage intensity (intensity factor I)” of an individual user or **any user group**. *Id.* In the case of a group, the “collective action equivalence” factors in “the aggregated usage intensity for objects.” *Id.*, [0110]. Krug explains that “[t]he groups can be of any nature, for example a real community, any virtual community, or selected according to regional aspects.” *Id.* Therefore. A POSA would have understood that the an “action equivalence” for a user group (as described in §VII.B.5.e) includes “*one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

552. Moreover, the “action equivalence” is the “aggregated usage intensity for objects of any group.” *Id.*, [0110]. Therefore, a POSA would have understood

that the “action equivalence” is a weighted average of the same techniques described above for the “*first measurement module.*” *Supra* §VII.B.5.e.

553. The “action equivalence” (delineated as $HA(k)$) is also one of the factors used to calculate the comparison value:

$$TR_m(k) = \rho((WO_m(k), z1), (WC_m(k), z2), (WU_m(k), z3), (GR_m(k), z4), (OC_m(k), z5), (d(Us(j), Om(k)), z6), (HA(k), z7)), \text{ where}$$

ρ is a function that increases with all parameters and decreases with the sixth parameter;

$z1, ..., z4$ are the weights for the corresponding criteria of TR; and

$d(Us(j), Om(k))$ is the difference of the profile aspects of the k -th object $Om(k)$ and the j -th user $Us(j)$ after m interactions.

Id., [0106].

554. Therefore, the combination of Kircher and Krug disclose this claim limitation under both the plain and ordinary meaning and Petitioner’s construction.

555. Accordingly, the combination of Kircher and Krug discloses or renders obvious “*one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

- m. ***[1h]: a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.***

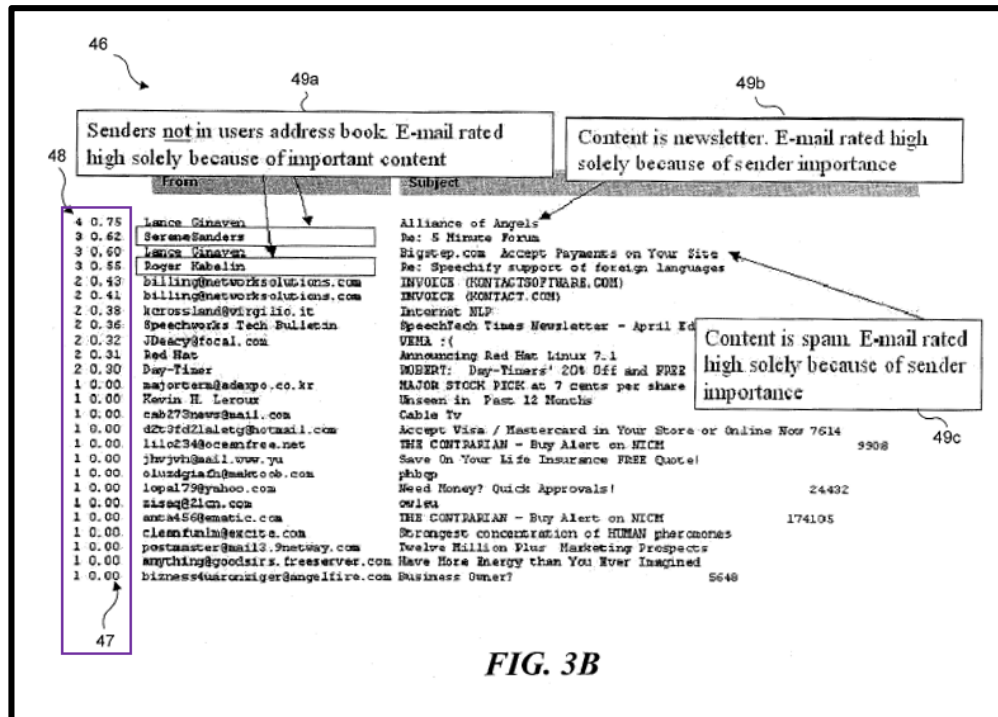
556. In my opinion, the combination of Kircher and Krug discloses or renders obvious “*a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.*”

557. As explained above, the structure described by the specification for carrying out the claimed “*relevance analysis module*” (while incomplete) is a series of “inputs” (such as “the user’s own IRC, the global and cognate relevance scores, and the combined importance relating to that mail.”) EX1001, 26:46-52; 35:62-36:6; *Supra* §VI.A.4. To the extent this claim is not means-plus-function, then its scope would be much broader and Kircher and Krug would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

558. As explained above (§VII.B.5.a), Krug discloses a “comparison value” which is “based on the match between the determined user profile and the object profile.” EX1008, [0020]. The “comparison value” is used to “rate the relevance of the object” and “can assume values between 0 and 100.” *Id.*, [0054]. Therefore, the “comparison value” of Krug is “*a relevance score of the piece of electronic content.*”

559. In the combination (§VII.B.3), the “comparison value” of Krug would be combined and integrated into the “ranking number” (column 48) and “numerical value assigned to each email” (column 47) (**purple**) of Kircher, such that the emails

of Kircher are ranked (at least in part) using the comparison value of Krug. Accordingly, a POSA would have understood that the combination “*determine[s] the relevance score of the piece of electronic content sent from the sender to the user.*” *Supra* §VII.B.5.a.



560. The factors used to calculate the “comparison value” are below:

$$TR_m(k) = \rho((W_{Om}(k), z_1), (W_{Cm}(k), z_2), (W_{Um}(k), z_3), (GR_m(k), z_4), (OC_m(k), z_5), (d(Us(j), Om(k)), z_6), (HA(k), z_7)), \text{ where}$$

ρ is a function that increases with all parameters and decreases with the sixth parameter;

$z_1, \dots, z_4$ are the weights for the corresponding criteria of TR; and

$d(Us(j), Om(k))$ is the difference of the profile aspects of the k -th object $Om(k)$ and the j -th user $Us(j)$ after m interactions.

EX1008, [0106].

561. Where the following applies to the individual criteria:

W_{Om}(k) is the absolute intrinsic value of the k-th object;
W_{Um}(k) is the user-specific intrinsic value of the k-th object;
W_{Cm}(k) is the intrinsic value of any user group for k-th object;
GR_m(k) is the initial priority of an object;
OC_m(k) is the community weight of the object; and
HA(k) is the action equivalence of the object.

Id., [0107].

562. As I explained in Section §VII.B.5.e, Krug discloses “a *first measure of relevance*” in the form of an “action equivalence” (delineated as **HA(k)** (**blue**)).

563. As I explained in Sections §VII.B.5.h, Krug also discloses “a *second measure of relevance*” which include various “measures” such as the initial priority (delineated as GR_m(k) (**red**)) and can also include the “action equivalence” (**blue**) for the “aggregated usage intensity for objects of any group.” EX1008, [0110].

564. Likewise, a POSA would have been motivated to include the sender importance of Kircher into the combination of Kircher and Krug. In particular, “*local importance*” and “*global importance*” would just be one additional factor used to calculate the comparison value. *Supra* §VII.B.5.h.

565. Therefore, a POSA would understand that the “comparison value” is a *“relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.”* Moreover, as explained above, the inputs (such as “the user’s own IRC, the global and cognate relevance scores, and the combined importance relating to that mail”) are used to calculate the “comparison value.” EX1001, 26:46-52; 35:62-36:6. Therefore, the combination of Kircher and Krug disclose *“the relevance analysis module”* under both the plain and ordinary meaning and Petitioner’s construction.

566. Accordingly, the combination discloses or renders obvious claim 1.

- n. ***[2]: The system of claim 1, further comprising: a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.***

567. In my opinion, the combination of Kircher and Krug disclose or render obvious *“a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.”*

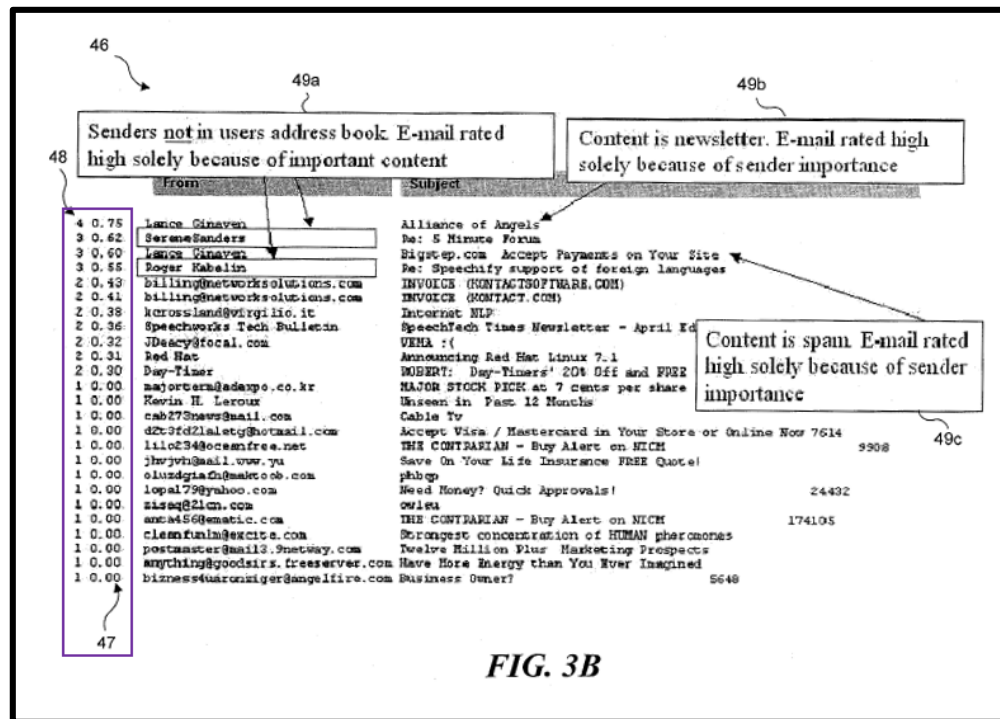
568. As explained above, the structure described by the specification for carrying out the claimed *“content presentation module”* is “mail presentation module 260” (7:28-34) and Figures 9 through 20. *Supra* §VI.B. To the extent this claim is not means-plus-function, then its scope would be much broader and Kircher and

Krug would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

569. As explained above (§VII.B.5.a), Kircher in Figure 3B (shown below), Kircher depicts “an email inbox 46” which contains numerous emails. EX1007, [0049]. A POSA would have understood that an email is a “*piece of electronic content.*” Therefore, as shown in the figure below “*content presentation module configured to present the piece of electronic content to the user.*”

570. Moreover, “Kircher explains that in “email inbox 46” the “contents of the inbox have been prioritized in accord with the present invention” and, thus, have been ranked according to the likely importance of each message to the recipient.” *Id.*, [0049]. Therefore, email inbox 46 “*present[s] the piece of electronic content to the user in accordance with the determined relevance score.*”

571. Finally, as shown below, column 48 indicates the importance of each email by a “**ranking number**” and “column 47 includes the **numerical value assigned to each email**” (purple). *Id.*, [0050]-[0051]. Therefore, email inbox 46 also “*present[s] to the user a value describing the determined relevance score.*”



572. Kircher also discloses the “*content presentation module*” under both the plain and ordinary meaning and Petitioner’s construction because Kircher’s email inbox works in the same way as “mail presentation module 260—i.e., “provide a user his/her electronic mail (along with features therewith) in accordance with the relevance and importance scores determined by the relevance analysis engine 252.” EX1001, 6:55-64.

573. Accordingly, the combination of Kircher and Krug discloses or renders obvious “a *content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.*”

- o. ***[3]: The system of claim 1, further comprising: a search module configured to search the electronic content in accordance with the determined relevance score.***

574. In my opinion, the combination of Kircher and Krug discloses or renders obvious “*a search module configured to search the electronic content in accordance with the determined relevance score.*”

575. As explained above, the structure described by the specification for carrying out the claimed “*search module*” is that “the electronic mail system may help rank search results and indicate to the user how likely each piece of content is to be of interest.” EX1001, 8:9-12; *supra* §VI.C. To the extent this claim is not means-plus-function, then its scope would be much broader and Kircher and Krug would still disclose each limitation of the claim under its plain and ordinary meaning, as explained below.

576. Krug explains that “for each object for which a comparison is carried out, a comparison value is determined based on the match between the determined user profile and the object profile.” EX1008, [0020]. In particular, “the comparison value of an object can be used to rate the relevance of the object to the search query.” *Id.* Therefore, a POSA would have understood that the search of Krug “help[s] rank search results and indicate to the user how likely each piece of content is to be of interest” and thus is “*a search module configured to search the electronic content in accordance with the determined relevance score.*”

577. Therefore, the combination of Kircher and Krug disclose this claim limitation under both the plain and ordinary meaning and Petitioner's construction.

578. Accordingly, the combination of Kircher and Krug discloses or renders obvious “*a search module configured to search the electronic content in accordance with the determined relevance score.*”

p. ***[4]: The system of claim 1, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.***

579. In my opinion, the combination of Kircher and Krug with Marston discloses or renders obvious “*wherein the piece of electronic content comprises an electronic mail object in a relational mail system.*”

580. As explained above (§VII.A.2.d), Marston discloses “[a] messaging system uses a relational model to represent messages exchanged among end-users of the system.” EX1043, [0010]. Marston explains that each message and sub-message are stored “as a discrete object that can be individually referenced.” EX1043, [0022], [0010]. Each message then includes a series of pointers to the “current submessage 38: and “history submessages.” EX1043, [0046]. Therefore, Marston discloses that “*the piece of electronic content comprises an electronic mail object in a relational mail system.*” *Supra* §VII.A.2.p.

581. Moreover, a POSA would have been motivated to include the “relational mail architecture” of Marston in the combination of Kircher and Krug.

In particular, Marston is also analogous art to the '217 Patent at least because it relates to email and content management systems and, therefore, is in the same field of endeavor. EX1043, [0003] (“This invention pertains in general to electronic messaging systems”); *supra* §VII.B.4. Moreover, as explained above (§VII.A.2.d), a POSA would have been motivated to use the “relational mail architecture” of Marston to take advantage of the benefits of a “relational mail architecture,” including: “

Because submessages are separate from the messages that contain them, different policies can be applied to individual submessages. Moreover, the messaging system stores each object (*e.g.*, message or submessage) only once. The messaging system thus significantly reduces infrastructure costs by removing unnecessary duplicity, and provides enterprises with the content granularity they need to enforce regulatory compliance and other policies.

EX1043, Abstract.

582. Additionally, Krug already stores emails using objects (EX1008, [0006], [0040]), therefore combining Kircher and Krug with Marston would be a matter of simple substitution and a POSA would have had a high likelihood of success.

583. Accordingly, the combination discloses or renders obvious “*wherein the piece of electronic content comprises an electronic mail object in a relational mail system.*”

- q. ***[5]: The system of claim 1, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.***

584. In my opinion, the combination of Kircher and Krug discloses or renders obvious “*wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.*”

585. In Krug, “objects are embodied as **electronic documents**, in particular, HTML, WTML or XHTML documents, the respective contents of which include text, graphics, images, sound and/or speech.” EX1008. [0006], [0040], emphasis added.

586. In Kircher, in “system 10 b, **email, faxes, and telephone messages** comprising electronic messages 12 b are received by a computing device 14 b.” EX1007, [0039], emphasis added.

587. Therefore, in the combination “*the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.*”

- r. ***[8]: The system of claim 1, wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user.***

588. In my opinion, the combination of Kircher and Krug disclose or render obvious “*wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user.*”

589. As explained above (§§VII.B.5.e, VII.B.5.g), Krug explains that for user groups “the assignment [of a group] can also be made implicitly, *e.g.*, based on the presence of certain properties of the user.” EX1008, [0031]. For example, Krug explains that “group profiles are assigned to the user groups, each of which is an average user profile of the group.” *Id.*, [0056]. The group profiles “characterize usage behavior and properties of the users to whom they are assigned.” *Id.* Krug also explains “using the clustering method,” the user profiles for “users who have accessed the object” may be assigned to one or “a plurality of typical user profiles.” *Id.*, [0038]. A POSA would understand the typical user profiles are a cognate group and are based on “*analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user.*” Moreover, a POSA would have understood that these typical interactions account for other users who share similar past user actions and assessments because the group profiles “characterize usage behavior” of the users within the group. *Id.*, [0044], [0039] (explaining that “non-typical users are not taken into account” when calculating the object profile). Accordingly, a POSA would have understood that the “user groups”/“typical user profile” of Krug are a group of other users who share similar past user actions and assessments.

590. Accordingly, the combination of Kircher and Krug disclose or render obvious “*wherein identifying at least one other of the plurality of users that is*

cognate to the user comprises analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user.”

- s. ***[9]: The system of claim 8, wherein the at least one other of the plurality of users is cognate to the user, and the user is not cognate to the at least one other of the plurality of users.***

591. In my opinion the combination of Kircher and Krug disclose or render obvious “*wherein the at least one other of the plurality of users is cognate to the user, and the user is not cognate to the at least one other of the plurality of users.*”

592. Krug describes how “the intrinsic value of an object can be determined separately for each user, for a group of users, or for all users collectively for a specific object.” EX1008, [0027]. In particular, “[t]he groups of users can be specified (for example, all women) or determined automatically (for example, **all users who access a specific object**).” *Id.*, [0031]. At the same time, Krug explains that “using the clustering method,” the user profiles for “users who have accessed the object” may be assigned to one or “a plurality of typical user profiles.” *Id.*, [0038]. A POSA would understand the typical user profiles are a cognate group because each user within that groups usage of the object is “typical.” *Id.*, [0039]. Moreover, a POSA would have understood that these typical interactions account for other users who share similar past user actions and assessments because the group profiles “characterize usage behavior” of the users within the group. *Id.*, [0044].

But “non-typical users are not taken into account” when calculating the object profile. *Id.*, [0039].

593. Krug explains that “[f]or a search query, a user can select the profile of a user group in order to use their characteristic properties to rate the relevance of the objects.” *Id.*, [0031]. Therefore, a POSA would understand that User A can be assigned Group A (non-typical users) and would not be cognate to User B in Group B (typical users), but User B “can select the profile of a user group” and join Group C (all users who access a specific object) for a search and; unless User A has also selected Group C as part of their search criteria, User B would cognate to User A through Group C; but User A would not be cognate to User B. Therefore, a POSA would have understood “*at least one other of the plurality of users is cognate to the user, and the user is not cognate to the at least one other of the plurality of users.*”

t. ***[10]: The system of claim 4, wherein the electronic mail object includes one or more submessages.***

594. In my opinion, the combination of Kircher and Krug with Marston disclose or render obvious “*wherein the electronic mail object includes one or more submessages.*”

595. As explained above (§VII.A.2.t), Marston discloses this claim limitation. Accordingly, the combination of Kircher and Krug with Marston disclose or render obvious “*wherein the electronic mail object includes one or more submessages.*”

- u. ***[11]: The system of claim 10, wherein the submessages are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.***

596. In my opinion the combination of Kircher and Krug with Marston disclose or render obvious “*wherein the submessages are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.*”

597. As explained above (§VII.A.2.u), Marston discloses this claim limitation. Accordingly, the combination of Kircher and Krug with Marston disclose or render obvious “*wherein the submessages are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.*”

- v. ***[12]: The system of claim 4, wherein the electronic mail object has an associated job code representing a business process with which the electronic mail object is associated.***

598. In my opinion, the combination of Kircher and Krug with Marston disclose or render obvious “*wherein the electronic mail object has an associated job code representing a business process with which the electronic mail object is associated.*”

599. As explained above (§VII.A.2.v), Marston discloses this claim limitation. Accordingly, the combination of Kircher and Krug with Marston disclose

or render obvious “*wherein the electronic mail object has an associated job code representing a business process with which the electronic mail object is associated.*”

6. Claim 6 and its Dependent Claims 13-17

- a. ***[6pre]: A computer program product for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-program product having a computer-readable storage medium having computer program instructions encoded thereon comprising:***

600. In my opinion, the combination of Kircher and Krug disclose or render obvious a “*computer program product for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-program product having a computer-readable storage medium having computer program instructions encoded thereon.*”

601. As explained above (§III.C), claims 6 and 1 overlap significantly. The combination of Kircher and Krug disclose or render obvious for the same reasons as in Sections VII.B.5.a-VII.B.5.c. In particular, a POSA would recognize that a “*computer implemented system*” can be a “*computer program product.*”

- b. ***[6a]: a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;***

602. In my opinion, the combination of Kircher and Krug disclose or render obvious “a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content.”

603. For all the reasons stated above in Section VII.B.5.d, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- c. ***[6b]: a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content***

604. In my opinion the combination of Kircher and Krug disclose or render obvious “a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.”

605. For all the reasons stated above in Section VII.B.5.e, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- d. ***[6c]: a second relevance measurement module coupled to the monitoring module and configured to:***

606. In my opinion the combination of Kircher and Krug disclose or render obvious a “a second relevance measurement module coupled to the monitoring module.”

607. For all the reasons stated above in Section VII.B.5.f, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- e. ***[6d]: identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and***

608. In my opinion the combination of Kircher and Krug disclose or render obvious “*identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

609. For all the reasons stated above in Section VII.B.5.g, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- f. ***[6e]: determine a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group consisting of:***

610. In my opinion the combination of Kircher and Krug disclose or render obvious “*determine a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group.*”

611. For all the reasons stated above in Section VII.B.5.h, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- g. ***[6e(i)]: a local importance describing an importance of the sender to the user***

612. In my opinion the combination of Kircher and Krug disclose or render obvious “*a local importance describing an importance of the sender to the user.*”

613. For all the reasons stated above in Section VII.B.5.i, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- h. ***[6e(ii)]: a global importance describing an importance of the sender within an organization with which the plurality of users are associated***

614. In my opinion the combination of Kircher and Krug disclose or render obvious “*a global importance describing an importance of the sender within an organization with which the plurality of users are associated.*”

615. For all the reasons stated above in Section VII.B.5.j, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- i. ***[6e(iii)]: a content relevance determined responsive to content of the piece of electronic content, and***

616. In my opinion the combination of Kircher and Krug disclose or render obvious “*a content relevance determined responsive to content of the piece of electronic content.*”

617. For all the reasons stated above in Section VII.B.5.k, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- j. ***[6e(iv)]: one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and***

618. In my opinion the combination of Kircher and Krug disclose or render obvious “*one or more actions on the piece of electronic content of the at least one*

other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.”

619. For all the reasons stated above in Section VII.B.5.l, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- k. ***[6(f)]: a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.***

620. In my opinion the combination of Kircher and Krug disclose or render obvious “*a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.*”

621. For all the reasons stated above in Section VII.B.5.m, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- l. ***[13]: The computer program product of claim 6, further comprising: a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.***

622. In my opinion the combination of Kircher and Krug disclose or render obvious “*a content presentation module configured to present the piece of electronic*

content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.”

623. For all the reasons stated above in Section VII.B.5.n, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- m. ***[14]: The computer program product of claim 6, further comprising: a search module configured to search the electronic content in accordance with the determined relevance score.***

624. In my opinion the combination of Kircher and Krug disclose or render obvious “*a search module configured to search the electronic content in accordance with the determined relevance score.*”

625. For all the reasons stated above in Section VII.B.5.o, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- n. ***[15]: The computer program product of claim 6, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.***

626. In my opinion the combination of Kircher and Krug disclose or render obvious “*wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.*”

627. For all the reasons stated above in Section VII.B.5.q, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- o. ***[16]: The computer program product of claim 6, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.***

628. In my opinion the combination of Kircher and Krug with Marston disclose or render obvious “*wherein the piece of electronic content comprises an electronic mail object in a relational mail system.*”

629. For all the reasons stated above in Section VII.A.2.p, the combination of Kircher and Krug with Marston disclose or render obvious this limitation.

- p. ***[17]: The computer program product of claim 16, wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.***

630. In my opinion the combination of Kircher and Krug with Marston disclose or render obvious “*wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.*”

631. For the reasons stated above in Sections VII.A.2.t and VII.A.2.u, the combination of Kircher and Krug with Marston disclose or render obvious this limitation.

7. Claim 7 and its Dependent Claims 18-22

- a. ***[7pre]: A computer-implemented method for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented method comprising:***

632. In my opinion the combination of Kircher and Krug disclose or render obvious “*a computer-implemented method for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented method.*”

633. As explained above (§III.C), claims 1 and 7 overlap significantly. For all the reasons stated above in Sections VII.B.5.a-VII.B.5.c, the combination of Kircher and Krug disclose or render obvious this claim limitation. In particular, a POSA would have understood that the “*computer implemented system*” of claim 1 executes a “*computer implemented method.*”

b. ***[7a]: tracking actions by a plurality of users associated with an application for managing electronic content;***

634. In my opinion the combination of Kircher and Krug disclose or render obvious “*tracking actions by a plurality of users associated with an application for managing electronic content.*”

635. For all the reasons stated above in Section VII.B.5.d, the combination of Kircher and Krug disclose or render obvious this claim limitation.

c. ***[7b]: identifying at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user,***

636. In my opinion the combination of Kircher and Krug disclose or render obvious “*identifying at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.*”

637. For all the reasons stated above in Section VII.B.5.g, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- d. ***[7c]: determining a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.***

638. In my opinion the combination of Kircher and Krug disclose or render obvious “*determining a first measure of relevance of the piece of electronic content based at least in part on one or more actions of the user on the piece of electronic content.*”

639. For all the reasons stated above in Section VII.B.5.e, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- e. ***[7d]: determining a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group consisting of:***

640. In my opinion the combination of Kircher and Krug disclose or render obvious “*determining a second measure of relevance of the piece of electronic content based at least in part on one or more measures derived from the group.*”

641. For all the reasons stated above in Sections VII.B.5.f and VII.B.5.h, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- f. ***[7d(i)]: a local importance describing an importance of the sender to the user***

642. In my opinion the combination of Kircher and Krug disclose or render obvious “*a local importance describing an importance of the sender to the user.*”

643. For all the reasons stated above in Section VII.B.5.i, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- g. ***[7d(ii)]: a global importance describing an importance of the sender within an organization with which the plurality of users are associated,***

644. In my opinion the combination of Kircher and Krug disclose or render obvious “*a global importance describing an importance of the sender within an organization with which the plurality of users are associated.*”

645. For all the reasons stated above in Section VII.B.5.j, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- h. ***[7d(iii)]: a content relevance determined responsive to content of the piece of electronic content, and***

646. In my opinion the combination of Kircher and Krug disclose or render obvious “*a content relevance determined responsive to content of the piece of electronic content.*”

647. For all the reasons stated above in Section VII.B.5.k, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- i. ***[7d(iv)]: one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and***

648. In my opinion the combination of Kircher and Krug disclose or render obvious “one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user.”

649. For all the reasons stated above in Section VII.B.5.l, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- j. ***[7e]: determining the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.***

650. In my opinion the combination of Kircher and Krug disclose or render obvious “determining the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.”

651. For all of the reasons stated above in Section VII.B.5.m, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- k. ***[18]: The method of claim 7, further comprising: presenting the piece of electronic content to the user in accordance with the determined relevance score and presenting to the user a value describing the determined relevance score.***

652. In my opinion the combination of Kircher and Krug disclose or render obvious “*presenting the piece of electronic content to the user in accordance with the determined relevance score and presenting to the user a value describing the determined relevance score.*”

653. For all the reasons stated above in Section VII.B.5.n, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- l. ***[19]: The method of claim 7, further comprising: searching the electronic content in accordance with the determined relevance score.***

654. In my opinion the combination of Kircher and Krug disclose or render obvious “*searching the electronic content in accordance with the determined relevance score.*”

655. For all the reasons stated above in Section VII.B.5.o, the combination of Kircher and Krug disclose or render obvious this claim limitation.

- m. ***[20]: The method of claim 7, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.***

656. In my opinion the combination of Kircher and Krug with Marston disclose or render obvious “*wherein the piece of electronic content comprises an electronic mail object in a relational mail system.*”

657. For all the reasons stated above in Section VII.A.2.p, the combination of Kircher and Krug with Marston disclose or render obvious this limitation.

- n. ***[21]: The method of claim 20, wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.***

658. In my opinion the combination of Kircher and Krug with Marston disclose or render obvious “*wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.*”

659. For the reasons stated above in Sections VII.A.2.t and VII.A.2.u, the combination of Kircher and Krug with Marston disclose or render obvious this limitation.

- o. ***[22]: The method of claim 7, wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the one other of the plurality of users with respect to historical actions of the user.***

660. In my opinion the combination of Kircher and Krug disclose or render obvious “*wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the one other of the plurality of users with respect to historical actions of the user.*”

661. For all the reasons stated above in Section VII.B.5.r, the combination of Kircher and Krug disclose or render obvious this claim limitation.

VIII. SECONDARY CONSIDERATIONS

662. I understand that certain objective factors, sometimes known as “secondary considerations,” are taken into account in determining whether a claimed invention would have been obvious. In most instances, these secondary considerations of non-obviousness are raised by the patentee. I also understand that these objective indications are only relevant to obviousness if there is a connection, or nexus, between them and the invention covered by the patent claims.

663. I also understand that secondary considerations of non-obviousness are inadequate to overcome a strong showing on the primary considerations of obviousness. For example, where the inventions represented no more than the predictable use of prior art elements according to their established functions, the secondary considerations are inadequate to establish non-obviousness.

664. I have been informed that Petitioner is unaware of any publicly available secondary considerations evidence bearing any nexus to the purported claimed invention. No secondary considerations were asserted or relied on during prosecution. EX1002.

665. I understand that the Provisional Application purports to be a User Manual for the BlueSpace Mail system. However, Patent Owner has not supplied any evidence showing (1) that BlueSpace Mail (or any other system) implements the

claims of the '217 Patent or (2) that it was commercially successful, solved a long felt need or was otherwise an improvement over the prior art.

666. I reserve the right to address any secondary considerations should Patent Owner raise them.

IX. CONCLUSION

667. In my opinion, the Challenged Claims of the '217 Patent are unpatentable.