

Page 1 1 UNITED STATES PATENT AND TRADEMARK OFFICE 2 BEFORE THE PATENT TRIAL AND APPEAL BOARD 3 4 META PLATFORMS, INC., 5 Petitioners, 6 vs. Case No. IPR2025-00430 7 STERLING COMPUTERS CORPORATION, 8 Patent Owner. 9 10 11 REMOTE ZOOM, VIDEOTAPED DEPOSITION OF EXPERT 12 LATIFUR KHAN, Ph.D. 13 THURSDAY, JANUARY 22, 2026, 7:36 A.M. PST 14 15 16 17 18 19 20 21 22 23 24 Reported by Elizabeth A. Willis-Lewis, CSR 12155 25 Job No. 22673	Page 3 1 APPEARANCES: 2 3 FOR THE PETITIONERS: 4 PERKINS COIE 5 BY: ANDREW OHLERT, ESQ. 6 1301 2nd Avenue, Suite 4200 7 Seattle, Washington 98101 8 206.359.3058 9 AOhlert@perkinscoie.com 10 11 FOR THE PATENT OWNER: 12 PADMANABHAN & DAWSON, PLLC 13 BY: DEVAN PADMANABHAN, ESQ. 14 9800 Shelard Parkway, Suite 120 15 Plymouth, Minnesota 55441 16 612.444.3601 17 devan@paddatawgroup.com 18 19 ALSO PRESENT: TYLER KNOX 20 21 VIDEOGRAPHER: SAID HOFIANI 22 23 24 25
Page 2 1 UNITED STATES PATENT AND TRADEMARK OFFICE 2 BEFORE THE PATENT TRIAL AND APPEAL BOARD 3 4 META PLATFORMS, INC., 5 Petitioners, 6 vs. Case No. IPR2025-00430 7 STERLING COMPUTERS CORPORATION, 8 Patent Owner. 9 10 11 12 13 14 15 16 17 18 19 20 21 22 REMOTE ZOOM, VIDEOTAPED DEPOSITION OF EXPERT LATIFUR 23 KHAN, Ph.D., commencing at 7:36 a.m. PST, Thursday, 24 January 22, 2026, before Elizabeth A. Willis-Lewis, RMR, 25 RPR, CCRR, CSR No. 12155.	Page 4 1 INDEX 2 3 WITNESS: LATIFUR KHAN, Ph.D. 4 5 EXAMINATION PAGE 6 By Mr. Ohlert 7, 237 7 By Mr. Padmanabhan 237 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

1	INDEX TO EXHIBITS		Page 5	1	first duly sworn, was examined and testified as		Page 7
2	NUMBER		PAGE	2	follows:		
3	Exhibit 1001	United States Patent, Marston, et al., Patent No.: US 7,716,217B2, Bates stamped META-1001.	79	3	COURT REPORTER: Thank you.		
4				4	EXAMINATION BY MR. OHLERT:		
5	Exhibit 1005	United States Patent Application Publication, Bates stamped META-1005.	218	5	Q. Okay, Dr. Khan. Thank you for being with us		
6				6	here today. Before we begin, I would like to just go		
7	Exhibit 1006	United States Patent, Rose, et al., Patent No. US 6,202,058B1, Bates stamped META-1006.	158	7	over some ground rules if that's okay with you.		
8				8	A. Yes.		
9	Exhibit 1007	United States Patent, Bieganski, et al., Patent No. US 6,334,127B1, Bates stamped META-1007.	202	9	Q. You understand we need "yes," "no" answers		
10				10	today for the benefit of the court reporter?		
11	Exhibit 2001	55-page Declaration of Dr. Latifur Khan, IPR2025-00430.	15	11	A. Yes, I understand.		
12				12	Q. And you understand that you are under oath		
13	Exhibit 2002	11-page Curriculum Vitae for Dr. Latifur Khan, Bates stamped IPR2025-00430.	57	13	today?		
14				14	A. Yes, I understand.		
15	Exhibit 2029	84-page Declaration of Dr. Latifur Khan, IPR2025-00430.	18	15	Q. You are able to offer truthful and complete		
16				16	testimony today?		
17				17	A. Yes.		
18				18	Q. You are not on any medications or any		
19				19	substances that would impair your ability to provide		
20				20	truthful and honest testimony today?		
21				21	A. No.		
22				22	Q. Okay. And you understand today's deposition		
23				23	will be recorded?		
24				24	A. Yes, I under -- I do.		
25				25	Q. Okay. And you understand generally that as		

1	THURSDAY, JANUARY 22, 2026, 7:36 A.M. PST.		Page 6	1	part of the back and forth of today, I will have certain		Page 8
2	THE VIDEOGRAPHER: Good morning. We are on			2	questions for you. When I am finished speaking, your		
3	record at 7:36 a.m. Today's date is January 22nd, 2026.			3	attorney will have an opportunity to object, and then		
4	This is the recorded remote deposition of Latifur Khan			4	you will be able to provide your answer. And that -- we		
5	in the matter of Meta Platforms, Inc. versus Sterling			5	just want to make sure we don't talk over each other for		
6	Computers Corporation, Case Number IPR2025-00430.			6	the benefit of the court reporter. Does that make		
7	This deposition is being held via web			7	sense?		
8	conference. My name is Said Hofiani. I am the			8	A. Yes.		
9	videographer with Focus Litigation Solutions. The court			9	Q. Okay. Can you please state your full name for		
10	reporter is Elizabeth Willis-Lewis.			10	the record?		
11	Counsel, please introduce yourselves and state			11	A. Latifur Rahman Khan.		
12	whom you represent, after which the court reporter will			12	Q. And do you have any materials in front of you		
13	state, you know, her CSR license number and swear in the			13	today?		
14	witness.			14	A. Yeah, I have some print-out, hard copy.		
15	MR. OHLERT: This is Andrew Ohlert with the law			15	Q. Do you know what those documents are?		
16	firm Perkins Coie. I represent Meta Platforms in the			16	A. Yes. One is patent -- Dumais patent. The		
17	IPR -- IPR2025-00430.			17	other one is the Marston patent, the Bieganski patent,		
18	MR. PADMANABHAN: This is Devan Padmanabhan. I			18	then finally my declaration.		
19	represent Sterling Computers in this IPR, and the			19	MR. PADMANABHAN: And the --		
20	witness.			20	THE DEPONENT: Let's see. And then patent 170.		
21	COURT REPORTER: Good morning. My name is			21	And I think I have another patent, probably Rose Patent.		
22	Elizabeth Willis-Lewis and my California CSR Number is			22	BY MR. OHLERT:		
23	12155.			23	Q. Okay. And for the benefit of the court		
24	DR. LATIFUR KHAN,			24	reporter, I am just going to do some spellings really		
25	having been called as a witness and having been			25	quickly. Dumais, D-U-M-A-I-S.		

Page 9 1 A. Yes. 2 Q. Marston is M-A-R-S-T-O-N. Rose is R-O-S-E. 3 Bieganski is B-I-E-G-A-N-S-K-I. 4 And so, Dr. Khan, you've mentioned the 217 5 Patent, your declaration, and then certain prior art 6 references in this case, including the Bieganski 7 reference, the Dumais reference, and the Mar -- Marston 8 reference -- excuse me, and the Rose reference, not the 9 Marston reference. Is there anything else in front of 10 you today? 11 A. No. I have Rose, Bieganski, Dumais and the 12 [audio distortion]. 13 MR. PADMANABHAN: And the 217. 14 THE DEPONENT: And 217, yeah, and my 15 declaration. 16 MR. PADMANABHAN: Yeah. 17 THE DEPONENT: That's it. 18 BY MR. OHLERT: 19 Q. Okay. And are all the materials in front of 20 you clean of any extraneous marks or comments or 21 highlighting? 22 A. Nothing. 23 Q. Okay. So they don't have anything like that on 24 them? 25 A. Right.	Page 11 1 about some case, yeah, in the past. 2 Q. Okay. So you provided expert testimony in the 3 form of a declaration in another matter about 15 years 4 ago, but you have not provided expert testimony in any 5 other proceedings besides this IPR and the X IPR; is 6 that fair? 7 A. Yes. 8 Q. Okay. And can you recall what case or matter 9 that was about 15 years ago? 10 A. I couldn't remember that much, but I remember 11 it was related to something with database and Excel 12 file. Those type of issues. 13 Q. Did that case 15 years ago relate? 14 A. More than 15. It is not 15 only. But I think 15 at least 17, 18 years ago. 16 Q. Understood, sir. So when you provided expert 17 testimony in that case a while ago, that was about 17 or 18 18 years ago; is that fair? 19 A. Correct. 20 Q. And that case related to databases and Excel 21 files. Did it relate to evaluating the relevance of 22 content? 23 A. No. 24 Q. Okay. So safe to say it's not related to the 25 technologies at issue in this matter?
Page 10 1 Q. Great. Dr. Khan, I understand you have been 2 deposited before; is that correct? 3 A. Yes. 4 Q. And you were deposited at least once in the X IPR 5 that relates to the same 217 Patent challenge in this 6 matter; is that correct? 7 A. Yes. Yes. 8 Q. And have you ever been deposited outside of that 9 X IPR? 10 A. No. 11 Q. And so was that the first time you were 12 deposited? 13 A. Yes. 14 Q. And safe to say this is the second time you've 15 been deposited? 16 A. That's correct. 17 Q. Okay. Do you have a list of cases for which 18 you've previously provided expert testimony? 19 A. I did once, a long time ago. I couldn't 20 remember now. So 15 years back. Expert opinion, I -- I 21 did. 22 Q. Okay. And so you provided expert testimony in 23 a different case 15 years ago approximately? 24 A. Not like -- I did not participate in the part 25 of the deposition, but I give my declaration of opinion	Page 12 1 A. Correct, yeah. 2 Q. Okay. Outside of those three matters, this one 3 from 17 or 18 years ago, and then the two IPRs related 4 to the 217 Patent, have you provided expert opinions in 5 any other matter? 6 A. No. 7 Q. Okay. And was that earlier matter 17 or 18 8 years ago a patent case? 9 A. Yeah, that was a patent case, I think. 10 Q. Do you remember if it was a case versus, for 11 example, an IPR proceeding like we have in this case or 12 in this matter? 13 A. What is the difference between these two? 14 Q. Was that case 17 or 18 years ago a case before 15 a district court or was it some proceeding before USPTO 16 or some other -- 17 A. No, I think USPTO. 18 Q. Okay. And can you recall any other details 19 about that earlier case from 17 or 18 years ago? 20 A. It's hard to -- yeah, I could not remember that 21 much, but I remember it was related to database system 22 where they talk about Excel was developed by some -- 23 some companies, and then similar product were developed 24 -- the company which I represented, and so. 25 Q. Okay. And so is it safe to say in that earlier

Page 13 1 case from 17 or 18 years ago you represented -- or you 2 were providing testimony on behalf of the patent owner? 3 A. Yes, I think so. 4 Q. Okay. And in the -- 5 A. To the best of my knowledge. I said to the 6 best of my knowledge, yeah. 7 Q. Understood. And, apologize, I didn't mean to 8 speak over you there. 9 Strike that. 10 Is it safe to say that when you have provided 11 expert testimony, you have always done so on behalf of 12 the patent owner, and not the patent challenger or the 13 accused infringer? 14 A. I -- I did only once, so I cannot say that I 15 only represent patent owner. I was -- 16 (Simultaneous colloquy.) 17 Q. In that -- in that earlier case, that involved 18 a patent owner, right? 19 A. Correct. 20 Q. And your testimony here in the X IPR, and then 21 in the Meta IPR, both relate to you providing testimony 22 on behalf of the patent owner again, correct? 23 A. Correct, yeah. 24 Q. Okay. And you've never provided expert 25 testimony on behalf of an accused infringer or a patent	Page 15 1 today's deposition in the chat. Can you open that and 2 tell me when you have it open? 3 A. So I am going to save that document first 4 because it is asking to save it, and then -- 5 MR. OHLERT: I think there is some background 6 chatter. Can we make sure there is no other voices 7 being caught on the record? 8 MR. PADMANABHAN: Yeah. Sorry. The main 9 screen went black for a second, so she is just turning 10 it back on. 11 (Exhibit 2001 was marked for identification.) 12 BY MR. OHLERT: 13 Q. Do you have that document open? 14 A. It's a Meta Platform, Inc., Petitioner -- 15 that's what you're talking about? 16 Q. Yes. And you recognize this as the first 17 declaration you submitted in this matter, correct? 18 A. Let me see the date. It was submitted on June 19 11th, right? Last year? 20 Q. That looks correct to me, yes. 21 And so you agree that would have been the first 22 declaration you submitted in this case, which on the 23 cover page bears the number EX2001? 24 A. I do find EX -- EX2001, yes, that's correct. 25 Q. Okay. I am going to upload the second exhibit
Page 14 1 challenger, correct? 2 A. That's correct, I think. 3 Q. What did you do to prepare for today's 4 deposition? 5 A. Sorry. What is your question? 6 Q. What did you do to prepare for today's 7 deposition? 8 A. I -- so we -- we prepare this declaration a 9 long time ago, so I read this declaration here carefully 10 a little bit and refresh my mind. And also I read -- 11 revisited the Patent 217, and then also read the Dumais 12 Patent, and then the Rose Patent, Bieganski Patent to 13 some extent. 14 Q. Okay. Did you meet with anyone besides 15 attorneys to prepare for today's deposition? 16 A. No, by myself, and I met Devan, yeah. 17 Q. Okay. And outside of the documents you just 18 described, did you review any other kinds of documents? 19 A. No. Not for this deposition, no. Only this. 20 Q. Okay. 21 A. And I also talk to Britta, works with Devan. 22 Q. Understood. And I am not trying to ask about 23 communications with counsel. 24 Strike that. 25 I'm going to upload the first exhibit to	Page 16 1 to your deposition. Can you open that as well and let 2 me know when you have that open? 3 A. Yeah. 4 Q. And do you recognize this second exhibit as 5 your second declaration submitted in this case, which is 6 labeled EX2029? 7 A. Did you send me another one? 8 Q. Yes. I just uploaded it to the chat. 9 A. I saw it. 10 Q. And so do you recognize this as your second 11 declaration submitted in this matter, which is labeled 12 EX2029? 13 A. Correct, yeah. 14 Q. And so I want to understand how these two 15 declarations work in delivering your opinions. Is it 16 safe to say that if the opinions in your second 17 declaration, in EX2029, are the operative partnerships 18 in this matter, and would supersede any of your opinions 19 in Exhibit 2001? 20 A. I would -- so [technical interference] -- can 21 you hear me? 22 Q. Yes, I can hear you. 23 A. Can you please tell me again? 24 Q. Yeah. I just want to understand how your 25 opinions work when you have two declarations submitted

Page 17 1 in this case. Is it fair to assume that your second 2 declaration, EX2029, contains the relevant opinions that 3 you're trying to put forward? 4 A. Basically, the second one, we extended. We 5 extended the first one, and then we try to address more 6 issues that border -- that is not clear, so we tried to 7 address it. So you can say second one is more 8 comprehensive. 9 Q. And if there was anything in Exhibit 2029 that 10 contradicts Exhibit 2001, is it safe to assume that 11 Exhibit 2029, as the later submitted declaration, has 12 your operative opinions? 13 A. Did you find some contradiction? 14 Q. I am just trying to understand how these two 15 declarations work, and I am trying to understand if I 16 need to be exploring your opinions in Exhibit 2001 or if 17 Exhibit 2029 has the full scope of your operative 18 opinions. And so with that in mind, is it safe to 19 assume that Exhibit 2029 has your operative opinions, 20 and that anything in Exhibit 2001 that is not consistent 21 with Exhibit 2029 can be set aside? 22 A. As I said 2029 is more comprehensive. So under 23 that ground, we can say that, yes, you can assume that 24 209 [sic] is -- we can discuss it. 25 Q. Okay. And I think what you're saying is that	Page 19 1 Q. Okay. And did anyone besides counsel assist 2 you in preparing your declarations? 3 A. No. Me and Rita and -- these are the two main 4 persons. 5 Q. Okay. And did Paul Marston assist you with 6 preparing your declaration in any way? 7 A. I don't think so. 8 Q. Did Justin Marston assist you in preparing your 9 declaration in any way? 10 A. I don't think so. 11 Q. Did you speak -- 12 A. No. 13 Q. -- with either Paul Marston or Joel Marston in 14 preparing your declaration? 15 A. No. 16 Q. Okay. What are the opinions you offer in this 17 case? 18 A. You are asking my opinion? 19 Q. Yeah. At a high level, what are the opinions 20 that you are offering in this matter? 21 A. Okay. So I think if you go to page 19, 2029 22 exhibit, so there I summarized opinion. So I try to 23 argue that the Patent 217, the claims 1, 3, 5, 9, 13, 24 15, 18, and those are the -- are not obvious in the -- 25 with respect to Dumais, and same argument I try to put
Page 18 1 Exhibit 2029 has your operative opinions in this case, 2 and Exhibit 2001 is outdated when compared to Exhibit 3 2029; correct? 4 MR. PADMANABHAN: Objection. Rule 611. You 5 can answer. 6 THE DEPONENT: I will not say outdated, but 7 20 -- as I say, 2029 is a super set of 20 -- the earlier 8 one. So in that -- under this assumption we can safely 9 move to -- or go with that 2029. 10 BY MR. OHLERT: 11 Q. Okay. So I'm going to focus on asking you 12 questions about Exhibit 2029 today. Do you understand 13 that? 14 A. Yes. 15 Q. And so when I refer to your declaration, you'll 16 understand I am referring to Exhibit 2029 and not 17 Exhibit 2001. Is that fair? 18 A. Right. 19 (Exhibit 2029 was marked for identification.) 20 BY MR. OHLERT: 21 Q. Okay. How did you prepare Exhibit 2029? 22 A. So we discuss and then we -- I wrote some 23 stuff, and then Rita edited that, and then finally I 24 read the whole -- whole document, whole declaration, and 25 then we submit it.	Page 20 1 with respect to Rose that are not obvious. And then I 2 also have mentioned that Rose and Bieganski, you combine 3 these two, still you cannot -- a POSITA, ordinary skill 4 set cannot do the -- what they claim or what was claimed 5 in the Patent 217. Those claims cannot be done through 6 the Dumais, through the Rose, or combining Rose and 7 Bieganski. 8 Q. Okay. So you are providing opinions that seek 9 to establish that the challenged claims of the 217 10 Patent are not obvious in view of the Dumais reference, 11 the Rose reference, and then separately the Rose and 12 Bieganski combination, correct? 13 A. That's correct, yeah. 14 Q. And so you're not providing any opinions about 15 whether Dumais is not prior art to the 217 Patent; is 16 that correct? 17 A. No, I think there are some section where we 18 discuss about -- yeah, if you go to section 4, Legal 19 Standard, and page 11, item number -- or paragraph 20 number 16, 17, there I mention that I assume -- I 21 mention that we can assume that I was told that Dumais 22 need to be treated as a prior art, so I assume that way. 23 Q. Got it. So you're assuming the priority date 24 of the 217 Patent, but you're not providing opinions in 25 support of that priority date; is that fair?

Page 21 1 A. Sorry, can you say one more time? 2 Q. So as you lay out in paragraph 17 of your 3 declaration, you have been asked to assume the priority 4 date of the 217 Patent, but you are not providing 5 opinions supporting that the 217 Patent is entitled to 6 that priority date; is that correct? 7 A. No. What I'm saying, I assume that the Dumais 8 is a prior art, and based on that I express my opinion. 9 Q. And I just want to make sure we're on the same 10 page. So you were told to assume that Dumais is prior 11 art, but you're not affirmatively offering the opinion 12 about whether Dumais or is not prior art to the 217 13 Patent, correct? 14 A. No. The last part of your sentence, I didn't 15 get it. So can you rephrase it, please? 16 Q. Sure. You're not offering opinions to try to 17 establish that the 217 Patent is entitled to an earlier 18 priority date; you are just assuming that, correct? 19 A. Yeah. I did not -- for my case, whether it is 20 June 17 -- I am sorry -- June of 2005 or January 2006, 21 the Patent 217, irrelevant date. It doesn't matter. My 22 opinion will remain the same. 23 Q. Got it. And so you are not providing any 24 opinions about the conception date or the reduction of 25 practice of the invention of the 217 Patent, correct?	Page 23 1 let's say for an example, there is prior art X and then 2 the new invention is Y. And X is saying we should not 3 use this component. And then in that letter system or 4 Y, they are saying that we should use this component. 5 So in that case the prior art teaches how -- the claim 6 invention. 7 Q. And in your example you would say that the 8 prior art teaches away from X because it says we should 9 not use this component. Is that fair? 10 A. Yeah. X should not use some component, but 11 which is used in the later invention or claimed 12 invention, yes. 13 Q. And then if a prior art reference teaches about 14 some claim limitation Y, that wouldn't be teaching away, 15 that would be teaching towards. Is that fair? 16 A. Sorry. Can you say one more time? 17 Q. Well, your example referred to X and Y? 18 A. Right. 19 Q. The prior art says not to use X and a different 20 prior art says to use Y, right? 21 A. Um-hum. 22 Q. And so if the prior art says not to use X, 23 that's an example of teaching away. And if the prior 24 art says to use Y, that would be an example of teaching 25 towards or teaching that concept?
Page 22 1 A. Correct. 2 Q. And you're not providing any opinions about 3 secondary considerations of non-obviousness, correct? 4 A. What is secondary consideration? 5 Q. Okay. Are you aware of the concept of 6 secondary considerations of non-obviousness, which is 7 sometimes referred to as objective indicia of 8 non-obviousness? 9 A. No, I don't know. 10 Q. Okay. And if you aren't familiar with that 11 concept, is it fair to assume that you are not offering 12 opinions about that concept? 13 A. That's correct, yeah. 14 Q. Okay. Let's look at paragraph 18. Can you let 15 me know when you're there? 16 A. Yes. 17 Q. You write in paragraph 18 that as part of the 18 obviousness analysis one must consider whether prior art 19 teaches away from a claimed invention, correct? 20 A. That's correct, yeah. (Reading to self). 21 Q. What is your understanding of what it means for 22 prior art reference to teach away from the claimed 23 invention? 24 A. Teach away is a -- I think is a legal term. 25 Basically prior art says something that we should not --	Page 24 1 A. No. No, I think -- okay. Let me rephrase. I 2 did not clearly say what. 3 Okay. Let's say the prior art -- and then a 4 prior art is saying that we should not use X. And then 5 there is a later, you know, invention or the claim 6 invention, which comes later, saying we should use X 7 component. So in that case -- 8 Q. Right. 9 A. -- prior art is teaches away that claimed 10 invention. And that -- this is the way I interpret. 11 And if you want to know more, I can tell -- for example, 12 Patent 217 utilizes messages and sub-messages, and then 13 sub-messages they apply some compliance rule and so on. 14 On the other hand, there is a patent I -- with 15 this -- I forgot the -- row hall's patent, that they 16 focus only on the original message. They ignore the 17 sub-messages entirely. So in that case that says we 18 should not focus on the sub-messages at all when we 19 apply the compliance rule. 20 So we can say that prior art in that case 21 teaches the later invention or the claim invention, 22 because it doesn't consider -- that prior art doesn't 23 consider the sub-messages where we should apply the 24 compliance rule that we are claiming in the invention. 25 Q. Okay. And when I search your report for the

Page 25 1 word "away" -- 2 A. Um-hum. 3 Q. -- paragraph 18 is the only place I see it. 4 A. Um-hum. 5 Q. Do you agree with that? 6 A. I did not check it, but, however, if it's only 7 once if you -- I assume that searching is correct, so -- 8 I mean, your searching is correct, so, yeah, I have -- 9 Q. Well -- and I am just trying to make sure. Are 10 you providing any opinions that the prior art in this 11 case teaches away from the claimed invention? 12 A. I don't think so. 13 Q. Okay. Then -- if not, then we can just move 14 on. 15 A. Um-hum. 16 Q. Okay. Let's look at paragraph 19, which should 17 be the next paragraph. Do you see that? 18 A. Sure. 19 Q. You write that "When an obviousness challenge 20 is based on a combination of references, one must 21 consider whether there is a motivation to combine the 22 teachings of those references." Do you see that? 23 A. Um-hum. 24 Q. Can you tell me some examples of why a person 25 of skill in the art might combine two prior art	Page 27 1 So that's one way to deal with it. But there's 2 no guarantee that it will work or not. It just means 3 after combining, we need to check. 4 Does it answer your question? 5 Q. I think so. So basically there are a lot of 6 reasons why a person of skill in the art might be 7 motivated to combine two prior art references, correct? 8 A. Um-hum. 9 Q. And you identified a number of reasons just 10 now. Is another example of why a person of skill in the 11 art might be motivated to combine two references because 12 they might think there is some financial gain they could 13 achieve if they did so? 14 A. Yeah, of course. Um-hum. 15 Q. Okay. And would a person of skill in the art 16 be motivated to combine two conventional elements 17 together that were known in the prior art? 18 A. Could you please tell me -- could you please 19 repeat? 20 Q. Would a person of skill in the art be motivated 21 to combine two references if they involved conventional 22 technology that was known in the prior art? 23 MR. PADMANABHAN: Objection. Rule 611. 24 THE DEPONENT: You mean the POSITA, right, a 25 person of ordinary skill set person. Yes, sometimes
Page 26 1 references? 2 A. There are many reasons. In general, if you ask 3 me there are some -- because every day we face new 4 problems, so we need to solve the new problems. And for 5 that people try to rely on the prior art and combine 6 those prior art and address it. So that's one way -- 7 people call it incremental work and so on. 8 But that way, if you solve it, then -- then it 9 is -- the problem is that some people may think it is 10 trivial or easy to solve. But if -- but there's a 11 possibility if you solve it, but the system may not work 12 very well, or it may not produce desired result. 13 So in that case we -- researcher may want to 14 come up with a new -- or that engineer or development 15 person may want to come up with a new system or new 16 approach that may not rely on the -- on the previous 17 differences or previous approaches. Or they will modify 18 entirely. That is also a new innovation. 19 So your question is what is the motivation, 20 right? So motivation for if -- there's a possibility 21 that two references or multiple references solve certain 22 problems in the certain domains, but you are 23 encountering new problem, and in order to solve that new 24 problem a human has a tendency to rely on the existing 25 solution or references and combine it and apply it.	Page 28 1 they do. 2 BY MR. OHLERT: 3 Q. And would a person of skill in the art be 4 motivated to combine two references together if their 5 teachings would yield a predictable result? 6 A. Yeah. This -- if it is predictable that when 7 combined that two systems or two prior art, sometimes it 8 may produce desired results, sometime it may not. And 9 even if you combine the system -- two system or two 10 prior arts you -- the POSITA or the ordinary skill set 11 person may encounter various issues. So I cannot tell 12 you here that all is the person -- combining -- 13 combination of references or combining two system or two 14 approaches will always produce the desired result. It 15 may work, it may not work, in general. 16 Q. That's fair. But if a person of skill in the 17 art knew that combining two references in a certain way 18 would yield a predictable result, that's one reason they 19 might combine those references. Fair? 20 A. Yeah, if it is a -- let's say, if it is solved, 21 yes -- yes, then it -- it -- you may get -- and if the 22 problem is trivial, then, yes, you may end up with a -- 23 a desired solution. But if the problem is not that 24 trivial, and then combining may not -- may produce some 25 unin- -- unintended effect or undesirable effect, then

Page 29 1 you may need to tackle that issue. 2 So what I am saying in this case, I cannot say 3 yes or no. Is -- it depends, basically. That's my 4 answer. 5 Q. Got it. So if a person of skill in the art 6 knew that combining two references in a certain way 7 would yield a predictable result, that doesn't tell you 8 one way or the other whether that person would be 9 motivated to combine those references, correct? 10 A. Sorry. Say one more time. I apologize. 11 Q. So if a person of ordinary skill in the art 12 knew that combining two references in a certain way 13 would yield a predictable result, your understanding is 14 that doesn't tell you one way or the other whether that 15 person would be motivated to combine those references, 16 correct? 17 A. Correct. 18 Q. Okay. And if there is a gap in what one 19 reference teaches, would you agree that it might make 20 sense for a person of skill in the art to look at 21 another reference to see how to address that gap? 22 A. Yes. In the real life, yes. 23 Q. Okay. Do you understand that a person of 24 ordinary skill will often be able to fit the teachings 25 of multiple patents together like pieces of a puzzle?	Page 31 (Simultaneous colloquy.) 2 Q. Okay. But I'm focused on your claim 3 construction opinions in paragraphs 20 through 44. And 4 so you provide certain opinions about modules and the 5 proper claim construction of those terms in paragraphs 6 20 through 20 -- through 44 of Exhibit 2029, correct? 7 A. Correct. But I think later I mention about the 8 identifying or desirability -- we mention it in the 9 later part of the declaration. 10 Q. We -- we can get there, and I'll certainly ask 11 about that, sir. But I am just trying to focus on your 12 claim construction opinions right now and just kind of 13 figure out for the record what you are opining on in 14 terms of claim construction. Does that make sense? 15 A. Yes. 16 Q. And so you provide certain opinions in 17 paragraphs 20 through 44 related to claim terms that 18 involve the term "module" as shown in -- for example, 19 you know, paragraph 22 of your declaration. Fair? 20 A. Right. 21 Q. And you don't specifically opine on the proper 22 construction of identifying in the 217 Patent claims, 23 correct? 24 A. In the -- in the claim construction, yes, but 25 later we discuss that.
Page 30 1 A. Yes. 2 Q. And do you understand that familiar items may 3 obvious uses beyond their primary purposes? 4 A. Can you tell -- elaborate a little bit, please. 5 Q. You can't answer that question as it is 6 phrased? 7 A. Could you please re- -- could you rephrase it? 8 Q. Do you understand that familiar items may have 9 obvious uses beyond their primary purposes? 10 A. Okay. I'm sorry, could -- say one more time, 11 if you don't mind. 12 Q. Do you understand that familiar items may have 13 obvious uses beyond their primary purposes? 14 A. Yes. Some cases, yes. 15 Q. Okay. I notice that you provide certain claim 16 construction opinions in your declaration in paragraphs 17 20 through paragraph 44. Do you see that? 18 A. 22 or -- 19 Q. Paragraph 20 through paragraph 44. 20 A. Um-hum. Claim construction, yeah. 21 Q. Okay. You don't provide any claim construction 22 opinions about the identifying limitation, correct? 23 A. No, I think we talk about identifying 24 relationship is missing in other the patents. 25 Q. Okay. But I'm --	Page 32 1 Q. And just so I just -- so the record is clear, 2 when you say "in the claim construction, yes," you mean 3 you don't specifically opine on the construction of 4 identifying in the 217 Patent claims, correct? 5 A. In claim construction, yes. 6 Q. Okay. And you don't specifically opine in 7 rendering your claim construction opinions on the 8 appropriate construction of recipient, correct? 9 A. In the claim construction, yes, I do not say 10 that. But later part we discuss, yes. 11 Q. So later in your report you discuss recipient, 12 but you don't officially opine on what you believe would 13 be the proper claim construction of that term in the 14 claim in the 217 Patent. Fair? 15 A. Yeah, in claim construction you cannot find it, 16 but in the later part of the declaration we discuss the 17 recipients, and we discuss also identifying 18 desirability, those type of things. That's correct. 19 Q. And so, again, I understand you discuss 20 recipient later in your report, but you don't ever 21 provide an opinion about what the proper construction of 22 recipient should be; is that correct? 23 A. An example recipient, we talk about -- you have 24 to give me time to find it where I discuss recipient 25 later part of the patent. I introduce what is the

1 definition of the recipient. Do you want to give me a 2 few minutes? 3 Q. Sure. If you can point me in your report where 4 you provide a construction of recipient, I would 5 certainly like to look at that. 6 A. Sure. I can use the search option, right? 7 Q. Yeah, you should be able to search using 8 control F or command F, depending on your computer. 9 A. Problem is in my PDF, I cannot search. I 10 cannot search, but the PDF has an image. You search in 11 the PDF file or -- just off record I am asking this. 12 Q. I'm able to search in the PDF that we uploaded. 13 I downloaded the same document. I can search. I'm not 14 sure if that helps or not. 15 MR. PADMANABHAN: Are you unable to search? 16 THE DEPONENT: No, it doesn't -- it cannot 17 find -- I can search, but it doesn't find. Problem is 18 this -- my search doesn't work here. 19 MR. PADMANABHAN: Your search doesn't work. 20 Okay. Let me try to get you a -- 21 MR. OHLERT: Do we want to go off the record 22 while we try to figure out this tech problem really 23 quickly, see if we can help him figure out a search? 24 MR. PADMANABHAN: Yes. 25 THE VIDEOGRAPHER: Okay. Going off record at	Page 33 1 paragraph 62. 2 Then 64 -- I think 64, everything -- okay, 64, 3 we try to say a little bit clearly. Page number 24, 4 paragraph 64. Paragraph 64 and page 24 we said, "Every 5 claim of the Patent 217 request electronic 6 communication, including a sender, a sent piece of 7 electronic content, and the recipient." And then we 8 cited Claims 1, 6, 7. 9 BY MR. OHLERT: 10 Q. Is your answer complete? 11 A. No. Then 65 also has a "recipient" at the end. 12 Paragraph 65. 13 And then -- and then paragraph 66 has a 14 "cognate" group where we talk about the recipient. 15 Then 67 has -- under -- a recipient of the 16 place -- "the piece of the electronic content and that 17 is cognate to the user," paragraph 67. 18 Then paragraph 68 has a "recipient." 68 -- 19 Then before paragraph 70, Section VIII, we said 20 "A Second User that is Both 'a recipient' and also is 21 cognate to the First user." And then we try to argue 22 there, why is that. 23 And then 71 has "recipient is one of the steps 24 required..." Okay. So there we try to define what is 25 the second user, and then second user needs to be the Page 35
1 8:19 a.m. 2 (Off the record.) 3 THE VIDEOGRAPHER: Back on record 8:24 a.m. 4 BY MR. OHLERT: 5 Q. Okay. So, Dr. Khan, you should be able to 6 search through your report. Can you identify anywhere 7 else in Exhibit 2029 that you provide claim construction 8 opinions about the term "recipient"? 9 A. Say, for example, page 20, paragraph 51, we 10 talk about key word "sender," "recipient." Then -- then 11 in 52, we said "each piece of electronic content that is 12 sent from a sender to a user. Exhibit 1001, Claim 1, 6, 13 7." 14 Then -- then we underline "a plurality of 15 users." 16 Then 58 we call that -- from the Patent 217, 17 "what is a sender." 18 In 58, we also mention the recipient, which is 19 a part of the Patent 217, Exhibit 1001, Claim 1, 6, 7. 20 Do you see this? 21 Q. Any -- anything else? 22 MR. PADMANABHAN: He wants you to just go 23 through the whole -- 24 THE DEPONENT: Oh, the whole. 25 And then 62 has a "recipient." Then -- Page 34	1 cognate as well as the recipient of the same electronic 2 content that we try to argue. 3 And then 73 we have a "recipient." 73. And 4 then paragraph 73 under bold "most of the recipients 5 reply," we mentioned. Then 73 paragraph, has multiple 6 recipient and recipients were mentioned multiple times. 7 Then -- 8 Q. Sir, can I -- can I just -- I don't mean to 9 interrupt you, but are you just going through your 10 report and listing paragraphs that say the word 11 "recipient"? 12 A. Correct, yeah. 13 Q. Okay. Can you point me to any paragraph where 14 you provide a claim construction opinion as to what 15 recipient means? My question is a little more specific. 16 A. I think -- okay. Claim construction appears on 17 which page? Yeah, in page number -- 18 Q. Your claim construction opinions span 19 paragraphs 20 through 44. 20 A. Okay. That's fine. 20 -- page 20 to 24, okay. 21 Q. Paragraph 20 through paragraph 44. 22 A. Okay. Yeah, in page 32 we talk about 23 recipient -- in paragraph 32. The recipient were 24 mentioned multiple times here, and then -- yeah, I do 25 not send -- let me check what I have send -- Page 36

1 Q. I mean, really what I am looking for, sir, is 2 something akin to, "The claim term 'recipient' means," 3 or, "The claim term 'recipient' should be construed as." 4 Can you point to anywhere in paragraphs 20 5 through 44 of your report where you provide an opinion 6 as to what recipient should mean? Not simply mentioning 7 recipient, but where you actually opine as to what the 8 claim construction of recipient should be. 9 A. And I -- I don't see in the claim construction 10 that way -- the way you want the recipient should be 11 mentioned, that's not the case. 12 Q. So your claim construction opinions in 13 paragraphs 20 through 44 are focused on interpreting the 14 terms of the claims that reference module, correct? 15 A. Yeah. This one focus on the modules and argue 16 that, and then we talk about -- we briefly touch what -- 17 we mention the recipient, we mention the -- those type 18 of things. But we did not define it -- the recipient 19 here. 20 Q. So your declaration mentions the word 21 "recipient," but it never discusses or opines as to what 22 recipient should be construed as in the 217 Patent, 23 correct? 24 A. In the claim construction, that's -- right. 25 But later I showed you that recipient was clearly	Page 37 1 what a sender is in this paragraph, right? 2 A. I -- I -- I think I clearly say what is sender 3 here. Sender means send a piece of -- a sender is 4 sent -- comma, is send piece of electronic content, 5 right. So basically sender will send a piece of 6 electronic content. In that case the person who sends a 7 piece of -- who will send a piece of electronic content 8 will be known as a sender. 9 Q. Your report doesn't actually say that a sender 10 is someone who sent a piece of electronic content, does 11 it? 12 A. But the way we write "a sender, a sent piece of 13 electronic content," my interpretation is here -- from 14 here you can easily understand what a sender means. 15 Q. But that's not true, sir, because your report 16 actually states, "For example, every claim of the 217 17 Patent requires electronic communications, including, 18 quote, 'a sender,' a, quote, 'sent,' quote 'piece of 19 electronic content,' and a quote 'recipient'." Nowhere 20 in that sentence are you providing definitions of those 21 terms, are you? 22 A. Okay. So I thought the -- okay. So there are 23 a couple of arguments here. One argument I want to use 24 here why we don't say -- because this is a very standard 25 definition, so we don't need to define those terms,
Page 38 1 mentioned, "what is recipient, what is sender." Not in 2 the claim construction, but in later part of declaration 3 we clearly state "what is recipient, what is sender." 4 Q. Okay. Can you point me to anywhere in Exhibit 5 2029 where you provide that kind of construction 6 language about what recipient should mean? 7 A. Sure. Yeah. If you go to paragraph 64, there 8 we try to say Patent -- "217 Patent involves system and 9 methods relating to -- or relating to person-to-person 10 communication. For example, every claim of the 217 11 Patent requires electronic communications, including 'a 12 sender,' 'a sent,' 'piece of electronic content,' and a 13 'recipient'." There we mention what is sender, what is 14 recipient, right? 15 Q. I see you mention the words "sender and 16 recipient," but I don't actually see anywhere in 17 paragraph 64 where you explain what a sender or a 18 recipient means. Can you clarify what your answer is? 19 A. So from -- if I read this sentence, I 20 understand that sender means to send the messages, 21 right -- electronic messages. And it will go -- and the 22 recipient will receive the messages, right. Yeah. So 23 that way I -- I interpret it and it is very obvious from 24 this writing. 25 Q. But, again, you don't provide any definition of	Page 39 1 "sender," "recipient," and so on. So that's one 2 argument. 3 Q. Well, sir, I'm not looking for arguments. I'm 4 just trying to establish some very basic facts about 5 what your opinions are. 6 A. Um-hum. 7 Q. And one of those things I'm trying to establish 8 is whether you provide opinions on the construction of 9 recipient and cognate in the identifying limitation of 10 the 217 Patent. 11 And so I didn't see any construction about 12 those terms in paragraphs 20 through 44 of your report. 13 You're now pointing me to paragraph 64, but this also 14 does not seem to have a claim construction. 15 And so my question is simply, isn't it true 16 that your declaration in Exhibit 2029 does not disclose 17 opinions about how to construe recipients or cognate any 18 identifying limitation? 19 A. And also -- and I want to say one more thing. 20 So Patent 217 talks about sender, recipient very 21 clearly, right. So that's why probably we -- we did not 22 define this terminology here. 23 Q. Okay. Sir, is your testimony that you didn't 24 need to provide claim construction opinions about the 25 terms "recipient" and "cognate" in the identifying

1 limitation in the claims of the 217 Patent? Page 41 2 A. No, I did not get it. So what are you saying? 3 Q. Isn't it true that your declaration in Exhibit 4 2029 does not disclose opinions about how to construe 5 "recipient" or "cognate" in the identifying limitation 6 in the claims of the 217 Patent? 7 A. I do not say, "cognate." I said -- "cognate," 8 I don't think we discuss "cognate" here at all at this 9 point. 10 Q. Isn't it true that your declaration in Exhibit 11 2029 does not discuss opinions about how to construe 12 "recipient" in the claims of the 217 Patent? 13 A. In the claim construction only, right? Yes. 14 Q. In your entire report in Exhibit 2029, you do 15 not provide opinions about how to construe "recipient" 16 in the claims of the 217 Patent, correct? 17 A. I -- I -- we tried -- okay. We tried to say, 18 "recipient," many, many times in that -- in the whole 19 declar- -- my declaration. So in that case -- and -- 20 that's why we did -- and -- from the Patent 217, it is 21 obvious that what is sender, what is recipient. And so 22 that's why we did not define those terms. 23 Q. Okay. So you agree you did not provide a claim 24 construction of the term "recipient" in the claims of 25 the 217 Patent, correct?	1 Q. Okay. Let me repeat it for the record. Page 43 2 Strike that. Okay. 3 You agree you did not provide a claim 4 construction of the term "recipient" in the claims of 5 the 217 Patent in Exhibit 2029, correct? 6 A. That's correct. I said, yes. 7 Q. Okay. And you agree you did not provide a 8 claim construction of the term "cognate" in the claims 9 of the 217 Patent in Exhibit 2029, correct? 10 A. I have to check. So you said in the claim 11 construction I did not define the cognate, is that what 12 you are saying? 13 Q. That is true, but I'm also saying this with 14 respect to your entire report. So let me ask the 15 question again so the record is clear. 16 Strike that. 17 You agree you did not provide a claim 18 construction of the term "cognate" in the claims of the 19 217 Patent in Exhibit 2029, correct? 20 A. Give me a few minutes to answer the question, 21 please. So I see "cognate" is mentioned in the 22 paragraph 32, page 16. 23 Q. Is your answer complete? 24 A. Yes. 25 Q. So you pointed to paragraph 32. Where
1 A. I did not discuss -- I'm sorry. I did not? Page 42 2 Sorry, can you say -- 3 Q. You agree you did not provide a claim 4 construction of the term "recipient" in the claim of the 5 217 Patent, correct? 6 A. Correct. 7 Q. And, actually, let me just ask that again 8 because I think I got the question wrong. 9 Strike that. 10 You agree you did not provide a claim 11 construction of the term "recipient" in the claims of 12 the 217 Patent in Exhibit 2029, correct? 13 A. Previously you said "claim construction," 14 right? Now you are saying "in general," right? 15 Q. No. I said claim construction again. Please 16 answer -- please listen to the question. I'll repeat it 17 for the record. 18 Strike that. 19 You agree you did not provide a claim 20 construction of the term "recipient" in the claims of 21 the 217 Patent in Exhibit 2029, correct? 22 A. Are you talking? 23 Q. Yes, I had asked a question. Did you not hear 24 it? 25 A. No, I did not hear it.	1 specifically in your view do you provide a claim Page 44 2 construction of the term "cognate"? 3 A. So we did not define it, but we said what -- 4 what is the cognate to the user -- relevant to the user, 5 right, or similar to the user. So the definition you 6 are looking for, that is not there in the claim 7 construction because some of the terms are standard. 8 Let's say -- you can ask me why don't you do 9 the content construction. Content is a -- is all -- we 10 can -- content is -- I did not mention what -- what is 11 content in the claim construction clearly. But this is 12 a standard term and we have an understanding what does 13 content means. So that is why didn't -- some of the 14 terminology we did not de- -- define it. So we assume 15 that these are standard vocabularies -- we are going to 16 use it. 17 Q. Is "cognate" an industry term that you've ever 18 heard outside of the context of the 217 Patent? 19 A. In the recommendation system people use cognate 20 collaboratively in those terminology terms that they 21 use, yeah. 22 Q. You said, "in the 'something' system." I 23 just -- I don't think I caught it. 24 MR. PADMANABHAN: Recommendation. 25 THE DEPONENT: Recommendation.

Page 45 1 BY MR. OHLERT: 2 Q. So your opinion is that "cognate" is an 3 industry term for recommendation systems outside of the 4 context of the 217 Patent? 5 A. Correct. 6 Q. You've heard the term "cognate" used outside of 7 the context of the 217 Patent? 8 A. Correct. 9 Q. And so your opinion is because it's a term that 10 you were familiar with, you did not need to provide a 11 claim construction as to what that term means in your 12 Exhibit 2029, correct? 13 A. Especially for sender and recipient, yes. More 14 specifically if you say -- you can argue that, Why don't 15 you define "search"? Why don't you define "content"? 16 Why don't you define "sender"? Why don't you define 17 "recipient"? These are the standard vocabularies people 18 use day-to-day life, so that's why we did not define 19 them. But for "cognate" you may argue, so I am not 20 saying -- "cognate" is a rare term. People don't -- 21 people -- we don't use frequently, that's correct. 22 Q. Okay. I am going to ask the question again 23 just because I am trying to get at specifically cognate 24 and not these other terms that you mentioned. So I just 25 want to make sure we have a clean record and we're not	Page 47 1 A. I also mentioned term -- sorry. 2 Q. Sir, I need you to not interrupt my questions 3 so that the court reporter can have a clear record. So 4 I am going to ask my question again, and then you can 5 answer in turn. Do you understand? 6 A. Sure, sure. My apologies. 7 Q. And so you mentioned several terms just now, 8 including "sender," "recipient," "content," and, 9 "cognate," and your position is that you did not need to 10 provide a claim construction of any of these terms in 11 Exhibit 2029, correct? 12 A. No. I said -- okay. I said, "Sender," 13 "recipient," "content," and "search," these are the 14 standard vocabularies, and that people use day-to-day 15 life. So that's why we did not -- in Patent 217 they 16 are mentioned many, many times and define it. So that's 17 why we did not -- my declaration, I did not say or 18 define it -- those terms in the claim construction. 19 That's my position. And, however, with regard to 20 "cognate" to the user -- "cognate," that term is not -- 21 is a rare term. It is only focused on the computer 22 science area in certain field cognate term is used. So 23 that's why the -- it's better to define it in this 24 context, that's correct. 25 Q. And you did not define "cognate" in Exhibit
Page 46 1 talking past each other. I hope you understand -- 2 strike that. 3 So your position is that because "cognate" is a 4 familiar term that you understood, you did not need to 5 provide a claim construction as to the term "cognate" in 6 Exhibit 2029, correct? 7 A. I -- I want to correct my position a little bit 8 with respect to the previous one also. You asked me 9 "recipient," "sender," and then there are additional 10 terms that there are contents search. So these are the 11 standard terms in vocabulary. So people sometimes use 12 frequently in day-to-day life, so that's why my 13 interpretation is we don't need to define or declare 14 those -- come up with a definition for these terms in 15 this declaration. 16 On the other hand, for cognate users, that is 17 more related to the recommendation system are in a -- in 18 certain areas that have been used, so it is not very 19 prevalent in our daily -- daily lives. So that is why I 20 agree with you. "Cognate" -- we need to define it on -- 21 at least clearly say here what is cognate. 22 Q. And I just want to be clear. You mentioned 23 several terms. Sender, recipient, content, cognate, and 24 your position is that for each of these -- 25 (Simultaneous colloquy.)	Page 48 1 2029, correct? 2 A. In the claim construction, that's correct. 3 Q. You did not define "cognate" anywhere in 4 Exhibit 2029, correct? 5 MR. PADMANABHAN: Objection. Rule 611. 6 THE DEPONENT: Let me see whether I define it 7 anywhere. Okay. I found somewhere page -- paragraph 8 66, page number 25, we said "A cognate group consists of 9 user most similar to a given user or recipient." 10 BY MR. OHLERT: 11 Q. And so you define "cognate" as other users 12 considered to be the most similar to the user concerned, 13 correct? 14 A. Yeah. 15 Q. And your position now is that is a claim 16 construction; is that correct? 17 A. No, I'm not saying it is a claim construction, 18 but I'm saying I defined it "cognate" -- what is 19 "cognate." 20 Q. Okay. I'm really just trying to understand a 21 very basic question, which is, are you offering a claim 22 construction of certain terms. Do you understand that? 23 A. Yes. 24 Q. So you would agree Exhibit 2029 does not 25 provide a claim construction of the term "cognate,"

1 correct? 2 A. Yes. 3 MR. PADMANABHAN: Objection. Rule 611. 4 THE DEPONENT: In the claim construction, we 5 did not provide "cognate" definition, correct. 6 BY MR. OHLERT: 7 Q. And your opinions are not trying to opine as to 8 the appropriate claim construction of "cognate" in the 9 claims of the 217 Patent, correct? 10 A. I cannot get that question. Could you please 11 repeat or rephrase it? 12 Q. Your opinions are not trying to opine as to the 13 appropriate claim construction of "cognate" in the 14 claims of the 217 Patent, correct? 15 A. My opinion -- I could not get it. Could you 16 please rephrase it? 17 Q. You are not trying to opine as to the 18 appropriate claim construction of "cognate" in the 19 claims of the 217 Patent, correct? 20 A. Yeah. As I said, I did not define the 21 "cognate," yeah, in claim construction. 22 Q. And so your opinions are not trying to provide 23 claim constructions for either the term "recipient" or 24 "cognate" in the identifying limitation of the claims of 25 the 217 patent, correct?	Page 49 1 you how the cognate user -- what does cognate users 2 means [sic]. 3 BY MR. OHLERT: 4 Q. But didn't you say that the definition in 5 paragraph 66 of "cognate" is not a claim construction? 6 A. Is -- you showed me that claim construction is 7 a separate section, right, in my declaration. It covers 8 certain paragraphs. So it doesn't appear in part of 9 that paragraph, that I meant. 10 Q. And you don't provide a claim construction of 11 the term "recipient" or "cognate" anywhere else in your 12 report noted as Exhibit 2029, correct? 13 MR. PADMANABHAN: Objection. Rule 611. 14 THE DEPONENT: I -- I define -- I try to 15 explain in my declaration in other places, except claim 16 construction, what is recipient, what is cognate users. 17 So that -- that part shows that we are trying to explain 18 recipient and then especially the cognate group of -- we 19 tried to define it in other places except claim 20 construction. 21 BY MR. OHLERT: 22 Q. I see your definition of "cognate" as "other 23 users considered to be the most similar to the user 24 concerned" in paragraph 66. 25 A. Um-hum. Page 51
Page 50 1 MR. PADMANABHAN: Objection. Rule 611. 2 THE DEPONENT: No, I have an opinion. I -- I 3 will express my understanding about this because these 4 are two important concepts the Patent 217 is based on. 5 BY MR. OHLERT: 6 Q. I'm going to ask my question again because I 7 think you missed it -- strike that. 8 Your opinions are not trying to provide claim 9 constructions for either the term "recipient" or 10 "cognate" in the identifying limitation of the claims of 11 the 217 Patent, correct? 12 A. So just forgive me. Say one more time. 13 Q. Your opinions are not trying to provide claim 14 constructions for either the term "recipient" or 15 "cognate" in the identifying limitation of the claims of 16 the 217 Patent, correct? 17 A. In the claim construction, yes. 18 Q. And in your entire report for Exhibit 2029, you 19 are not trying to provide claim constructions for either 20 the term "recipient" or "cognate" in the identifying 21 limitation of the claims of the 217 Patent, correct? 22 MR. PADMANABHAN: Objection. Rule 611. 23 THE DEPONENT: Well, in my report the -- except 24 the claim construction, other places we mention sender, 25 recipient. We mention the cognate user. And I showed	Page 52 1 Q. Is there anywhere else in Exhibit 2029 where 2 you provide opinions as to the meaning of "cognate"? 3 MR. PADMANABHAN: Objection. Rule 611. 4 THE DEPONENT: Okay. Let me see whether any 5 other places contains. Then in 67 we say "Cognate 6 importance is based on purposefully biased examples, but 7 it stills involves the views of significant number of 8 individuals rather than just one user." 9 BY MR. OHLERT: 10 Q. Is that a definition of "cognate," sir? 11 A. No. It is a -- another terminology that is 12 used here, "cognate importance." 13 Q. Okay. I really am focused on a very specific 14 question. I want you to try to answer that question if 15 you can. 16 Strike that. 17 I see your definition of "cognate" as "other 18 users considered to be the most similar to the user 19 concerned" in paragraph 66. Is there anywhere else in 20 Exhibit 2029 where you provide opinions as to the 21 meaning of "cognate"? 22 A. Yeah. Page 69 -- paragraph 69, cognate users. 23 "How the cognate group in general has rated the sender 24 of electronic content." 25 Q. Paragraph 69 is not a definition of "cognate,"

1 is it, sir? 2 A. No. But we try to explain what the cognate 3 user does -- what is the -- when you have the cognate 4 user group, what they will do. 5 Q. So that's getting at a different limitation 6 than the identifying limitation, correct? 7 A. No, I don't agree to that identifying, but 8 okay. Okay. So if you see paragraph 74, "Why 9 identifying 'cognate' users is important." There we 10 said, "a cognate group for a user, based on historical 11 actions. More particularly, for each user, over time, 12 the system may identify a..." 13 Okay. So here I think -- this text is 14 extracted from Patent 217, and Patent 217 clearly say 15 what does "cognate group" means. So here it say, 16 "Cognate group of the n other users regarded as the most 17 similar." So that way -- you're looking for definition, 18 you can find it here. For a user, when you are 19 looking -- when you are looking for a cognate group, and 20 the cognate group will be "other n users who are most 21 similar." 22 Q. Sir, the quote that you are referencing does 23 not say, "cognate users will be other n users who are 24 most similar." You are adding words there, aren't you? 25 A. I am trying to explain -- okay. If you read	Page 53 1 Q. Paragraph 75 discusses that the "217 Patent 2 explains that its relevance analysis engine uses 3 information about the users in the cognate group to 4 calculate values." Do you see that? 5 A. Um-hum, yes. 6 Q. So paragraph 75 is talking about how the 217 7 Patent uses users in the cognate group, it is not 8 talking about how to define "cognate," is it? 9 A. Right. 10 Q. And so I am struggling a bit, sir, because I'm 11 really trying to understand if you provide claim 12 construction opinions about the terms "cognate" and 13 "recipient," and my understanding is you simply don't. 14 And if you don't, that's okay. You can say 15 that. But you keep pointing me to paragraphs that don't 16 do what you're saying they do, and I think that's a real 17 problem. And it's going to make this deposition take a 18 lot longer than it needs to take. These are some simple 19 questions. 20 So I am just going to try to ask a very 21 straightforward question and move on and then hopefully 22 that can be that. 23 A. Sure. 24 Q. Strike that. 25 Your declaration, Exhibit 2029, does not Page 55
1 it, the system that identify a cognate group of the n 2 other users regarded as most similar. 3 Q. Okay. And that's talking about cognate groups, 4 not the meaning of the word "cognate," correct? 5 A. Okay. So "cognate" -- yeah, that's correct. 6 So cognate and cognate -- cognate user is individual in 7 a group -- whatever the multiple users are there. So 8 these are all part of the cognate group, and each 9 individual will be the cognate. Okay, anyway, yeah. 10 Let me see if we have any other clear 11 definition of "cognate" because the cognate comes with 12 the -- let's see. So we define "cognate relevancy," 13 "cognate importance," these are the terms that are 14 there -- in the item 75 you will find it. 15 Q. And by item 75, you mean paragraph 75? 16 A. Yeah, paragraph 75, correct. 17 Q. And so paragraph 75 talks about how the "217 18 Patent explains that its relevance analysis engine uses 19 information about the users in the cognate group to 20 calculate values." Do you agree? 21 A. Which one? Paragraph 74, right? 22 Q. You pointed to paragraph 75 and I am just 23 trying to read from paragraph 75. Do you understand 24 that? 25 A. Yeah. Page 54	1 provide opinions as to the proper construction of the 2 terms "cognate" or "recipient" in the identifying 3 limitation of the 217 Patent claims, correct? 4 MR. PADMANABHAN: Objection. Rule 611. 5 THE DEPONENT: So could you please say one more 6 time? 7 BY MR. OHLERT: 8 Q. Your declaration, Exhibit 2029, does not 9 provide opinions as to the proper construction of the 10 terms "cognate" or "recipient" in the identifying 11 limitation of the 217 Patent, correct? 12 A. Not in the claim construction? Did you change 13 the wording or -- 14 Q. I'm really trying to say the exact same 15 question over and over again, sir. So let me repeat it 16 again and let's see if we can get an answer. 17 Strike that. 18 Your declaration, Exhibit 2029, does not 19 provide opinions as to the proper claim construction of 20 the terms "cognate" or "recipient" in the identifying 21 limitation of the 217 Patent, correct? 22 A. That's correct. 23 Q. Okay. Let's take a break and let's reset. 24 MR. OHLERT: So can we go off the record? 25 MR. PADMANABHAN: Sure. Page 56

Page 57 1 THE DEPONENT: How many minutes? Five minutes? 2 MR. OHLERT: What do you need? Well, let's go 3 off the record first. 4 MR. PADMANABHAN: Let's take a 10-minute break. 5 MR. OHLERT: Let's go off the record. 6 THE VIDEOGRAPHER: Going off the record at 7 9:08 a.m. 8 (Off the record.) 9 THE VIDEOGRAPHER: Back on record at 9:19 a.m. 10 BY MR. OHLERT: 11 Q. Okay. Dr. Khan, I am uploading an exhibit to 12 the Chat. Can you tell me when you have that open? 13 A. Sure. 14 Q. Do you have it open? 15 A. I am opening, yeah. Yeah. 16 (Exhibit 2002 was marked for identification.) 17 BY MR. OHLERT: 18 Q. Okay. And you recognize this as EX2002, which 19 is your CV submitted in this matter? 20 A. Sure. 21 Q. And this is dated February 15th, 2025. Do you 22 see that? 23 A. Um-hum. 24 Q. Is that a "yes"? 25 A. Yes.	Page 59 1 (Simultaneous colloquy.) 2 Q. Did you write a thesis as part of your Ph.D.? 3 A. Yes. 4 Q. What was your thesis in your Ph.D. program 5 about? 6 A. Okay. So that was a long time ago, but it was 7 ontology-based information selection. So basically -- 8 you want to know more or just title? 9 Q. Well, let's try this. Was your thesis as part 10 of your Ph.D. program related to determining the 11 relevance of electronic content? 12 A. Yes. To some extent, yes. 13 Q. Okay. So can you explain how your thesis 14 related to determining the relevance of electronic 15 content? 16 A. Okay. So in this case, we call a lot of news 17 articles from the various sources, and then we try to do 18 some search using traditional search engine type of 19 things. So you search, but the problem with the 20 traditional search, you specify that QR -- let's say you 21 are -- you want to know the basketball scores. What 22 happened today in the basketball games, so you want to 23 know the news articles about that. So then if the 24 articles content keyword basketball, then only those 25 articles would be reaching.
Page 58 1 Q. Have you had any changes to your employment 2 since you prepared this CV? 3 A. No, my employment remains the same. 4 Q. You are a professor in computer science at the 5 University of Texas, Dallas, correct? 6 A. That's correct. 7 Q. And you have taught in some form of that role 8 since September 2000; is that correct? 9 A. September -- yes, since September 2000. Yes. 10 Q. Have you been a full-time professor that entire 11 time between September 2000 and now? 12 A. Yeah, I'm always full time. 13 Q. Okay. And so there's been no change in your 14 title between September 2000 and now? 15 A. Correct, yeah. 16 Q. Okay. You received your Ph.D. in computer 17 science from the University of Southern California in 18 August of 2000, correct? 19 A. Correct, yeah. 20 Q. And in case you want to follow on, I'm just 21 looking at page 2 of your CV, okay? 22 A. You said page 2? 23 Q. Yep, page 2. It starts with "Professional 24 Narrative." 25 A. Okay. Yeah.	Page 60 1 So -- but the problem is, this keyword-based 2 matching may not work very well because there is -- 3 sometimes people use -- in the articles use word that -- 4 or basketball team in the U.S., they have various 5 league, right. If I remember, national basketball 6 league, college basketball and so on. So in that case 7 those articles, if they don't have the keyword 8 basketball, but they are talking about something else 9 that are relevant in a similar [inaudible], so using 10 similar keyword, but that talks about basketballs, in 11 that case those articles will be missed. So that recall 12 it -- recall would be hard in that time. In an 13 information database there is a term called "recall." 14 The relevant documents may not be retrieved in this 15 case. So in that case, we are -- the quality of the 16 result may be poor in case of when you do that 17 traditional QR-base search. 18 So we try to improve that search with the help 19 of injecting additional terms -- similar terms. So 20 basically we expand the queries to additional terms and 21 that way we try to import the recall. But there is a 22 danger when you recall -- when you try to include the 23 recall or get more relevant documents, you may get some 24 junk also. That is actually called precision. 25 So you can improve the recall at the expense of

1 precision that we observe. So we try to balance between 2 these two with the help of the knowledge-base of 3 onotology. So with the help of onotology, we try to 4 show that we can actually very high quality results, 5 more precise results, less junk. At the same time, you 6 will get more relevant documents. So, in other words, 7 precision and recall -- what usually when improve the 8 precision, recall goes down. 9 But in our case, I showed that when it used the 10 ontology-based information selection, this will help us 11 to improve the precision as well as recall. So we may 12 have a better quality result. That we try to 13 demonstrate, and there we do some query expansion for 14 that, and then we develop some prototype for 15 demonstration to show it, but not only for that text 16 data, but also for the image -- audio data based on the 17 transcription of the audio. 18 Q. And so I want to try to break that down a 19 little. Your thesis at a high level relates to using 20 knowledge-based onotology to improve search queries. Is 21 that fair? 22 A. Correct. 23 Q. What is knowledge-based onotology in your own 24 words? 25 A. That's a very good question. So	Page 61 1 to match it with this knowledge-based various concepts. 2 And then some of the concepts might be expanded to get 3 additional terms, and then those additional terms would 4 be added in the search QueryDom -- as part of the 5 QueryDom, and then we will do the search. And for 6 searching we use a database system and the term 7 "database" was very popular. 8 So this way we try to demonstrate with the 9 knowledge-based we can improve the quality of the result 10 by utilizing -- by balancing between precision and 11 recall. 12 Q. And -- 13 A. Yeah. 14 Q. Sorry, I didn't mean to interrupt you. Please 15 go ahead. 16 A. The core -- the main contribution was coming 17 from this knowledge-based because 18 knowledge-based actually -- if I have a very good 19 quality knowledge-based, then that is our main floor. 20 Sorry, go ahead. 21 Q. Okay. So is it fair to say that 22 knowledge-based onotology essentially recognizes that 23 concepts and knowledge are arranged in a certain 24 hierarchy and it tries to go to related concepts to 25 suggest better search terms to refine search queries? Page 63
1 knowledge-based, my case was talking about -- let's say, 2 you can think about particular domain. You want to come 3 up with all the high level concepts. So as far as 4 sports, we may have football -- American football, then 5 we may have a basketball. We may have a -- we may have 6 a soccer. So these are the popular sports. So we will 7 have the -- under the sports, these are the second level 8 concepts we call it, and there will be -- and then think 9 about American football. American football, they have a 10 college football, they have a national league. So these 11 are the subclass of the -- of football concepts. So 12 this way we go -- we build a hierarchy of the taxonomy 13 and then bottom you may have other -- bottom of this 14 hierarchy, you may have some of the -- the -- the teams 15 and then also some -- in the teams, some players play, 16 so we have the players' name would be there. So this 17 way the taxonomy and knowledge-base will be constructed. 18 And the root will have the sports and then under the 19 sports we have all this -- all this high-level concepts, 20 and then go to the lower level, you may have a more 21 finer grain concepts and so on. And at the bottom, you 22 may have the -- all this team sports, team college 23 football team, and their members would be maybe the 24 players. So that way the taxonomy will be constructed. 25 Now, when the query comes, the query will try	Page 62 1 A. Correct. 2 Q. Okay. And your thesis basically observed that 3 suggesting too many search queries can actually create 4 negative results, and so you were trying to find a 5 balance between identifying high-quality terms that you 6 could add that would compliment the results and not 7 steer you in the wrong direction. Is that fair? 8 A. Correct. 9 Q. Okay. And your CV refers to your research into 10 Big Data Analytics. Would this be an example of Big 11 Data Analytics? 12 A. When I graduated a long time ago, at that time 13 there was no concept called Big Data, but it was -- you 14 can see -- we considered not only text, we also 15 considered the audio transcription. So in that regard, 16 we can say that at that point it was Big Data, but now 17 Big Data definition is so broad. So the data said we 18 consider it was -- if you consider now it might be -- 19 you may think about it as medium-sized data. It's not 20 that big. But over time -- nowadays it was -- nowadays 21 Big Data definition is very broad. 22 Q. Okay. So your thesis wouldn't necessarily fall 23 under the umbrella term "Big Data Analytics"? 24 A. No, it falls under the -- if you consider the 25 audio, yes, it falls under the Big Data, and it also Page 64

Page 65 1 falls under the intersection of database and AI. 2 Q. Okay. And I guess -- can you tell me a little 3 bit more about the difference between these teachings as 4 applied to text versus audio and video? 5 In other words, how were you able to adapt this 6 system that was focused on text to also deal with audio 7 and video at the same time? 8 A. You mean my -- my work at that time? 9 Q. Yeah. I mean, we've been talking about your 10 thesis specifically. 11 A. Okay, yeah. So that's a very good question. 12 So I'm talking about 2000, right. So at that -- at that 13 time people mostly do not touch the -- the audio signal 14 that much. So they -- I -- I remember there was some 15 product that converts the audio into text. Basically a 16 transcription was generated and it was not very high 17 quality, but -- and then we work on that text from our 18 end to produce -- to make -- to show that the -- the 19 information selection will work not only for the text 20 domain, it can work on the audio domain. 21 But nowadays -- and with regard to the images, 22 we rely only on the metadata, you can think about. It's 23 not the -- based on the content of the images. We don't 24 ask that the raw pixel level features and so on. We 25 rely on the metadata. Metadata, you can think about	Page 67 1 based on the shared keywords. 2 Now, with the queries -- or with the -- the 3 description of the -- of other keywords have to be in 4 the document itself. Now, if you consider the audio 5 domain of the image domain, then we will go beyond that 6 text, in that case onotology needs to be revised or 7 needs to be customized for the audio or the image 8 domain. So that will be new direction I think some 9 researchers should pursue. 10 Q. And so I want to just break that down a little 11 so that I understand. 12 Strike that. 13 In 2000 when you were developing your thesis, 14 you had a good understanding of how it applied to text, 15 and then one of the ways you expanded that to audio and 16 images was to use a transcription program for the audio 17 to convert that to text, and then for meta to use 18 metadata for imagings, which is also a form of text. Is 19 that fair? 20 A. Right. That's correct, yeah. 21 Q. And the transcription program that you used, it 22 wasn't very good, but it was something that existed at 23 the time, right? 24 A. Correct. 25 Q. And so in 2000, there were conventional
Page 66 1 that -- the image creation time, what the image 2 describes, that some of the annotated keywords that 3 would be used for this case. 4 Q. Okay. 5 A. And -- 6 (Simultaneous colloquy.) 7 A. Yeah. 8 Q. Sorry. Are you -- I can let you continue if 9 you have more to say. 10 A. Yeah. So, but over time after 2000, I think, 11 Deep Learning came into play and now image analysis is 12 very robust. You can come up with a very good 13 description of the images, and then they are the -- some 14 then -- even nowadays you can do image-to-image search 15 is possible. So various things are possible nowadays, 16 which has been significant improvement happens. 17 So what I am trying to say, some of this -- the 18 idea I develop that might be very applicable for the 19 text domain, but if you want to apply it now for the 20 audio or the images domain, then you may need to 21 consider the -- extend the onotology beyond the text. 22 The onotology needs to be extended for the audio domain 23 and the video domain. Because the concepts we 24 double-up, and those concepts has some textual 25 description or the text, keywords. So matching is done	Page 68 1 programs that could help translate audio into a textual 2 environment, fair? 3 A. Fair. 4 Q. Okay. And so just going back to your CV, it 5 says next that you received your master's also from the 6 University of California in 1996; is that right? 7 A. Yeah. In '96, December. 8 Q. And did you have a thesis as part of your 9 master's degree? 10 A. No, I don't. 11 Q. Okay. Do you recall if you studied any 12 specific subjects as part of your master's degree? 13 A. Yeah. I took database class. I took AI class. 14 I took computer network class. I took -- I took some 15 NLT classes, natural language classes, I think -- class. 16 Q. Okay. So you took -- 17 Okay. One more thing. And I did -- I was 18 working as a research assistant. So I work with some 19 professors at that university there at -- called 20 Information Sciences University of Eyesight. There I 21 did some work on the -- basically is it -- some sort of 22 NLP domain. I processed a lot of text document there, 23 which is not part of the thesis, but as a part of my 24 research assistant work. 20 hours per week I did some 25 work.

Page 69 1 Q. Okay. And so you took a few different computer 2 science classes as part of your master's degree, but 3 it's not like you were focused on one particular subject 4 area that was a through line through your program, 5 right? 6 A. Not -- in the U.S., I think the master's 7 program, especially in computer science, you have to 8 take certain classes, and then -- and basically you have 9 to increase your breadth. And then once you have a good 10 understanding, then you will choose -- you may go for -- 11 you may graduate or without -- without thesis or you may 12 go for Ph.D., or you can do master thesis also. 13 So what happened in my case after one year, I 14 came -- I started as a master's student, that's correct, 15 in 1995. And then in '96, fall, I switched to -- I got 16 a Ph.D. admission, and then -- and I started to do the 17 Ph.D. -- Ph.D. research and taking classes. At the 18 beginning it was not that much research, but more taking 19 classes and do research into the professor, not like 20 thesis type of thing. 21 And then -- then in 2000 I graduated. And the 22 last few years, I was busy with doing the research, 23 those type of things I did. 24 Q. And so -- just so we're on the same page. As 25 part of your master's degree, you weren't focused on any	Page 71 1 Ph.D. started in '96 fall. So you can say August or 2 September '96, I started my Ph.D. But at USC, you 3 can -- when you achieve 27 credited hours, you can claim 4 your master's degree. So I just claimed my master's 5 degree by course work. But it's not correct to say that 6 I did not focus on the -- I -- I took classes that are 7 relate to my research to prepare me for better 8 research -- that I'm trying to say. 9 Q. So your testimony is that your master's program 10 essentially wrapped into your Ph.D. program, such that 11 your studies as part of your master's program would have 12 generally been directed to the same subject area in 13 computer science that your Ph.D. was directed to; is 14 that correct? 15 A. Ph.D. is directed to? Is directed to? Sorry, 16 I couldn't get it. Can you say one more time? 17 Q. So your testimony is that your Master's program 18 essentially wrapped into your Ph.D. program, such that 19 your studies as part of your master's program would have 20 generally been directed to the same general area of 21 computer science that your Ph.D. was directed to, 22 correct? 23 A. Can you rephrase it? It's a little bit 24 difficult to -- 25 Q. Yeah, I'm sorry. I'm not trying to be tricky
Page 70 1 particular subject area that was a through line through 2 your program, right? 3 A. I'm saying in order to do the research, you 4 have to take certain classes. So I took database. I 5 took NLP. I took -- okay. So I remember now. I took a 6 multimedia class also and user interface class. So this 7 helps me or shape me to conduct the researching later 8 years. 9 Q. I understand that, sir. I'm just -- I'm really 10 trying to get at something simple, which is, was your 11 master's program a general master's degree, or was it 12 focused on some particular aspect of computer science? 13 A. So that is a -- they call it the fact. So you 14 can say I focus on -- because my research was -- my 15 thesis was related to database and information area and 16 AI area. So I took some classes, AI and database, and 17 then multimedia area, and NLP area. So in that -- in 18 that sense -- and in 2000 -- in computer network or 19 network was very popular topic, and at that point I 20 focus more on the -- this domain database AI and NLP. 21 So you can see that my -- I -- I took the classes 22 related to my research. 23 Q. Well, I thought you said you didn't do a thesis 24 as part of your master's program? 25 A. Right. But I said I started -- my official	Page 72 1 here. I'm just trying to get it. Was your master's 2 program directed at a specific program? So you can have 3 a master's in AI. You can have a master's in 4 networking. 5 A. Okay. 6 Q. You can have a master's in low-level computer 7 -- 8 A. Because -- (Simultaneous colloquy.) 9 Q. Sir, sir, sir, please don't speak over me. 10 And so my question is, was your master's 11 program directed at any specific area in computer 12 science? Yes or no? 13 A. No. This is traditional computer science. 14 Q. It is just a normal master's program. It 15 wasn't directed at anything specific. Fair? 16 A. Correct. 17 Q. Okay. Have you ever authored a paper 18 discussing collaborative filtering? 19 A. Paper on collaborative filtering? Let me 20 think. I use collaborative filtering, one of the -- one 21 of my paper, but I couldn't remember now if they had, 22 and I taught a class at University of Texas at Dallas 23 called Big Data Management and Analytics. There is at 24 least two, three weeks I spent on the collaborative

1 filtering to discuss. And collaborative filtering has 2 various associated content -- content-based 3 collaborative design. I'm sorry, I made a mistake. Let 4 me rephrase it. 5 So I -- I -- I'm teaching a class called Big 6 Data Management and Analytics at UTD. There I cover 7 recommendation system. And part of the recommendation 8 system we cover content-based filtering. We cover 9 collaborative filtering. We cover latent factor model, 10 which is widely used now in the industry. So these are 11 the topics I cover in details, and then we give homework 12 and so on. 13 And with regard to collaborative filtering for 14 my research, I think that I use it one time in -- for 15 some problem setting, just collaborate filtering to 16 improve the quality of the result for certain problems. 17 But I could not remember on which paper and which year 18 at this point. But I remember I used that -- that 19 technique in my research. 20 Q. So you have authored at least one paper 21 discussing collaborative filtering, but you can't 22 specifically recall what that was? 23 A. Yeah. If you will give me time, then I can 24 pull up, but it may take time to look. 25 Q. Do you recall approximately what period of time	Page 73 1 compare it with the latent factor model, which is the 2 new model, based on the metrics of the composition. 3 Q. Is it fair to say that collaborative filtering 4 can be applied to a variety of kinds of electronic 5 content? 6 A. Yes. 7 Q. Is there anything about collaborative filtering 8 that suggests it needs to be applied to textual 9 electronic content versus audio or video or some other 10 kind of electronic content? 11 A. So the collaborative filtering doesn't go with 12 the content. It goes with the -- the -- the user or 13 the -- what feedback user gives on that item. So in 14 that case it doesn't matter whether you use the -- the 15 image or the -- or the text, as long as it's the item -- 16 if you have the users of the item, then collaborative 17 filtering can be used, yes. 18 Q. So when you say collaborative filtering doesn't 19 go with the contents, is it fair to say that 20 collaborative filtering is agnostic about the kind of 21 electronic content it's being used with? 22 A. But I saw -- okay, yeah. I saw -- there are 23 two definitions. One is people talk about collaborative 24 filtering, they entirely ignore the content. They focus 25 only on the users of the items. If the two users give Page 75
1 that paper would have been authored? 2 A. No, not very recently. At least 15 years ago. 3 Q. Okay. Would it be fair to say closer to 2005 4 or 2010? 5 A. Between 2005 and '10. 6 Q. Okay. And you can't think of any other papers 7 that you've ever authored that relate to collaborative 8 filtering, fair? 9 A. That's correct. 10 Q. Okay. And you mentioned a course on Big Data 11 Management and Analytics, correct? 12 A. Correct. 13 Q. And as part of that course, you spent two to 14 three weeks on collaborative filtering, right? 15 A. We talked about -- we talked about 16 recommendation system, and there -- you know, that 17 recommendation system can be built in various ways. One 18 is the content-based recommendation. The other one is 19 collaborative filtering, then latent factor model. 20 Then for collaborative filtering you can do 21 the -- user either collaborative filtering or itemize 22 collaborative filtering. So we cover all of these 23 details and then we give some homework to the students 24 to solve some of that problem, writing code, and then 25 show the results of the collaborative filtering and Page 74	1 the same rating, and then -- then probably there will be 2 the -- there will be in the same group because due to 3 the similarity, same rating they are providing over 4 history data and over historical items. They will 5 belong to the same group, and they will be connect to 6 each other. And I saw sometimes people also utilize 7 similarity calculations that sometimes utilize the 8 content also. But in general the true sense 9 collaborative filtering doesn't rely on the content. 10 Q. Well, I guess -- sorry. I am trying to 11 understand. Maybe I will just try to ask a simple 12 question and see if we are on the same page. 13 Strike that. 14 You would agree that collaborative filtering 15 can be used with any kind of content. It's not 16 dependent on a specific kind of electronic content, 17 right? 18 A. Yes. 19 Q. Okay. Let's look at page 3 of your CV. And 20 this lists several articles that you have selected; is 21 that correct? 22 A. Yeah. I think these are more recent 23 publications. Nothing -- so I -- you can see here all 24 this 2024 publication, but I have with some classical 25 paper that are earlier publication that aren't listed Page 76

Page 77 1 here. 2 Q. Got it. So, for instance, the article you 3 referenced from 15 years ago about collaborative 4 filtering, that is not going to be listed on your CV? 5 A. Correct, yeah. I think it is a short CV or 6 this is the most recent one, last year's CV. I mean, 7 2024, whatever I publish, listed here on the 8 publications. 9 Q. Okay. Let's -- 10 (Simultaneous colloquy.) 11 Q. Let's jump to page 5 of your CV. 12 A. Yeah. 13 Q. And this says you have three patents. 14 A. Correct. 15 Q. And actually -- you know, what, sorry. Is it 16 three patents or four patents? 17 A. I saw three. 18 Q. Well, I see at least three patents, and then I 19 see a reference to Serial Number 10902468. Do you see 20 that? 21 A. Right. 22 Q. Is that Bullet Point D identifying a patent or 23 something else? 24 A. I think we got temporary patent or something, 25 and then it was not -- we did not pursue for that, I	Page 79 1 A. Yeah. 2 Q. Okay. I'm going to upload a new document to 3 the chat. This is the 217 Patent, which is stamped 4 Exhibit 1001. Can you let me know when you have that 5 open? 6 A. Yeah, it is open. 7 (Exhibit 1001 was marked for identification.) 8 BY MR. OHLERT: 9 Q. Okay. And actually, you know what, before I go 10 into this, I just want to make sure I close the loop. 11 That Bullet Point D, you're not sure if that's a patent 12 or not, but that also doesn't relate to determining the 13 relevance of content, fair? 14 A. No. 15 Q. No, as in you agree it doesn't relate to 16 determining the relevance of electronic content? 17 A. (Reading to self.) Yeah. Yes, correct. 18 Q. Okay. So then turning to the 217 Patent, 19 what's the purpose of the invention of the 217 Patent? 20 A. Okay. So as related from the declaration or 21 you in general want to know? 22 Q. I'm just saying at a high level, in your own 23 words, what is the purpose of the invention of the 217 24 Patent? 25 A. Okay. So 217 Patent focuses on the -- the
Page 78 1 think. 2 Q. The -- 3 (Simultaneous colloquy.) 4 THE DEPONENT: D, I could not recognize now. 5 BY MR. OHLERT: 6 Q. So as far as you're aware, you only have the 7 first three patents mentioned -- 8 A. Right. 9 Q. -- in Bullets A, B and C? 10 A. Correct. 11 Q. Okay. Do any of these patents relate 12 specifically to automatically determining the relevance 13 of content to users? 14 A. So B doesn't -- B talks about data mining and 15 machine learning, so it's not in that. 16 And then C talks about cyber security domain, 17 whether that vulnerability exists or not. 18 And then A, Systems and Methods for determining 19 -- it is more of -- A, is more focused on the social -- 20 social media, finding the location for the -- for the 21 social media user. So it is nothing -- 22 Q. Okay. 23 (Simultaneous colloquy.) 24 Q. So these patents are different than determining 25 the relevance of an electronic content, right?	Page 80 1 personal communication system between user to user. 2 So -- and when user receives an e-mail message, we want 3 to arrange those e-mail messages in a certain order so 4 that user will get that most relevant one user is 5 looking for. And for that, the patent relies on that 6 ranking process. There's a two-step ranking here before 7 the user gives the feedback pre-rating evaluation, we 8 call it. And it then post-rating evaluation, after user 9 gives their feedback, they will re-rank the list. 10 And during this ranking process, they consider 11 multiple factors. One is the -- the local relevancy, 12 global relevancy, then augment users. And those in the 13 calculation, local relevancy, all of this contributes. 14 And the main contribution of this Patent 217 is 15 that the -- when the ranking, they can't see not only 16 the content of the message, how important based on the 17 ranking will be carried -- not be carried out only, it 18 will be based on the -- it will be based on the -- how 19 important the user in the organization. Then also based 20 on the cognate users those were the recipient of the -- 21 of the same content as well as the -- similar to that -- 22 the users that we are talking. 23 So this way the ranking process will be -- 24 ranking process will take into consideration those 25 factors. And it is interesting that the patent talks

Page 81 1 about those things in details and show some situations 2 how to solve it, and then -- and I think that -- the 3 ranking process doesn't consider only on the content, it 4 doesn't consider only on the simple correlations, and so 5 on. It considers various factors. 6 Q. Okay. So let's break that down. At a high 7 level, you would agree the 217 Patent is generally 8 related to determining the relevance of electronic 9 messages, right? 10 A. Yeah, e-mail. Yeah. 11 Q. And so you think the 217 Patent is specific to 12 e-mails only, right? 13 A. Yeah. It focuses on the -- the -- it focuses 14 on the e-mails, but the approach -- the domain is 15 e-mail, yes. 16 Q. What in your view is an e-mail? 17 A. E-mail means electronic messaging system. So 18 you send -- in this case I think they are focusing also 19 within the organization how the e-mail system -- e-mail 20 messaging system will be managed, how all these e-mails 21 will be managed, how they will be ranked. That's their 22 main focus within the organization. 23 Q. And so e-mail to you means electronic message, 24 right? 25 A. Correct.	Page 83 1 Q. And so the 217 Patent isn't going to be 2 implicated for more generic messages that are sent 3 without those kinds of e-mail fields. Is that your 4 testimony? 5 A. Can you -- [audio distortion] Can you say it 6 one more time? 7 Q. And so the 217 Patent isn't going to be 8 implicated for more generic electronic messages that are 9 sent without those kind of e-mail fields. Is that your 10 testimony? 11 MR. PADMANABHAN: Objection. Rule 611. 12 THE DEPONENT: No. I think it -- it can be 13 extended for other domain also. 14 BY MR. OHLERT: 15 Q. Okay. So it is not specific to those kinds of 16 e-mails then? 17 A. Right. From the case studies, they use e-mail 18 system, yes. 19 Q. Okay. But the 217 applies generally to any 20 kind of electronic messages, right? 21 A. As long as you have a sender and a recipient 22 and then -- yes, then it should work. 23 Q. Does the sender need to be a human? 24 A. That's a good question. Let me think. Can you 25 give me one or two minutes, just let me check the
Page 82 1 Q. Is there anything about that electronic message 2 that makes it an e-mail? 3 A. So can -- can you say one more time your 4 question? 5 Q. Is there anything specific about an electronic 6 message that makes it an e-mail? 7 A. So there will be a sender who sends the 8 message. There will be a recipient who receives the 9 messages and the message will have some content and the 10 message -- and the recipient will have some -- some role 11 in the organization. Then there will be some -- the 12 setting as in this case, there will be some associated 13 or cognate users. Those are relevant to the recipient, 14 those type of things, the re -- the function as to -- of 15 the... 16 Q. Okay. So when I think of an e-mail like in my 17 Outlook system, I think of something that has a "To" 18 field, a "From" field, maybe a "CC" Or a "BCC" field, a 19 "Subject" field, and then generally a message body. 20 Is that what you are referring to when you say 21 e-mail or are you referring to something more generic? 22 A. No, that's correct. 23 Q. So that -- that's the kind of e-mail you are 24 referring to? 25 A. Right. Right.	Page 84 1 question. 2 Okay. So as here we talk about some of the 3 user actions, how much time user spends, whether the 4 user read the messages or deleted the messages. So if 5 you -- I think -- nowadays we can simulate those actions 6 by robot or soft robot, that's possible. But at that 7 time it is impossible to simulate those actions by -- by 8 -- by automatic or without humans. So that's why at 9 that point, yes, human is required. Human needs to be 10 the sender. 11 Q. Okay. I just want to make sure I understand. 12 Your opinion is that sender in the claims of the 217 13 Patent needs to be a human, right? 14 A. Not necessary sender, but I am talking about -- 15 let's -- recipient -- okay. 16 So if you see in the Patent 217, column 31, 32, 17 that talks about some of the user actions and they 18 captured those using some equations. And in that 19 equation, the man mentioned that how -- how much time 20 user -- especially, I think the recipient -- how much 21 time spend to delete the message, or whether the user 22 deleted the message, or how much time he spends to read 23 the message, or what is the user actions. So that type 24 of actions would be taken into consideration in that 25 because if you see situation 30 -- I'm sorry. Column

Page 85 1 32, Row 30, there is an equation that captures all of 2 these actions or behaviors. So -- and my argument is at 3 that point in 2005 or '6, it was not easy to assimilate 4 those actions by a non-human -- by a non-human. So the 5 recipient needs to be -- definitely needs to be human 6 yes. 7 Q. Okay. So my question was about the sender 8 actually. Does the sender in the claim of the 217 9 Patent need to be a human? 10 A. Okay. So that -- the way the patent was 11 written, the sender needs to be human also. But let's 12 say if somebody is sending a lot of junk messages, in 13 that case -- because the sender has some reputations or 14 will play some role here in the equation; so the shared 15 importance values where the sender will play a role. If 16 you are the recipient, if you are getting messages from, 17 say, important sender from -- from your -- from my boss, 18 then in that case I -- we should get the higher value in 19 the ranking process. So that type of thing, we need to 20 capture it. 21 And now you're saying if it is -- in that case 22 eventually, if it is not a human -- let's say some 23 spammer wants to send the messages, then this value will 24 go down over time, and then -- and it will be bottom of 25 the list.	Page 87 1 A. Right. So -- but in this case, the -- at the 2 beginning of the -- during the ranking process, the 3 system may not have any knowledge about that -- as to 4 that, the global ID values. They call it sender ID. 5 The importance of the senders in the global level, so it 6 will be initialized some -- there are small values or 7 some random values. But over time the system will 8 figure it out that this value should not go up, it 9 should go down. But other cases -- let's say it does. 10 If the human is sending mail and a human plays some 11 role -- important role in the organization, then his 12 e-mails should come at the top of the list. 13 Q. So you agree a spam bot sending e-mails is not 14 a human, right? 15 A. Yeah, it is not human. But I am saying -- 16 Q. And I'm just -- I'm just trying to understand 17 your answers. I think you've said some things that are 18 inconsistent, so let me just ask these questions and see 19 if I can figure out what you are trying to say. Okay? 20 Strike that. 21 I believe you just testified that a sender in 22 the claims to the 217 Patent needs to be a human. So 23 are you changing that testimony or are you -- 24 A. Yes. 25 Q. -- standing by that testimony?
Page 86 1 But in general, the sender needs to be -- 2 because sender importance is important here to play a 3 role, and sender needs to be also human in general. 4 Q. You just referenced I believe a spam bot 5 sending the e-mails. Is that the kind of electronic 6 content that could meet the claims of the 217 Patent? 7 A. Yeah, I think so, because eventually those will 8 be -- because the ranking process will take care of it 9 and those spammer e-mails -- if the sender is a spammer, 10 and eventually the system will learn that spammer -- the 11 spammer will get lower weight, and will be -- will be -- 12 his e-mail will be downgraded and will be -- will not be 13 in the top of the list. Keep in mind that this -- that 14 both approach works, Patent 217 in a surrogate manner. 15 At the beginning the 217 will try to learn some of those 16 ways and over time, once he learn it, then over time he 17 will be able to figure out the spammer. At the 18 beginning, it might be problematic, that's true. But 19 over -- over -- when the system becomes stable, when 20 many users are giving feedback, actions will record it. 21 At that point, yes, the spammer will be 22 identified or will be at least -- the spammer e-mail 23 will come at the bottom of the list. 24 Q. The spam bot sending e-mail is not a human, is 25 it?	Page 88 1 A. Yes, I'm changing it. I'm saying the ideal 2 case needs to be -- a sender needs to be human, that 3 way -- but even if it is not a human, so there -- there 4 is a mechanism where spammers can be downgraded and then 5 will be -- the spammer e-mail will come at the bottom of 6 the list during the ranking process. And the spammer 7 not necessarily human, it can be -- it can be a robot 8 or -- then still this algorithm will be able to figure 9 it out. 10 Q. And so your testimony is actually that sender 11 in the claim of the 217 Patent does not need to be a 12 human, correct? 13 A. Even if it is not human the approach will work. 14 COURT REPORTER: I'm sorry. Could you repeat 15 the end of your answer? 16 THE DEPONENT: I'm saying the Patent 217, the 17 way the sender was mentioned, it should be a person in 18 the organization. But even if it is not a person, it is 19 still that person's work, and then if it is a spammer -- 20 the sender is a spammer, then there is -- his or her 21 e-mail would be -- or the software or whatever the robot 22 generates, that e-mail will be downgraded in the ranking 23 process. 24 BY MR. OLHERT: 25 Q. And just to be clear, your testimony is that

1 sender in the claims of the 217 Patent does not need to 2 be a human, correct? 3 MR. PADMANABHAN: Objection. Rule 611. 4 THE DEPONENT: Sorry. Can you say, sir. 5 BY MR. OHLERT: 6 Q. Your testimony is that sender in the claims of 7 the 217 Patent does not need to be a human, correct? 8 A. Correct. 9 Q. Do you think the 217 Patent was the first 10 patent to try to address clutter of e-mail inboxes? 11 A. Probably not. 12 Q. Do you think other patents since the 217 Patent 13 have tried to also address clutter of e-mail inboxes? 14 A. Yes, I think so. 15 Q. Would you agree that problems associated with 16 cluttered e-mail inboxes have been solved even today? 17 A. Have been solved? Are solved? 18 Q. I am trying to understand, is it your opinion 19 that problems associated with cluttered e-mail inboxes 20 have been solved? Yes or no? 21 A. No. 22 Q. And that's true even today? 23 A. Correct. 24 Q. And so e-mails in your inbox being cluttered, 25 and the difficulty of finding relevant e-mails, that's a	Page 89 1 Q. Improving, but you agree it's still a problem 2 that persists even till today? 3 A. To some extent, yeah, might be. 4 Q. Okay. Let's focus on column 1 of the 217 5 Patent, which is on page 25 out of 50 of the PDF. Can 6 you let me know when you are there? 7 A. Page 20 -- column 25? 8 Q. Column 1 page 25 out of 50 of the PDF. 9 A. Yeah, I am on column 1. 10 Q. Okay. And you see there's a summary section 11 and there's a paragraph underneath that? 12 A. Um-hum, yeah. "According to another aspect one 13 of my embodiments," that one? 14 Q. Yes. And so this paragraph is describing that 15 the 217 Patent is generally directed to a method of 16 determining relevance that looks to both one or more 17 actions of the user on a piece of electronic contents 18 and also -- 19 A. One moment. Where is it? Which line you are 20 talking? 21 Q. Sir, it would really be better if we could -- 22 if you could please let me ask the question, and then 23 you can ask for clarification, just for the benefit of 24 the court reporter. 25 A. Yeah. Page 91
1 problem that persists even to this very day, right? 2 A. You said the clutter -- the cluttered, yes. So 3 clutter is -- still the problem exists to some extent, 4 but it doesn't mean that the Patent 217 solution was not 5 good. At that -- at that time Patent 217 solution was 6 very impressive because it takes into consideration 7 the -- the organization's role in the ranking process 8 and then it considers that -- cognate users. It 9 considers the way the ranking works. I think it 10 produces a more relevant e-mail to the users. And then 11 they have a pre-evaluation, post-evaluation, which is 12 very impressive. 13 Q. That's fine, sir, but I'm -- I'm asking just a 14 really specific question. You would agree that the 15 difficulties of cluttered e-mail boxes and finding 16 relevant e-mails is a problem that persists to this very 17 day regardless of the 217 Patent, right? 18 A. I think it is improving day by day. I could 19 not say -- when the e-mail was launched, after that 20 people -- the spammers started to create spam e-mails 21 and so on, and then people -- there's a race going on 22 between the adversary and then the -- those who -- those 23 who maintain the e-mail. So this race will always -- 24 but I think the quality of the result improving day by 25 day. Page 90	1 Q. Strike that. 2 So about halfway through the paragraph, there's 3 a clause that begins "where the relevance is 4 determined." Do you see that? 5 A. Um-hum. 6 Q. And this says "that relevance can be determined 7 based on a measure of relevance dependent on one or more 8 actions of the user on the piece of electronic content 9 and another measure of relevance determined based on one 10 or more actions of at least one other recipient of the 11 piece of electronic content." Do you see that? 12 Do you see that? 13 A. Yeah. Sorry, it goes to page -- column 2, 14 right? 15 MR. PADMANABHAN: No. 16 BY MR. OHLERT: 17 Q. That sentence does not. 18 A. Sentence doesn't? 19 Q. I'm looking at the paragraph under summary, 20 which spans lines 48 to 61. Okay? 21 A. I see. Okay. I missed that part. 22 Q. And I'm just trying to get a very basic fact 23 about what the 217 Patent is about. Okay? 24 A. Um-hum. 25 Q. You would agree that the 217 Patent "determines Page 92

1 relevance by looking to one or more actions of the user 2 on a piece of electronic content as well as one or more 3 actions of at least one other recipient of the piece of 4 electronic content," right? 5 MR. PADMANABHAN: Objection. Rule 611. 6 THE DEPONENT: Okay. Let me read it little bit 7 carefully. Yeah, okay. 8 BY MR. OHLERT: 9 Q. And so the 217 Patent is generally talking 10 about determining relevance by looking at the actions of 11 one user on content as well as the actions of other 12 users on that content, correct? 13 MR. PADMANABHAN: Objection. Rule 611. You 14 can answer. 15 THE DEPONENT: And that needs to be cognate to 16 the user also. 17 BY MR. OHLERT: 18 Q. Okay. I understand that, but this passage 19 we're talking about doesn't say the word "cognate," does 20 it? 21 A. (Reading to self.) Can you give me two or 22 three minutes and let me get clear? (Reading to self). 23 Q. I mean, sir, I'm really not trying to be tricky 24 with this question. I'm trying to set up the next 25 question. I'm just reading from the text. I'm	Page 93 1 Q. I am just reading the first sentence. 2 A. All right. So first sentence doesn't have 3 "cognate," that's what you are saying? 4 Q. That is not my question, sir. 5 A. So what is your question? 6 Q. The patent continues on line 62 that, quote, 7 "Another aspect of one or more embodiments of the 8 present invention, end quote, is that a method 9 comprises, quote, tracking actions by a plurality of 10 users associated with an application for managing 11 electronic content in determining a relevance to a user 12 of a piece of electronic content sent from a sender to a 13 user." Correct? 14 Are you still there, sir? 15 A. Yeah, I'm here. Yeah. So I don't understand 16 your question. 17 Q. I'm really trying to just read the sentence, 18 sir. So I don't understand how you could not understand 19 that. You see that the patent says, "According to 20 another aspect of one or more embodiments of the present 21 invention, a method comprises tracking actions by a 22 plurality of users associated with an application for 23 managing content." Do you see that language? 24 A. Yeah, I see it. 25 Q. The 217 Patent says that, right? Page 95
1 struggling to understand where there's confusion here. 2 You can control F for the term "cognate," 3 correct? 4 A. I haven't checked, but I can. 5 Q. Sir, this paragraph doesn't say the word 6 "cognate." Isn't that correct? 7 A. Correct, yeah. That's correct. 8 Q. Okay. So the 217 Patent in this paragraph, 9 spanning lines 48 to 61 of column 1, is generally 10 talking about determining relevance by looking at the 11 actions of one user on content, as well the actions of 12 other users on that content, correct? 13 A. Correct. 14 Q. And the patent continues on line 62, that 15 according to, quote, "Another aspect of one or more 16 embodiments of the present invention, end quote, a 17 method comprises, quote, tracking actions by a plurality 18 of users associated with an application for managing 19 electronic content and determining a relevance to a user 20 of piece of electronic content sent from the sender to 21 the user." Do you see that? 22 A. So the second paragraph? 23 Q. Sir, the sentence starting on line 62 of column 24 1. 25 A. Um-hum. Page 94	Page 96 1 A. Correct. 2 Q. Is there something about that sentence that you 3 need more time to understand? 4 A. No, it's fine. 5 Q. I'm really struggling why when I read it to you 6 you are pausing and giving me five minutes before you 7 answer just to say -- 8 A. Oh, I'm sorry. 9 (Simultaneous colloquy.) 10 Q. -- it isn't there when I am just reading the 11 words, sir. 12 A. That's fine. 13 Q. Do you understand my frustration? 14 A. Yeah, I -- I understand. 15 Q. I'm not trying to be difficult. I am really 16 just trying to read what these words say and see if you 17 agree, so that I can ask questions about that. Do you 18 understand that? 19 A. Sure. 20 Q. So when I ask you if the patent says this, it's 21 not a trick, I'm just trying to set something up so I 22 can ask you more questions. Do you understand? 23 A. Sure. 24 Q. Okay. You understand that it's important when 25 a patent uses the term "present invention," correct?

1 MR. PADMANABHAN: Objection. Rule 611. 2 THE DEPONENT: Okay, I understand. 3 BY MR. OHLERT: 4 Q. This says that the "present invention of the 5 217 Patent tracks, quote, a plurality of users 6 associated with an application for managing electronic 7 content, end quote." Do you see that? 8 MR. PADMANABHAN: Objection. Rule 611. 9 THE DEPONENT: Where is the -- in the Patent 10 217? Or -- 11 BY MR. OHLERT: 12 Q. The sentence we have been discussing. 13 A. Right. (Reading to self.) Yeah, I see it. 14 Q. And then it says, that "The present invention 15 of the 217 Patent determines relevance for a user for 16 content, quote, sent from a sender to the user," right? 17 A. To the user, yes. 18 Q. And so when the patent says "sent from a 19 sender," that's only referring to the user for whom 20 relevance is being evaluated, correct? 21 A. (Reading to self.) But -- okay. So -- but 22 here we are tracking more than one users, right, 23 actions. And then when it comes to the relevancy, we 24 are focusing on from a sender to the users, right? 25 Q. Okay. Does that answer my question?	Page 97 1 "sent from a sender to the user," it is only talking 2 about the individual user for whom relevance is being 3 evaluated in this sentence? Yes or no? 4 A. Correct, yes. 5 Q. And it's not referring to a plurality of users 6 as saying anything about sent from a sender, correct? 7 A. Correct. But later part, they talk about the 8 relevancy, how they calculate, right -- subsequent 9 sentence. 10 Q. And that's not my question, sir. 11 A. Okay. 12 Q. So I'm going to ask it again so we can get a 13 clean answer that is just to the question that is asked. 14 Okay? 15 Strike that. 16 This passage is not referring to a plurality of 17 users when it says sent from a sender? 18 A. Right. So -- 19 Q. Okay. Let's go -- 20 MR. OHLERT: You know what, is now a good time 21 for a lunch break? 22 MR. PADMANABHAN: Yeah, it would be great to do 23 lunch right now. But we ordered in so that we can try 24 to eat in, like, 20 minutes or so and come back so that 25 you -- you -- you have time. Page 99
1 A. Are you asking me -- what do you ask? I'm 2 sorry, I missed. 3 Q. When this says "sent from a sender," it is 4 referring to determining a relevance to a user of a 5 piece of electronic content specifically, right? 6 A. Yeah, so it's relevance of the piece of 7 electronic content from a sender to a receiver -- to the 8 user. 9 Q. And so when the patent uses that sent from a 10 sender language, it's only using that when talking about 11 the user for whom relevance is being evaluated, correct? 12 MR. PADMANABHAN: Objection. Rule 611. 13 THE DEPONENT: Determine -- okay. So for the 14 electronic content from a sender to a user, the user, we 15 are going to determine the relevancy score, but we did 16 note say how this relevancy score will come. 17 BY MR. OHLERT: 18 Q. That's true. That's not part of what this 19 sentence is about, sir. 20 (Simultaneous colloquy.) 21 Q. Can you answer the question that I asked? 22 A. Sure. 23 Q. So the language here says, "Determining a 24 relevance to a user of a piece of electronic content 25 sent from a sender to a user." When the patent says	Page 98 1 THE DEPONENT: Do you need more time? 2 MR. PADMANABHAN: Do you need more time? 3 You're -- he's on Pacific time. 4 MR. OHLERT: I'm Pacific, so I can do lunch any 5 time. I am just trying to think about you guys. I can 6 keep going or we can take lunch. What do you want? 7 MR. PADMANABHAN: You want to take lunch? Let 8 me just make sure lunch is here. 9 THE DEPONENT: If lunch is here then, yeah. 10 MR. OHLERT: Do we want to go off the record 11 while you figure that out? 12 THE DEPONENT: Yeah. 13 THE VIDEOGRAPHER: Going off record at 14 10:31 a.m. 15 (Off the record.) 16 THE VIDEOGRAPHER: Back on record at 10:31. 17 BY MR. OHLERT: 18 Q. Okay. Let's go to Claim 1 of the 217 Patent. 19 A. You mean at the end? 20 Q. Claim 1, it's going to be in column 47 or page 21 48 out of 50 of the document. 22 A. Yes. 23 Q. And so in your opinion the claims of the 217 24 Patent are only met when electronic content is sent from 25 a user to a recipient, correct? Page 100

Page 101 1 A. Say one more time, please. 2 Q. Your opinion is that the claims of the 217 3 Patent are met only when electronic content is sent to a 4 user from a sender? 5 A. Correct. 6 Q. If a user posts content on an electronic 7 bulletin board and someone else reacts to that content, 8 does that involve electronic content being sent from a 9 sender to a user? 10 A. Yes. 11 Q. Okay. So if someone posts something to an 12 electronic bulletin board, and another user accesses 13 that content, your opinion is that would still be sent 14 from a sender, correct? 15 A. Correct, yeah. 16 Q. Why? 17 A. That's a good question. So think about this. 18 Somebody needs to post it, right, in the bulletin board 19 or in the Reddit tester to post a message. Somebody 20 post a message and others are reading it. So in that 21 case whoever posted, we can treat them as a sender. And 22 then whoever consume it, that can be treated as a 23 recipient. 24 Q. Is that person -- strike that. 25 When a user posts something to an electronic	Page 103 1 will be many documents and anybody can -- as long as if 2 you are subscribed to that service, you can post the 3 messages there as a document, and then consumer will 4 read the messages or consume the messages. And then 5 there will be a version control. So probably you will 6 update the messages over time as a producer are posting 7 the messages. Or delete the messages, so version 8 content will be there to make sure there is no dispute. 9 Those type of things I understand from the document 10 management. 11 Q. That doesn't necessarily involve e-mail, does 12 it? 13 A. No, not necessarily. 14 Q. So a document management application can be 15 used to have multiple users access the same document 16 without it necessarily being sent via e-mail directly? 17 A. Correct. 18 Q. Okay. And so if someone posts a document in a 19 management application like that, and then another user 20 accesses that document, would you say that document has 21 been sent from the first user to the second user? 22 A. So can you repeat, please? 23 Q. So if someone posts a document in a document 24 management application like we're discussing, and then 25 another user accesses that document, would you say that
Page 102 1 bulletin board, why wouldn't they be sending that 2 content to the computer system and not an individual 3 user? 4 A. Okay. So that's a very good question. So a 5 bulletin board usually is response -- at that point I 6 think it might be public, electronic bulletin board. So 7 you just posted the message there, and whoever have 8 access to that -- subscribe that service, they can 9 access it, right. They can see that message. So it's 10 not a person-to-person communication. So e-mail 11 messaging system is more -- is tailored to a particular 12 user and it can go to a group also. That's also 13 possible. 14 Q. Okay. And then are you familiar with a 15 document management application? 16 A. I know a little bit, yeah. 17 Q. In your own words, how would you describe what 18 a document management application is? 19 A. The document management, you mean the software 20 or -- 21 Q. I want to understand in your own words how you 22 would describe what a document management application 23 is. 24 A. So -- so in this case if we talk about the 25 bulletin board, document management means that there	Page 104 1 document has been sent from the first user to the second 2 user? 3 A. I think in that document -- document management 4 system domain, they don't use the sender recipient in 5 that case unless they use different terminology. They 6 may use producer or consumer or who created this 7 document and these are the readers. So there will be no 8 sender and recipient terminology would be used in that 9 context. 10 Q. So, in your opinion, the claims of the 217 11 Patent, when they say things like "sender" or 12 "recipient" are excluding things like a document 13 management application where documents can be posted and 14 other users can access them; is that right? 15 A. I'm not saying that way. I'm saying the 16 terminology might be different from the domain to 17 domain, and then -- and then the question is this Patent 18 217 can work in the -- the document management system or 19 not. You can say sender can be treated as a document 20 creator, and then the recipient can be treated as the 21 reader, and that way you can model this whole thing 22 and -- but I think the document management, the object 23 is slightly different. It's not like -- okay. 24 So I will argue in a little bit different way. 25 So in a personal e-mail message communication system, it

1 is important -- user will get many e-mail messages, and 2 you may need to rank those messages in a certain order. 3 In a document management system, probably you 4 post the document let's say for a -- for 24 hours and 5 then the next -- that message will be removed entirely 6 and the new message will come. So it will be just 7 happen only. So based on the application, so it may be 8 different settings. So in that case from the document 9 management, the ranking may not play that much of a 10 role, the document management case. 11 It's like a broadcast system. You just -- in a 12 radio, you just broadcast the message -- broadcast the 13 news to everybody, like, say NPR. You listen to the 14 news. So something like this in document management, 15 you can think about it as a broadcast system where 16 everybody will see the message. 17 Q. Where -- 18 (Simultaneous colloquy.) 19 A. -- that service. 20 Q. So if someone posts a document in a document 21 management application, and another user accesses that 22 document, would you say that document has been sent from 23 the first user to the second user? 24 A. I'm saying in the document management system 25 they don't use that sender/receiver concept like this.	Page 105 1 A. No. I'm saying although the document 2 management system, they don't use the same terminology 3 like sender and recipient; however, if you want to 4 manage the document and present to the users in a 5 certain order, then in that case the algorithm, this 6 Patent 217 develop, that can be still applied. But the 7 question is, then some of the -- you know that in that 8 Patent 217 they have that global relevancy, sender 9 relevancy for the global one, so that may not play that 10 much role. 11 Q. So, sir, I'm just trying to understand if the 12 scenario that we're talking about does or does not meet 13 the claims, and I feel like you're taking inconsistent 14 positions where it's just the opposite of the question 15 that I ask. So I'm going to try and ask this again and 16 see if you can give me just what your position is as to 17 whether this kind of document management application 18 meets the claims. Do you understand that? 19 A. Yes. I think I -- 20 Q. Well, let me ask the question so we have a 21 clear record and then we will go that way. Okay. 22 And part of the reason I say "okay," at the end 23 of that is you can respond to say you understand, and 24 then I can start the question cleanly. 25 So do you understand? Page 107
1 There is no -- they may say the document management 2 sender as to whoever clears the document is the creator 3 of that -- or posting the messages, and then the rest 4 will read it, that will be the consumer. It's not like 5 they will use the sender/receiver terms like this. 6 Q. So I'm not asking if they use those terms. I'm 7 asking if you would understand that to meet the claims 8 of the 217 patent. Do you understand that, sir? 9 A. I understand. 10 Q. And so my question is, would a document 11 management application like we have been describing meet 12 the claim language of having a document be sent from a 13 sender to a user? 14 MR. PADMANABHAN: Objection. Rule 611. You 15 can answer. 16 THE DEPONENT: I think for the document 17 management system, the send -- they don't use the sender 18 and recipient, this terminology in that domain, like the 19 way we are trying to frame it. 20 BY MR. OHLERT: 21 Q. And so your opinion is that in a document 22 management application when a user posts a document and 23 another user accesses that same document, that does not 24 describe a situation where the first user sends a 25 document to the second user, correct?	Page 106 1 A. Yes, sir. 2 Q. Okay. So is it your opinion that in a document 3 management application when a user posts a document and 4 another user accesses that same document that that would 5 meet the claims of the 217 Patent because that involves 6 a first user sending a document to a second user? 7 A. So, yeah, I think the Patent 217 at some extent 8 it may meet that. It can work in that document 9 management also. 10 Q. So your opinion is the claims of the 217 Patent 11 would meet that scenario? 12 A. What? 13 Q. Your opinion is the claims of the 217 Patent 14 would meet that scenario? Yes? 15 A. Correct. 16 Q. Okay. Even though there's not necessarily an 17 e-mail sending that document from the first user to the 18 second user, correct? 19 A. Correct. 20 Q. Okay. 21 A. Can we take a break for eating? Food is -- 22 Q. Is the food there? 23 A. Yeah. 24 Q. Yeah, if your food is here, let's take a break. 25 Let's go off the record. Page 108

1 THE VIDEOGRAPHER: Going off record at 2 10:45 a.m. 3 (Off the record.) 4 THE VIDEOGRAPHER: Back on record at 11:13 a.m. 5 BY MR. OHLERT: 6 Q. Okay. Dr. Khan, can you go to column 3 of the 7 217 Patent? 8 A. 217, column 3. 9 Q. Are you there? 10 A. Yes, I'm here. 11 Q. Okay. Do you see at lines 52 to 54, the 217 12 Patent says, "Some forms of electronic mail, such as 13 TransMail developed by Blue Space Software Corporation, 14 use a relational architecture," right? 15 A. Um-hum. Yes. 16 Q. What is a relational architecture as described 17 in the 217 Patent? 18 A. Okay. So relational architecture means it 19 comes from the relational model. Let's say you have a 20 -- in this case I think we are considering messages, and 21 the messages when you get an e-mail message from your 22 friend, and you responded to that e-mail. So in the 23 previous message will be -- will be your response, along 24 with the previous message will be there. So in that 25 case in the transmit, they call it submessages in	Page 109 1 architecture contains references to other pieces of 2 electronic content rather than repeating that electronic 3 content within a single document or e-mail? 4 A. Correct, yeah. They have a reference and 5 establish some key parameter relationship, yeah. 6 Q. Okay. And the 217 Patent here also discusses 7 something called TransMail. Do you see that? 8 A. Um-hum. 9 Q. TransMail, was a product developed by Blue 10 Space. That was related to the 217 Patent, correct? 11 A. I think so, yeah. 12 Q. And so if Blue Space documents are talking 13 about TransMail, they are probably talking about 14 something related to the 217 patent. Is that fair? 15 MR. PADMANABHAN: Objection. Rule 611. 16 THE DEPONENT: Sorry. What do you say? 17 BY MR. OHLERT: 18 Q. If Blue Space documents are talking about 19 TransMail, is it safe to assume they're probably talking 20 about something related to the 217 Patent? 21 A. No, I don't know that part. 22 Q. Okay. So you can't say one way or the other? 23 A. Yeah. 24 Q. Do you know if Blue Space ever had a 25 functioning TransMail product?
1 transmit [sic]. 2 So now, in -- the idea here is that the one who 3 has stored this message and submessages into the 4 substorage system -- and there are many ways you can 5 store it. One approach is for -- when the nesting 6 happens or the message may have submessages in front, so 7 in that case if you would store those for each user, 8 whatever the response user gives. Response means 9 whatever the user writes, along with the previous 10 messages, to keep all this together. That way you can 11 store it. That's one possibility. In that case, you 12 allow duplicates. 13 Because let's say Mr. X sent an e-mail to 14 Mr. Y, and Mr. Y forward that e-mail to Mr. Z, and Mr. Z 15 send it to Mr. X. So in that case all of this X 16 content, Y content, and Z's content will be in the last 17 message, right. So our goal is to keep only one copy 18 and done. Each message will keep only one copy in the 19 system. 20 How we do it, so for that advocate -- or they 21 propose is to use the relational architecture, where the 22 data will be stored in a relations -- basically allows 23 each message will be kept only once in the system. No 24 duplication is allowed. 25 Q. Is it safe to say that a relational	Page 110 1 A. Blue Space had a TransMail -- from this I 2 know -- I saw it, but I don't know the details. 3 Q. So you don't know if Blue Space ever had a 4 functioning TransMail product? 5 A. From this writing on the patent, yes, I saw 6 that TransMail developed by Blue Space developers that I 7 know. 8 Q. And I'm asking about something else, sir. Are 9 you aware whether Blue Space developed a functioning 10 TransMail product or not? 11 A. No, I don't know that part. 12 Q. Okay. You just don't know. That's okay. 13 A. Sure. 14 Q. Let's go to column 5 of the 217 Patent, and I 15 will direct you to lines 53 to 58. 16 A. Column 5? 17 Q. And column 5, lines 53 to 58 of the 217 Patent 18 states "That a 'relevance' component may be used to rate 19 electronic mail content in an order reflecting a user's 20 likely interest in the content. For example, a high 21 relevance value may indicate that the content is likely 22 to be of significant interest to the user, while a low 23 relevance value may indicate that the content is likely 24 to be of little interest to the user." Do you see that 25 passage?
Page 111	Page 112

Page 113 1 A. Um-hum. 2 Q. Why does the 217 Patent refer to rating 3 electronic mail content in an order reflecting a user's 4 likely interest in the content? 5 A. Sorry. Can you say one more time your 6 question, please? 7 Q. Yes. Why does the 217 Patent refer to rating 8 electronic mail content in an order reflecting a user's 9 likely interest in the content? 10 A. Yeah. So you see the relevance in the content 11 considers various factors. One of the factor is the 12 content. One of the factor based on the actions. One 13 of the factor based on the importance of the users, and 14 then the other users how they behave, cognate user's 15 actions. So the content, it plays an important role. 16 So that is why they consider that if they users a high 17 relevancy value mainly because the content likely to be 18 significant to the users. But lower relevancy indicate 19 that user may not have any interest on that content -- 20 or on that electronic message. 21 And relevancy goes with -- they have two main 22 components, relevancy and importance. The relevancy 23 component goes with the content or is associated with 24 electronic object. And importance is associated with 25 the -- with entity like person, sender, or receiver,	Page 115 1 can only determine the user's likely interest in that 2 document? 3 A. So this is -- in general, this is machine 4 learning, data mining, or recommendation system. When 5 you do the prediction, it is possible that prediction 6 may -- there are many factors that play a role of the 7 prediction or coming up with this point. So you cannot 8 always guarantee that it will be the -- this will be the 9 only one indicator that will produce the -- capture the 10 user actions or user interest. So that's why they use 11 likely word or likely outcome. 12 Q. Do you agree that a computer cannot determine a 13 user's actual interest in a document and a computer can 14 only estimate the user's likely interest in that 15 document? 16 A. Some cases a computer can estimate the user's, 17 right, interest and then some cases it may make a 18 mistake. So that's why there are many cases -- in 19 general, many cases when you use machine learning 20 algorithm or recommendation system, they estimate the 21 error. And goal here in doing the training time, they 22 try to reduce the training error as much as possible, so 23 that in prime time or test time it goes back on good. 24 So that's why here I think they use the likelihood. 25 And ideal case, yes, they all should be zero,
Page 114 1 those type. 2 Q. Let me ask a better question. Why does the 217 3 Patent refer to a user's likely interest in the content? 4 Why is it using that word "likely"? 5 A. So I think this is a statistical model they are 6 using, and it is not necessarily one line -- there are 7 many things will play a role in the ranking process. So 8 this is one of the -- one of the good indicators that -- 9 that will play some role in the ranking process. That's 10 why it said likelihood or likely. 11 Q. Is it related to the fact that a computer can't 12 determine a user's actual relevance, it can only 13 determine a user's likely interest in that content? 14 A. I'm sorry, what is? 15 Q. Does the 217 Patent here say "likely" because a 16 computer can't determine a user's act -- like how much a 17 user actually likes a document, it can only estimate how 18 much they would likely appreciate that document? 19 MR. PADMANABHAN: Objection. Rule 611. 20 THE DEPONENT: Please say one more time. 21 BY MR. OHLERT: 22 Q. Okay. I'm trying to understand why the 217 23 Patent refers to a user's likely interest. Does that 24 reflect the fact that a computer cannot determine a 25 user's actual interest in a document and the computer	Page 116 1 and in that case it was -- models the user's behavior or 2 user's interest very correctly. But that's a very -- in 3 real-life system, that's not the case. Sometimes 4 computer makes an error. Basically algorithm makes an 5 error. So there are many algorithms that try to improve 6 this or reduce this error. 7 Q. Isn't it true that in an 8 electronic-content-relevance system the system can only 9 determine electronic contents -- strike that. 10 Let me try and ask again. 11 Strike that. 12 Isn't it true that in an 13 electronic-content-relevant system the system can only 14 determine the user's likely interest in content and 15 cannot determine the user's actual interest in content? 16 A. Could you please say one more time? I 17 apologize. 18 Q. Isn't it true that in an 19 electronic-content-relevant system the system can only 20 determine the likely -- the user's likely interest in 21 content and cannot determine user's actual interest in 22 content? 23 A. Is there actual? I don't get the last part 24 what you say. You said, "actual." 25 Q. Let me try it again.

1 Strike that. 2 Isn't it true that in an electronic-content- 3 relevant system the system can only determine the user's 4 likely interest in content and cannot determine the 5 user's actual interest in content? 6 A. Yes, when we do the prediction, yes, you are 7 right. 8 Q. Is there -- what do you mean when you say, 9 "When we do the prediction"? 10 A. Because when you -- because when you determine 11 estimate based on this content and based on the other 12 actions, we need to determine the ranking of the 13 objects, right, or ranking of the clicked-on message -- 14 message system or the outgoing messages. 15 So in that case -- in that case, goal here is 16 to reduce the -- come up with a prediction or come up 17 with a ranking that will be the -- that that user wants. 18 Basically if a user wants certain e-mail messages. We 19 don't know, but if we can present to the user and see 20 user likes it, in that case we can assume that safely 21 that error is the lowest or error is zero in that case, 22 because you give that e-mail message in the top of the 23 list. 24 But if you use a list to go through, let's say 25 10 e-mail messages in order to find the right e-mail	Page 117 1 could know that. Isn't that true? 2 A. But -- okay. So -- but we will -- but user 3 feedback we will recorded over time. That, we call it 4 "historical actions." And then based on their actions 5 we will revise this error and try to reduce the error 6 and come up with a better algorithm where the error will 7 be reduced. 8 So what I am saying -- and that's not correct 9 to say that computer will not get the actual values. 10 You -- eventually computer will come up with the -- or 11 the algorithm will come up with a prediction, and then 12 user will give some feedback. And that feedback -- 13 based on that feedback, we will revise our error 14 functions or the algorithm would be -- parameters of the 15 algorithm would be adjusted in such a way that in future 16 when doing the test time it should pass as good as when 17 it does the prediction or come up with the ranking. It 18 should be as close to that as user original intention or 19 what the user wants. 20 Q. So I think what you just described is that a 21 relevant system will make an estimation of the relevance 22 of a content to a user. The user will provide feedback, 23 and then the system will iterate and try to update the 24 relevance estimation to the user. But even in that 25 situation, isn't that updated relevance estimation still
Page 118 1 message, so in that case the error is high. So that 2 type of error, we try to estimate. And then during the 3 training time and trying to reduce those errors. And 4 then when the test time comes, we want to make sure it 5 will perform well. We are hoping. 6 Q. So I'm really just trying to understand what 7 the meaning of the word "likely" says about this patent. 8 I'm not asking about error rates. I'm just trying to 9 understand when this patent says, "likely interest," why 10 does it say a user's likely interest in content and not 11 a user's actual interest? 12 MR. PADMANABHAN: Objection. Rule 611. 13 THE DEPONENT: So, in general, when we do the 14 statistical method, I think the people write like this 15 to be -- because, man -- in some cases we would not be 16 able to capture the right balance, so that's why we say 17 likely. 18 BY MR. OHLERT: 19 Q. Well, isn't the point just that when a computer 20 is estimating relevance to a user, it's going to reflect 21 a user's likely interest in that content because it's 22 doing an estimation, right? 23 A. Right, um-hum. 24 Q. And the computer is not going to know the 25 user's actual interest in that content, only the user	Page 120 1 just trying to gauge the user's likely interest in the 2 content? 3 A. Yes. At the beginning, yes, but over time it 4 may be -- it may convert with the user original -- it 5 may satisfy user interest. 6 Q. I think I'm just asking something even a little 7 higher level than what you're getting at. Even when the 8 system updates the relevance metric or the relevance 9 score, and it is closer to the user's actual interest, 10 the computer is always just doing an estimation of the 11 user's likely interest, right? 12 A. Correct. 13 Q. Because the user -- the computer can't know 14 what the user's actual interest is, even if it's doing 15 that iterative process? 16 A. Okay. So it depends upon how you captured the 17 user feedback. So if your feedback mechanism -- I think 18 217 -- Patent 217 has many ways to capture the user 19 feedback. Not only based on the content feedback, we 20 take into consideration how much time you going to 21 spend, what action is a DOS, Dell, delete the message, 22 or -- so various factors are taken into consideration. 23 That's why I will argue that Patent 217 may capture the 24 actual interest better than as compared to other patents 25 at that time.

Page 121 1 Q. But the 217 Patent repeatedly refers to 2 determining the user's likely interest, not a user's 3 actual interest; isn't that correct? 4 A. Correct. 5 Q. And so you might say that the 217 Patent gets 6 closer to estimating user's actual interest, but the way 7 the 217 patent describes it, it's still estimating the 8 user's likely interest; isn't that true? 9 A. Correct, yeah. It's a likely interest, 10 correct. 11 Q. Okay. 12 A. But my argument is this a statistical method, 13 so that's why they -- we use this type of word. 14 Q. That's fair. And so is it fair to say that 15 when a document discussing electronic content relevance 16 refers to likely interest or a likely prediction, that's 17 just kind of language that's common when referring to 18 these kinds of estimates of relevance that are performed 19 by computers, right? 20 MR. PADMANABHAN: You have to answer. 21 THE DEPONENT: Sorry, what do you say? 22 BY MR. OHLERT: 23 Q. Is it fair to say that when a document 24 discusses electronic relevance, it's referring to a 25 user's likely -- strike that.	Page 123 1 Q. You know, you're right. I -- I was asking it 2 again and I did it wrong, so let me ask it one more time 3 and I will try and get it right. 4 So you agree that when a document describes an 5 electronic content relevance system like the ones we are 6 discussing today, when that document refers to a user's 7 likely interest or a likely prediction, that's just 8 referring to the fact that this is common language for 9 when an algorithm tries to estimate the relevance of 10 content to a user, right? 11 A. Correct. 12 Q. Okay. Let's look at column 46 of the 217 13 Patent. Can you let me know when you're there? 14 A. Sure. Yeah, 46. 15 Q. Okay. And do you see this has a "Correlation" 16 table listed? 17 A. Um-hum, yes. 18 Q. And correct me if I'm wrong, but this shows a 19 symmetric correlation table, correct? 20 A. Yeah, it should be symmetric, yeah. 21 Q. And it is symmetric across the diagonal entries 22 there? 23 A. Yeah, symmetric, yeah. 24 Q. Okay. And is the 217 patent limited to a 25 symmetric correlation matrix?
Page 122 1 Let me try and ask it in a better way. 2 Is it fair to say that when a document is 3 discussing an electronic content relevance system like 4 these, when it refers to a user's "likely interest" or a 5 "likely prediction," that's just referring to the fact 6 that this is common language we use to refer to the 7 estimates of relevance that are performed by computers, 8 right? 9 A. By the algorithms, yeah. 10 Q. Sorry. I just didn't catch your answer. You 11 said, "by the algorithms," yes? 12 A. Yeah. Instead of computer. Computer is a 13 broad term, so I just want to use algorithms. 14 Q. Okay. Got it. Let me ask it again so we are 15 on the same page and we just have a clean record. Okay? 16 Strike that. 17 So you agree that when a document describes an 18 electronic content relevance system like the ones we are 19 discussing today, when it refers to a user's "likely 20 interest" or a "likely prediction," that's just 21 referring to the fact that this is common language for 22 when a computer tries to estimate the relevance of 23 content to a user, right? 24 A. Correct, but instead of computer, I would say 25 algorithms.	Page 124 1 A. So this is the way we calculate the correlation 2 in general. But the -- when you do the -- for each 3 users, when you find the cognate user collaboratively, 4 there we consider a number of users, right? So, for 5 example, a user A, I want to see what are the top two 6 cognate users for user A. From this metric probably -- 7 I did not pay attention to the numbers, but let's say 8 for user A, the two cognate users will be user C and D. 9 And for user -- and user C, I want to find what the 10 cognate user for user C. So in that case, probably 11 might be -- and instead of user A, it might be user D 12 and F. I'm sorry, user -- I made a mistake. Okay. 13 User A -- as a cognate user, let's say user C 14 and D. And user C has a cognate user, let's say D and 15 E. So in that case you cannot say they are symmetric. 16 Q. Okay. Let me see if I can ask this in a way -- 17 because I think -- I think you're saying the same -- 18 same thing as me, but let me try again. Okay. 19 Strike that. 20 So one of the reasons the 217 Patent includes 21 this correlation matrix in column 46, is it can be used 22 to identify cognate users, right? 23 A. Correct. 24 Q. And this is a symmetric table, but cognate 25 users in the 217 Patent wouldn't necessarily be

Page 125 1 symmetric to one another, right? 2 A. Correct. 3 Q. And so you would agree that even though the 217 4 Patent uses a symmetrical correlation table, the 5 relationships between the users wouldn't necessarily 6 actually be symmetric in practice, right? 7 Sorry. Is that a "yes"? 8 A. Yes. 9 Q. And so when the 217 Patent uses this kind of 10 symmetric correlation table, it's not saying that in 11 practice its invention would actually be symmetric; it's 12 just using those kind of as an example, right? 13 A. No. I'm saying -- okay. So this metrics even 14 for -- in order to find the cognate users, I have to -- 15 we have to use -- if we use the correlation-based 16 technique, we have to go through these metrics. And 17 these metrics will tell that you user A, how they are 18 correlated with the rest of the users. And user B, how 19 they're correlated with the rest of the users, right. 20 So from there for each users, I want to choose 21 top -- let's say "top-end users," and that are receiving 22 the same electronic content, and then they are cognate 23 to user A. So for user A, I would choose top two. So 24 in this case, probably user D and user -- okay. And 25 then in this case user D and user -- user B. And for	Page 127 1 identify cognate users, that the relationships between 2 those users may be different from one cognate user to 3 another, right? 4 A. Right. 5 Q. And so here it says, again, "The behavior and 6 resulting relevance value of user D on a new piece of 7 content sent to both users A and D would be a good 8 indicator of the likely relevance of that content to 9 user A." So, again, the 217 Patent says -- 10 A. Where is it? 11 Q. At lines 22 through 25 of column 46. 12 A. Uh-huh. 13 Q. The 217 Patent states, "The behavior and 14 resulting relevance value of user D on a new piece of 15 content sent to both users A and D would be a good 16 indicator of the likely relevance of that content to 17 user A." Do you see that? 18 A. Um-hum. 19 Q. Yes? 20 A. I can read it, yeah. 21 Q. Okay. Again, just for the court reporter and 22 the record, it's -- we'd ask that you use "yes" or "no" 23 answers, not um-hums or mm-hmms. 24 A. Oh, okay. Give me one minute. Let me read it. 25 Q. Could you describe what you are reading?
Page 126 1 user B -- user B, the cognate user is user C and user D. 2 You can see, although for A the cognate user is D, D as 3 in Douglas. But for B, the cognate user list is -- is 4 not in that list. So that's -- I call it -- it's not 5 symmetrical; it's asymmetrical. 6 Q. And so you agree that when the 217 Patent 7 includes this kind of symmetric correlation table, that 8 doesn't mean it is identifying symmetric cognate users, 9 right? 10 A. Symmetric cog- -- I don't want to use -- that 11 same term here, but I will say for each users, usually I 12 will find that cognate users. And I am saying some -- 13 it's not necessarily in one -- one user, you may have 14 some cognate -- yeah, the symmetric may not exist in 15 that case, yes. 16 Q. And so even though the 217 Patent is talking 17 about a symmetric correlation table to identify cognate 18 users that doesn't mean that the relationships between 19 those cognate users will be symmetric, correct? 20 A. I -- I -- I understand what you're saying, but 21 I don't want to use the term that way. I just want to 22 say for each of the users, the cognate users may be 23 different. May overlap, may be different. 24 Q. And you agree that even though the 217 Patent 25 is talking about a symmetric correlation table to	Page 128 1 A. Give me one -- another minute, please. 2 Q. Sir, what are you reading? 3 A. The one you read. So I'm just trying to 4 understand. So what is your question? 5 Q. The 217 Patent again refers to the likely 6 relevance of that content. Do you see that? 7 A. Yeah, likely relevance, right. 8 Q. And, so, again, when patents like these and 9 content relevance are referring to the likely relevance 10 of content, that's just common language when making 11 these kinds of computer-based estimates, right? 12 A. Yeah. As I say, these are status scale methods 13 that are being used, likely. 14 Q. Okay. Let's go to Claim 1, which I think is 15 just on the next page down. Do you see that? 16 A. Um-hum. 17 Q. So Claim 1 is a computer-implemented system. 18 Do you see that? 19 A. Um-hum. Yes. 20 Q. And Claim 6 is a computer program product. Do 21 you see that? 22 A. Yes. 23 Q. And Claim 7 is a computer-implemented method, 24 right? 25 A. Um-hum.

Page 129 1 Q. So each of those claims involves some form of a 2 computer. Is that fair? 3 A. Correct. 4 Q. Do the claims of the 217 Patent require any 5 specialized computer components to perform their 6 invention? 7 A. I don't think the way a claim is written with 8 standard computers with a sufficient amount of RAM can 9 do it. 10 Q. And so it's not requiring like a specific 11 computer processor, for example? 12 A. No. 13 Q. And so it's fair to say that any conventional 14 computer could infringe these claims so long as it 15 performs the steps that are claimed in either Claim 1, 6 16 or 7? 17 A. Okay. So I'm sorry. You say something -- tell 18 me again. 19 Q. Is it fair to say that any conventional 20 computer could infringe these claims so long as it 21 performs the steps that are listed in Claims 1, 6 or 22 7? 23 MR. PADMANABHAN: FRE -- objection. FRE 611. 24 THE DEPONENT: No. 25 BY MR. OHLERT:	Page 131 1 implementation-wise what you need. I'm saying -- 2 Q. I'm just asking about the kind of computer that 3 can infringe these patent claims. And so if you are 4 talking about an algorithm, any computer could run that 5 algorithm; isn't that true? 6 A. It depends. Because if you need a -- let's say 7 your data set is 10 megabytes in size and metric system 8 -- 10 megabyte in size, and you have only one megabyte 9 RAM to run it, then that computer may not be able to run 10 it at all. 11 Q. If a computer had sufficient resources to 12 perform the algorithm, these claims don't require a 13 special kind of computer, do they? 14 A. The way it was written, it would -- I don't see 15 anything specific would say that this type of hardware 16 is required. That's not the case. 17 Q. So if any computer is able to perform the steps 18 claimed in Claims 1, 6 and 7, that computer would then 19 infringe those claims, right? 20 A. So you're saying that if the computer can run 21 the algorithm related to Claim 1, Claim 6, and Claim 7, 22 then -- then people -- then it will produce that as the 23 result [sic]. 24 Q. I think I'm asking if that's your opinion, sir. 25 A. Yeah, if we can round those algorithms or those
Page 130 1 Q. Why do you say that? 2 A. Because there is an algorithm there, first 3 relevancy, second relevancy. And that request, that 4 needs to be -- that request actually -- you're saying 5 the implementation-wise? What is your -- 6 Q. I'm just -- 7 A. -- question? 8 Q. I'm just trying to understand the kind of 9 computer that could infringe these claims. So you're 10 talking about an algorithm. I am actually not asking 11 anything about an algorithm. So I'm going to ask my 12 question again. 13 Is it fair to say that any conventional 14 computer could infringe these claims so long as that 15 computer performs the steps that are listed in Claims 1, 16 6 or 7? 17 A. So let's say this -- there's a component in 18 this algorithm. Patent 217 has some ranking algorithm. 19 That I am algorithm -- 20 Q. Can I just -- I'm sorry. I really don't mean 21 to interrupt you, sir. I just want to stop right there. 22 When you talk about an algorithm, are you talking about 23 a specialized kind of computer that needs to run that 24 algorithm? 25 A. No, I did not say anything about how the	Page 132 1 steps. Especially you see in the 7, we say that the 2 computer-implemented method, and those methods if you 3 can implement correctly with the sufficient memory and 4 processing power, then, yes, you will get the desired 5 result because it's already this close, right. 6 Q. Okay. So let's look at the limitations of 7 Claim 1. So, you know, first this talks about a storage 8 medium. Let's kind of set that aside and focus on a 9 monitoring module. 10 Did the 217 Patent invent a monitoring module 11 configured to track actions by a plurality of users 12 associated with an application for managing electronic 13 content? 14 A. No. I think they use off-the-shelf or at that 15 time whatever the com- -- modules -- monitoring modules, 16 they utilize that. They did not -- with the Patent 217 17 did not invent anything new there. 18 Q. So prior to the 217 Patent, computers had 19 monitoring modules that could track the actions of users 20 on content, right? 21 A. Yeah. For the managing electronic content, 22 yes. 23 Q. Okay. And then the next limitation says, "A 24 first relevance module coupled to the monitoring module 25 and configured to determine a first measure of relevance

Page 133 1 of the piece of electronic content based at least in 2 part on one or more actions of the user on a piece of 3 electronic content." 4 So we already talked about monitoring modules 5 being -- existing before the 217 Patent. Did a 6 relevance module that could look to a user's actions on 7 content exist before the 217 Patent? 8 MR. PADMANABHAN: Objection. Rule 611. 9 THE DEPONENT: Okay. So they're a monitoring 10 module in the past, but that monitoring module save us 11 on maybe one type of actions. Not here in the 217 12 Patent, they are doing monitoring a bunch of actions, 13 not only one actions. And then based on those actions 14 we tried to -- okay. (Reading to self.) 15 So that would capture it, using first measure 16 of relevancy. The module -- okay. So we capture 17 multiple user actions basically there by utilizing that 18 monitoring component, and then those actions will play a 19 role in that subsequent or the second relevancy result. 20 BY MR. OHLERT: 21 Q. Prior to the 217 Patent, could computers 22 determine relevance of content based on a user's actions 23 on that content? 24 MR. PADMANABHAN: Objection. Rule 611. 25 THE DEPONENT: Can you say one more time,	Page 135 1 Q. And so any user action that a user performs on 2 electronic content could meet this claim, right? 3 A. Yes. 4 Q. And prior to the 217 Patent, content-relevant 5 systems could determine the relevance of electronic 6 content based on a user's actions on that content, 7 right? 8 MR. PADMANABHAN: Objection. Rule 611. 9 THE DEPONENT: Okay. So can you say one more 10 time. 11 BY MR. OHLERT: 12 Q. Prior to the 217 Patent, content-relevant 13 systems could determine the relevance of electronic 14 content based on a user's actions on that content, 15 right? 16 MR. PADMANABHAN: Objection. Rule 611. 17 THE DEPONENT: Content relevancy -- say one 18 more time, please. 19 BY MR. OHLERT: 20 Q. Prior to the 217 Patent, content-relevant 21 systems could determine the relevance of electronic 22 content based on a user's actions on that content, 23 correct? 24 A. Okay. So prior art, if you ask me, then the 25 rules talks about thumbs-up/thumbs-down, that type of
Page 134 1 please? 2 BY MR. OHLERT: 3 Q. Prior to the 217 Patent, could computers 4 determine the relevance of electronic content based on a 5 user's actions on that content? 6 A. Just relevancy, right? Not the first 7 relevancy, you say? 8 Q. What is the difference you're trying to make 9 there, sir? 10 A. Because in this patent, first relevancy 11 captures many user actions, not only one user action. 12 For example -- 13 Q. Sir, let me just stop you right there. This 14 claim doesn't specify what kinds of actions are tracked, 15 does it? 16 A. No. It says, "One or more actions of the user 17 on the piece of electronic content." 18 Q. So any user action on the content can meet this 19 claim, right? 20 A. And -- okay. So -- and then -- 21 Q. I need an answer to my question, sir. 22 A. Um-hum. So what is the question? 23 Q. This claim does not specify the kinds of 24 actions that are tracked, does it? 25 A. No.	Page 136 1 action is very primitive and, on the other hand, here 2 the actions are comprehensive as I told you. And -- and 3 based on these actions, we will do the pre-evaluation 4 and post-evaluation from the electronic content. 5 Q. So your answer is the prior art could only 6 track certain kinds of actions, like a thumbs up or a 7 thumbs down; is that correct? 8 A. Correct. 9 Q. And you understand this claim does not specify 10 the kinds of actions that it tracks, right? 11 A. Yes. I saw it one or more actions, right. 12 Q. So you understand that distinction about the 13 prior art tracking simplified kinds of actions is 14 completely irrelevant to these claims? 15 MR. PADMANABHAN: Objection. Rule 611. 16 THE DEPONENT: Completely -- which one is 17 irrelevant? 18 BY MR. OHLERT: 19 Q. You understand that the distinction you're 20 making about how the prior art could track simplified 21 kinds of actions is completely irrelevant to these 22 claims because these claims do not specify the kinds of 23 actions that they are focused on? 24 A. Say one more time. I couldn't get it. 25 Q. Okay. Sir --

Page 137 1 A. Rephrase it, yes. 2 Q. Sir, we're getting to a point where we're going 3 to have serious problems and we might need to have this 4 deposition continued to another day because I'm trying 5 to ask very simple questions. 6 A. Sure. 7 Q. And you're not answering and you're having me 8 repeat them multiple times with no explanation between, 9 and your answers, frankly, don't match the claim 10 language. And, again, I think that's a real problem. 11 So I'm going to try and ask again, but I really need you 12 to try to work with me here. 13 A. Sure. 14 Q. Because this is -- this is getting to be a 15 serious problem, sir. Okay? 16 A. Sure. 17 Q. You'll agree that prior to the 217 Patent, 18 electronic content-relevant systems could determine the 19 relevance of content based on a user's actions on that 20 content, correct? 21 MR. PADMANABHAN: Objection. Rule 611. 22 THE DEPONENT: I'm saying Patent 217 considers 23 many actions, and those are monitored and utilized in 24 the first relevancy and the second relevancy. 25 BY MR. OHLERT:	Page 139 1 Q. So you would agree prior art to the 217 Patent 2 also could determine the relevance of content based on a 3 user's actions on that content, correct? 4 MR. PADMANABHAN: Objection. Rule 611. 5 THE DEPONENT: No, I don't agree with that 6 part, that Patent 217. 7 BY MR. OHLERT: 8 Q. And why not? 9 A. Because -- there are a couple of things. The 10 first is, Patent 217 considers different types of pre -- 11 pre-ranking and post -- I'm sorry -- pre-evaluation, 12 post-evaluation. And then it has a different ranking 13 mechanism that takes into consideration the importancy 14 of the -- the sender and the organization, and then -- 15 and then it takes into consideration the content 16 relevancy, and then it takes into consideration the 17 cognate users who are recipient of the same electronic 18 content. 19 So these are the factors that will play a 20 significant role in the ranking process. That's why 21 prior art cannot be replace -- can't replace this patent 22 because this patent has a -- 23 Q. I'm not asking about the patent as a whole. 24 I'm asking about a very specific limitation, sir. 25 A. Um-hum.
Page 138 1 Q. The claims of the 217 Patent are agnostic to 2 the kinds of actions that are performed on content? 3 True or false? 4 A. Okay. That's not true. 5 Q. And so what does it matter that the 217 Patent 6 considers many actions if the claims don't specify the 7 kind of actions that are needed to meet the claims? 8 A. Certain actions will play a role and that was 9 clearly -- those actions were clearly specified in the 10 specification section, not in the claim language. 11 Probably claim language has a limited space to put. But 12 if you go to the specification, you will find those 13 details there. 14 Q. Okay. Sir, I'm asking you about the claims. 15 A. Um-hum. 16 Q. Are you familiar with the concept that you 17 cannot incorporate limitations from a specification into 18 the claims unless they are reflected into the claims? 19 A. No, I don't. 20 Q. You can't just look at the specification if the 21 claims don't say the same thing; isn't that true? 22 A. Okay. Yes. 23 Q. And so these claims don't talk about the kinds 24 of actions they are tracking, does it? 25 A. No, it doesn't.	Page 140 1 Q. And your answer talking about other limitations 2 is simply not responsive. And that's where we're 3 getting into the problem of we may need to continue this 4 deposition because you're not coming across as prepared 5 and able to answer these simple questions about the 6 claims. 7 A. Okay. So what is the simple question? 8 Q. You agree that prior to the 217 Patent 9 electronic-content-relevant systems could determine the 10 relevance of content based on a user's actions. Setting 11 aside whether they can do anything else, they can do at 12 least that, you would agree? 13 MR. PADMANABHAN: Objection. Rule 611. You 14 can answer. 15 THE DEPONENT: But you're focusing on the claim 16 that -- the relevancy claim. 17 BY MR. OHLERT: 18 Q. I am. I am asking a very specific question 19 only about that relevancy limitation, yes, sir. That is 20 what I'm asking about. Do you understand that? 21 A. Yes, I understand. Thank you. Yes, I agree. 22 Q. So once again -- strike that. 23 Prior to the 217 patent, 24 electronic-content-relevant systems could determine the 25 relevance of content based on a user's actions on that

Page 141 1 content? Yes or no? 2 A. Yes. 3 Q. And then next, the 217 Patent talks about a 4 second relevance measurement module. Do you see that? 5 A. Um-hum. 6 Q. I'm assuming you are going to say that the 7 prior art did not contain that second relevancy 8 measurement module, correct? 9 A. Correct. 10 Q. Okay. This talks about identifying at least 11 one other of the plurality of users that is a recipient 12 of the piece of electronic content and that is cognate 13 to the user. Do you see that? 14 A. I see it. 15 Q. You understand that identifying another user as 16 a recipient of the piece of electronic content is a 17 separate requirement from identifying a user that is 18 cognate to the user, correct? 19 MR. PADMANABHAN: Objection. Rule 611. 20 THE DEPONENT: Okay. So, no, these two 21 condition need to satisfy simultaneously. 22 BY MR. OHLERT: 23 Q. Yes. 24 A. When -- 25 Q. You agree?	Page 143 1 cognate, those are two separate requirements, correct? 2 A. Correct, but they're connected by "and." 3 Q. They are connected by "and." They are two 4 separate requirements, you agree? 5 A. Correct. 6 Q. And when this identified step is being 7 performed, it needs to identify only a -- at least one 8 other of the plurality of users, correct? 9 A. Correct. 10 Q. So this claim does not require identifying 11 multiple users who are cognate and multiple users who 12 have received the content, and then whittling it down, 13 right? You only need to identify one user that meets 14 both conditions; isn't that true? 15 A. Correct, yeah. 16 Q. Okay. Now, let's talk about the next 17 limitation, "Determining a second measure of relevance 18 of the piece of electronic content as based in part on 19 one or more measures derived from the group consisting 20 of." And then it lists, "Local importance, global 21 importance, content relevance, and one or more actions 22 on the piece of electronic content from that at least 23 one other user." Do you agree? 24 A. I agree. 25 Q. And so do you understand what a Markush group
Page 142 1 A. So I -- I -- I said where -- we want to find 2 the number of users that need to satisfy two conditions. 3 First, they need to cognate to -- they need to recipient 4 of the same electronic content and cognate to the user. 5 These two condition need to satisfy simultaneously. 6 Q. Okay. Let's break that down. So step one, you 7 agree that these are two separate requirements. That 8 the user must be both a recipient and separately must be 9 a cognate user to the original user, right? 10 A. That's correct. That's one possibility, yes. 11 Q. What do you mean that's one possibility? Isn't 12 that the only way to read this? 13 A. No. For implementation-wise, if you do the 14 computer implementation you can first identify a bunch 15 of cognate users and then -- then jog some of the users 16 for the recipient of the same electronic content or -- 17 Q. Sir, I'm not asking about how you would 18 implement this. I'm asking about the 217 Patent claims, 19 okay. Can you focus on that? 20 A. Sure. 21 Q. This says that you need to "identify at least 22 one other user that is both a recipient of the content 23 and that is cognate to the original user," right? 24 A. Um-hum. 25 Q. And the user being a recipient and being	Page 144 1 is? 2 A. No. 3 Q. Do you understand that in order for the claims 4 of the 217 Patent to be met, you only need to meet one 5 of these four options between local importance, global 6 importance, content relevance, and then looking to one 7 or more actions on the piece of content from at least 8 one other of the plurality of users? 9 A. So say one more time, please. 10 Q. You understand that the claims of the 217 11 Patent in order to be met only need to meet one of these 12 four options? 13 A. Yeah, one or more. 14 Q. And so if a prior art reference discloses 15 determining a second piece of relevance based on a local 16 importance, you don't have to also demonstrate that -- 17 global importance, as an example, right? 18 A. Correct. 19 Q. Okay. In the abstract, was looking to local 20 importance to determine the relevance of content known 21 in the prior art? 22 A. Which page 1 or -- column 1? 23 Q. I'm just looking at the claim we have been 24 discussing, sir. 25 A. Oh, Claim 1, where you said -- Claim 1, yeah.

Page 145 1 Q. When Claim 1 refers to local importance, is 2 determining content based on the local importance of a 3 sender something that the 217 Patent existed? 4 MR. PADMANABHAN: Objection. Rule 611. 5 THE DEPONENT: So one more time, what is your 6 question? 7 BY MR. OHLERT: 8 Q. This Markush group looks to four factors: 9 local importance, global importance, content relevance, 10 and then one or more actions of other users? 11 A. Correct. 12 Q. Was determining the relevance of content based 13 on local importance of a sender to the user known before 14 the 217 Patent? 15 A. No. 16 Q. So your opinion is, the 217 Patent invented 17 determining the relevance of content based on the local 18 importance of a sender to a user? 19 MR. PADMANABHAN: Objection. Rule 611. 20 THE DEPONENT: Give me one minute. Let me see 21 local importance here. Yeah, so a local importance in 22 Patent 217 relies on global importancy also and content 23 -- and then other relevancy. So there is a dependency 24 here. And that's why they use some Gauss-Seidel -- some 25 Gauss-Seidel equation to solve it due to this	Page 147 1 fact that when you take all these things that existed in 2 the prior art, and put them in a single spot, that's 3 what is inventive. And so I'm trying to walk through 4 each of these limitations and say, "Do you agree this 5 existed in the prior art or not, and if you think it 6 didn't exist in the prior art, I want to talk about 7 that." Okay? 8 A. Sure. 9 Q. And so right now I am focusing on determining 10 relevance based on the local importance of a sender to a 11 user. That doesn't talk about a Gauss-Seidel equation. 12 That doesn't talk about global importance. That just 13 talks about one thing in this Markush group. Okay? 14 A. Um-hum. 15 Q. So focusing on local importance -- 16 A. Go ahead. 17 Q. -- could systems before the 217 Patent 18 determine the relevance of content based on the local 19 importance of a sender to the user? 20 MR. PADMANABHAN: Objection. Rule 611. 21 THE DEPONENT: No. 22 BY MR. OHLERT: 23 Q. Why not? 24 (Simultaneous colloquy.) 25 A. Okay. Then I have to go through the -- the
Page 146 1 dependency. So I think local importancy describing an 2 importancy of the sender to the users, which is unique 3 in Patent 217. 4 BY MR. OHLERT: 5 Q. The claims don't refer to a Gauss-Seidel 6 equation, do they? 7 A. No, but they say -- 8 Q. The claims don't say that local importance is 9 based on global importance, do they? 10 A. No. 11 Q. Your answer is premised on the fact that local 12 importance is dependent on global importance, to suggest 13 that this limitation did not exist in the prior art; is 14 that correct? 15 A. Because I read the specification in detail -- 16 Q. Is that correct? 17 A. So are you asking me based on -- only on the 18 claim language or based on the claim plus specific 19 issue? 20 Q. I am trying to walk through Claim 1 and get 21 your opinion as to what existed in the prior art. And 22 let me try to be a little clearer here because I think a 23 lot of what's in Claim 1 did exist in the prior art. I 24 think you would probably agree with that. And the 25 reality is that your opinion is generally based on the	Page 148 1 specification and explain it. 2 Q. I don't think you have to go through the 3 specification to explain why you are saying that. 4 A. Okay. So because the local importancy is a 5 function of the -- is a function of the individual 6 importancy component, then it also depends on the 7 cognate users. And then it also depends on the sender 8 global or -- importancy. So based on these three 9 factors, we will calculate the -- you will calculate the 10 local importancy. So which -- I think any of the 11 previous approaches of patent address that issue. 12 Q. And so your answer is the prior art did not 13 look to local importance when determining the relevance 14 of content specifically because the 217 Patent defines 15 local importance as being based on other things, like 16 global importance, and that makes it more complicated. 17 Is that fair? 18 A. Sorry. 19 MR. PADMANABHAN: Objection Rule 611. 20 THE DEPONENT: Three factors: global, cognate, 21 and then the individual importancy component. So these 22 three factors will play a role on the local importance. 23 BY MR. OHLERT: 24 Q. You understand -- 25 (Simultaneous colloquy.)

Page 149 1 A. Yeah, go ahead. 2 Q. You understand the claims of the 217 Patent do 3 not define local importance with respect to global 4 importance or cognate? 5 A. They're describing in subsequent manner, so 6 they have to write in a certain way all people will 7 understand. 8 Q. But there is nothing in Claim 1 that says the 9 local importance is determined based on the global 10 importance or whether users are cognate, right? 11 A. No. But in the specification, I find it from 12 there, I can see how unique the method is. 13 Q. Okay. So you think the claims have a specific 14 meaning of local importance, and that you cannot 15 determine the local importance of content without 16 looking also to the global importance of content and 17 other cognate users; is that correct? 18 A. Yeah, an individual importancy component, 19 correct. 20 Q. Isn't that inconsistent with the fact that this 21 is a Markush group that only needs one of these four 22 elements to be met? 23 A. I think it is a chicken-and-egg problem. So 24 assumes there's some dependency exists, so that's why, 25 if you, let's say, try to measure one, then	Page 151 1 is the best way to deal with that because it considers 2 the other -- if you only focus on the, say, user 3 actions -- entirely only on the user actions, no cognate 4 users, no global importancy, you can calculate the local 5 importancy immediately. And there is no dependency. 6 But we don't know the quality of the result, how it will 7 be useful. 8 It is very likely that when you do the 9 post-reading evaluation the result may not -- user may 10 not be happy with the outcome or the result of the 11 ranking process. On the other hand, when you utilize 12 this local importancy, which is -- what you gain from 13 the global importancy, which depends on the cognate 14 users, which depends on the individual importancy 15 components, that will produce better quality results. 16 That's my answer. 17 Q. You understand the claims of the 217 Patent 18 don't have any thresholds about quality of answers in 19 order to be met, right? 20 A. Threshold means -- what do you mean threshold 21 here? 22 Q. You just answered that unless you consider 23 other factors in addition to local importance, the 24 outcome won't be very good. Why does that matter at all 25 to the claims of the 217 Patent?
Page 150 1 automatically the other one will come. 2 Q. So you don't think there is a way to evaluate 3 the local importance describing an importance of the 4 sender to the user, without also considering a global 5 importance describing an importance of the sender within 6 an organization, as well as considering one or more 7 actions on the piece of electronic content of the, at 8 least one other of the plurality of users, that is a 9 recipient of the piece of electronic content and that is 10 cognate to the user, correct? 11 A. Correct. So I'm saying we can do many ways the 12 local importancy -- you can do it. But it will not -- 13 probably do not work. So this dependency type of things 14 may help each other. May improve the quality of the 15 result. That's why this was an important component. 16 There is some dependency, local importancy, and global 17 importancy that play a role to each other. They 18 influence the -- because each other process for the 19 algorithm will take time to convert when you run, and it 20 produce -- over time it will be very smart and produce 21 the good quality results in terms of the ranking. 22 Q. So you said there are many ways to evaluate 23 local importance. 24 A. Not many ways. I'm saying there are a couple 25 of ways you can do it. But this is the -- I think this	Page 152 1 A. Okay. 2 Q. The claims of the 217 Patent don't care about 3 if the results are good or not, do they? 4 A. No, they care because then why -- 5 Q. Sir, sir -- the claims of the 217 Patent do not 6 have any requirements in them whatsoever about whether 7 results are good or not; isn't that true? 8 A. Yeah, it's true. 9 Q. So the claims of the 217 Patent do not care 10 whether the results are good or not. That's not 11 something that you look to when evaluating whether the 12 claims are met, is it? 13 A. But my -- okay. Then anybody can double-up the 14 system. And if it is a jammed system, who use -- nobody 15 will use it, right. And then this -- 16 Q. That may be true, sir, but it's irrelevant to 17 whether the claims are met. You would agree? You 18 understand that? 19 A. Yeah. I understand, yeah. 20 Q. So how does your answer about whether the 21 outcome is good or not inform whether the prior art 22 could perform this limitation? 23 MR. PADMANABHAN: Objection. Rule 611. 24 MR. OHLERT: You know what, withdrawn. I will 25 ask a different question.

Page 153 1 BY MR. OHLERT: 2 Q. So -- 3 A. Okay. 4 Q. -- your opinion is that the prior art did not 5 determine the relevance of content based on local 6 importance including because the 217 Patent defines 7 local importance to also consider cognate users, global 8 importance, and other metrics, correct? 9 MR. PADMANABHAN: Objection. Rule 611. 10 THE DEPONENT: Correct. 11 BY MR. OHLERT: 12 Q. And if the claims of the 217 Patent did not 13 have that requirement of local importance, you would 14 agree that prior to the 217 Patent, electronic relevance 15 systems could determine the relevance of content based 16 on local importance? 17 MR. PADMANABHAN: Objection. Rule 611. 18 THE DEPONENT: I do not get it. So please try 19 one more time. 20 BY MR. OHLERT: 21 Q. Let's assume the Board looks at your argument 22 and rejects the idea that local importance in a claims 23 of the 217 Patent is informed by global importance or 24 cognate users -- you with me so far? 25 A. No, that last part I did not get it, so.	Page 155 1 based on local importance before the 217 Patent, 2 correct? 3 MR. PADMANABHAN: Objection. Rule 611. 4 THE DEPONENT: No. 5 BY MR. OHLERT: 6 Q. Why not? 7 A. I don't see any work that talks about the 8 global importance in the electronic messaging system, 9 ranking -- 10 Q. What does global importance have to do with 11 local importance in that scenario, sir? 12 A. No, I am talking about the global importance 13 now. 14 Q. My question is about the local importance. So 15 please listen to the question and answer the question 16 that is asked. Okay? 17 A. Um-hum. 18 Q. Do you understand this is a deposition? That's 19 how this needs to work. I'm entitled to get answers to 20 my questions, not answers to other questions. Do you 21 understand that? 22 A. Sure. 23 Q. And you understand I have a right to a clean 24 record to represent my client in this case? You get 25 that?
Page 154 1 Q. Let's assume the Board rejects your argument 2 that local importance in the claims of the 217 Patent is 3 informed by global importance or cognate users. 4 A. Um-hum. 5 Q. You with me so far? 6 A. Yes. 7 Q. In that scenario you would agree that the prior 8 art disclosed determining the relevance of content based 9 on local importance, correct? 10 A. So you are saying local importance is -- the 11 Board decides local importance is covered by global 12 importance of cognate? 13 Q. No, no. I'm saying your opinion is that local 14 importance does not just mean local importance. Your 15 opinion is that local importance means some value of 16 local importance informed by global importance, as well 17 as other cognate users. That's your opinion that you 18 have been saying for the last few minutes, correct? 19 A. Correct, yeah. 20 Q. Now, let's say the Board disagrees and says 21 local importance just means local importance, okay? You 22 with me? 23 A. Yes. 24 Q. In that scenario, you would agree that the 25 prior art disclosed determining the relevance of content	Page 156 1 A. Sure. Yes. 2 Q. So in the scenario we were talking about, you 3 would agree that the prior art disclosed determining the 4 relevance of content based on local importance before 5 the 217 Patent, correct? 6 A. Um-hum. 7 Q. Is that a "yes"? 8 A. Sorry, what do you say? 9 Q. Sir -- let's go off the record. 10 THE VIDEOGRAPHER: Going off record at 11 12:23 p.m. 12 (Off the record.) 13 THE VIDEOGRAPHER: Back on record at 12:40 p.m. 14 BY MR. OHLERT: 15 Q. Okay. We have been talking about the claims of 16 the 217 Patent for a bit now, Dr. Khan. In your 17 opinion, what is the precise invention of the 217 18 Patent? 19 A. Thanks for asking. So multidimensional ranking 20 mechanism, that's a local importance, global importance, 21 content relevancy, and then how to find the cognate 22 users is the most important component of that 23 innovation. 24 Q. So it's specifically the ability to determine 25 relevance from multiple things, including local

Page 157 1 importance, global importance, and actions from cognate 2 users, fair? 3 A. Yeah, and the tracking user actions. 4 Q. Okay. And were any of those individual 5 components known in the prior art prior to the 217 6 Patent? 7 A. Specially I think the recommendation system 8 cognate was known previously. And then also the Rose 9 patent, we talk about it. So that also talks about some 10 of the -- covers some of the prior art. 11 Q. Okay. So it was known in the prior art to 12 determine recommendations from cognate users, fair? 13 A. Right. 14 Q. Okay. The 217 Patent doesn't claim any 15 specific math for how it determines relevancy scores, 16 does it? 17 A. It says, "the relevancy scores being determined 18 based on -- at least in part on the first determined 19 measure of relevance and on the second determined 20 measure of relevance." Claim 1, column 47, the last 21 paragraph. 22 Q. And -- 23 (Simultaneous colloquy.) 24 A. Doesn't talk about any specific math, correct. 25 Q. Okay. And so you can meet the claims of the	Page 159 1 it cites an article titled, "Using collaborative 2 filtering to weave an information tapestry by David 3 Goldberg et al., cited from December of 1991." Do you 4 see that? 5 A. Sure. Yeah, I saw it. 6 Q. Okay. And so you agree that collaborative 7 filtering techniques pre-date the 217 Patent by more 8 than a decade, correct? 9 A. Correct. 10 Q. Okay. Let's go to figure 3 of Rose. You would 11 agree that figure 3 shows that Rose can rank e-mails 12 according to a determined relevance score, correct? 13 A. Right. 14 Q. And then looking at figure 4, that has a 15 thumbs-up and a thumbs-down icon that I think you talked 16 about earlier. Do you see that? 17 A. Yeah. 18 Q. And so that kind of thumbs-up and thumbs-down 19 icon, that's so that a user in the Rose system can 20 provide explicit feedback on electronic content, 21 correct? 22 A. Correct. 23 Q. And you would agree that would constitute 24 determining a first measure of relevance of the piece of 25 electronic content based, at least in part, on one or
Page 158 1 217 Patent without performing a specific mathematical 2 formula or anything like that, right? 3 A. That part, I don't know that I can. 4 Q. I mean, as long as you are determining 5 relevancy based on the factors that are claimed, it's 6 not like you have to apply some specific mathematical 7 formula to meet the math -- the claims of the 217 8 Patent, right? 9 A. Yes. According to the claim language, yes, but 10 whether it will work or not doesn't define. 11 (Exhibit 1006 was marked for identification.) 12 BY MR. OHLERT: 13 Q. Okay. I am going to upload to the Chat Exhibit 14 1006, which is the Rose reference. Can you let me know 15 when you have that open? 16 A. It is open. 17 Q. Rose issued March 13th, 2001, correct? 18 A. Right. 19 Q. You do not dispute that Rose is analogous art 20 to the 217 Patent, correct? 21 A. Correct. 22 Q. And there's no dispute that Rose is prior art 23 to the 217 Patent, correct? 24 A. Correct. 25 Q. Looking at the top right of Rose's cover page	Page 160 1 more actions of the user on the piece of electronic 2 content, correct? 3 MR. PADMANABHAN: Objection. Rule 611. You 4 can answer. 5 THE DEPONENT: This is one of the methods here, 6 yeah, and that can capture user feedback, yes. But 7 Patent 217 talks about many, many actions -- more than 8 one. And some of them are very comprehensive and very 9 implicit feedback. This is more explicit feedback in 10 [inaudible]. And in my declaration I differentiate 11 implicit and explicit feedback. So here we talk about 12 explicit -- what the feedback you're talking about, 13 thumbs-up/thumbs-down, that's more explicit feedback, 14 but there might be some more implicit feedback that 15 Patent 217 takes into consideration. 16 BY MR. OHLERT: 17 Q. Okay. But the claims of the 217 Patent don't 18 distinguish between implicit and explicit feedback, they 19 just track actions on content; isn't that true? 20 A. Correct. 21 Q. And so you would agree this is a way that a 22 user in the Rose system in figure 4 can provide direct 23 feedback on electronic content, correct? 24 A. Correct. 25 Q. And Rose uses that feedback from users to

Page 161 1 inform the relevance of that content for users going 2 forward, right? 3 A. Okay. So -- 4 MR. PADMANABHAN: Objection. Rule 611. 5 THE DEPONENT: Here's two things. One is the 6 Rose patent -- I'm focusing now on Rose patent. So Rose 7 patent, when we tried to do the prediction for the 8 incoming messages and whether -- and the prediction 9 whether it would be like it or based on the prediction 10 we will put the messages in the list. If it was a -- 11 possibly likes it, then you come at the top of the list. 12 If it doesn't like it, then it will go bottom of the 13 list. So then -- so we don't consider the -- okay. 14 And then based on that, we come up with the 15 ranking list, and then we captured the user feedback 16 thumbs-up and thumbs-down. So once we captured this 17 feedback, this feedback will be -- will be -- will not 18 be used to rank this document again. It will be used 19 to, I guess, update the feedback. On the feedback we 20 get, based on that we will update our profile vector -- 21 user profile vector, and then that profile -- updated 22 profile vector will be applied for the new incoming 23 messages to rank it. 24 So here, if you remember in Patent 217 there 25 are two-step ranking. One is the pre-reading and the	Page 163 1 A. But I think Rose -- no, the Rose doesn't do 2 that. Rose -- that -- the document are not party to 3 that -- the one we are currently considering, once we 4 get the feedback that will not be -- that will not 5 participate in the ranking process again, no. 6 Q. But that's something you're inferring from 7 Rose. Rose never explicitly says that it will not 8 examine the relevance of a document that a user has 9 already rated, correct? 10 A. Yeah, but Rose talks about the prediction, 11 right. Many times it talks about the prediction. So if 12 I do the prediction already, then why I need to rank it 13 again? And our setting is different, but in 217 the 14 setting is different. So they are pre, post. Both are 15 required. 16 Q. The 217 Patent also talks about predictions, 17 doesn't it? 18 A. Yeah. Ranking process, yes. 19 Q. So why does the fact that Rose talks about 20 predictions mean that Rose would never re-rank content? 21 A. Because for the Rose, we just want to know 22 whether the user will -- will be happy with that message 23 or not. And so that -- based on that, we rank it and 24 put it there. And then once we get the feedback, we 25 already got the feed back. User likes it, so it will go
Page 162 1 other one is the post-reading. So that -- in this case 2 you can say Rose patent doesn't talk about the 3 post-reading evaluation at all. 4 I mean, my declaration I describe -- would 5 describe those things -- the prediction things in 6 details about the Rose patent. 7 Q. So why -- 8 (Simultaneous colloquy.) 9 Q. So your testimony is that Rose would not use a 10 user's direct feedback on a document to inform the 11 relevance of that document for a user -- for that user 12 going forward, right? 13 A. Yeah, current document, what we have. Because 14 we already give the feedback, so that feedback may not 15 be used. Using that feedback, we don't -- we don't want 16 to utilize it for ranking purpose immediately. 17 Q. Rose never explicitly says that it will not use 18 a user's direct feedback on a document to inform the 19 relevance of that document for that user going forward, 20 does it? 21 A. I think in my declaration I said clearly we -- 22 Rose patent. 23 Q. I am asking about Rose right now. If you want 24 to switch over to your declaration again, we can do 25 that.	Page 164 1 to the like -- like list. We don't need to worry about 2 whether it's -- but on the other hand, in Patent 217 we 3 do some sort of ranking, and ranking means you would 4 rank them in the -- in a certain order. 5 So in your feedback -- let's say we put the 6 message in the top of the list, but feedback says user 7 doesn't like that message that much, so then it will -- 8 in the post-evaluation state it will go in the middle or 9 the bottom of the list. So that way we do the update 10 immediately and local relevancy will take into that 11 consideration immediately. So it doesn't wait for that 12 next cycle. Where a document comes, a new message 13 comes, it doesn't wait for that in Patent 217. This is 14 one of the crucial differences between 217 and other 15 patents. 16 Q. I'm just trying to understand why you think the 17 217 Patent does re-rank but that Rose does not. 18 A. Okay. 19 Q. We agree that Rose never explicitly says it 20 does not re-rank content if a user has already provided 21 a rating on that content, correct? 22 MR. PADMANABHAN: Objection. Rule 611. 23 THE DEPONENT: Can you go back to my 24 declaration? I can explain from there. That would be 25 easier, if you don't mind. Can I do that?

Page 165 1 BY MR. OHLERT: 2 Q. You have your declaration, sir. You can open 3 that. 4 A. Can I share the screen or is that not allowed? 5 Q. If you would like to point to a specific 6 passage, I'm happy to look at it, sir. 7 A. Sure. 8 Q. Sir, you don't need to share your screen. Just 9 please state for the record -- 10 A. I see. 11 Q. -- what you would like us to look at so the 12 record is clear. 13 A. Sure. Sure. Okay. I got it. 14 Q. So what are you trying to point to in your 15 declaration? 16 A. I'm trying to open it. So I describe the 17 difference between Rose and Patent 217 in my declaration 18 paragraph 158, 159 -- 19 Q. Okay. 20 A. -- 160, 161, and then 162, 1 -- 21 Q. Sir, let me -- let me just take a step back. 22 Instead of pointing me to random paragraphs that say the 23 word Rose, can you point me to anywhere in your 24 declaration that has a passage from Rose that says Rose 25 will not re-rank content a user has already rated or	Page 167 1 asking a very specific question about Rose. 2 A. Sure. 3 Q. And this is the problem we were talking about 4 before where you're pointing me to something that is 5 unrelated and does not relate to that question and it's 6 just wasting time. 7 A. Sure. Okay. I apologize. If you see one -- 8 give me one moment. If you see 170, page 65. 9 Q. Yes, I see that. 10 A. "Prediction of relevancy." "Prediction of 11 relevancy." I think this all talks about Rose, right. 12 Q. Okay. So we already talked about earlier how 13 the 217 Patent also talks about predictions, right? 14 A. Okay. 15 Q. So these passages saying the word "prediction" 16 don't suggestion that Rose does not rewrite content, 17 does it? 18 MR. PADMANABHAN: Objection. Rule 611. 19 THE DEPONENT: Say, for example, once -- the 20 last one, on 65 page, "Once the user's profile is 21 retrieved, all the messages to be provided to the user 22 are ranked on the basis of a predicted degree of 23 relevancy to that user." 24 BY MR. OHLERT: 25 Q. What about that suggests that Rose does not
Page 166 1 anything like that? 2 A. Okay. 3 Q. Can you point me to that language that supports 4 your opinion? 5 A. Sure. If you see 169. 6 Q. Okay. 7 A. There we talk about "never used in Rose to 8 determine the relevance." 9 Q. So, again, don't point me to a paragraph that 10 just talks about Rose. Can you point me to anywhere in 11 your declaration that supports that Rose explicitly says 12 it does not re-rank content a user has already rated? 13 A. So I said 169, read that paragraph. The small 14 paragraph there we mention that "Rose to determine the 15 relevance score for an item before the first user has 16 rated the item. Therefore, Rose uses the first user's 17 profile to determine the relevance score before the 18 profile has been updated to reflect the first user's 19 rating of the item." And this is -- 20 Q. Sir, paragraph 169 does not cite any passage 21 from Rose, does it? 22 A. No. It talks about Fox's opinion of it. 23 Q. When you are referring to paragraph 169, I see 24 your opinion that Rose does not re-rank content. I 25 don't see anything from Rose that says that. So I am	Page 168 1 re-rank content? 2 A. Then also it doesn't say -- for example in 3 Patent 217, we state three and four are mentioned right 4 here. And here in Rose, they don't talk about the post 5 at all. 6 Q. Okay. Sir -- sir, you are pointing me to a 7 number of passages in paragraph 177 now. None of these 8 explicitly say that Rose will not re-rank content if a 9 user has already addressed it, right? 10 MR. PADMANABHAN: Objection. Rule 611. 11 THE DEPONENT: But it doesn't say that it will 12 re-rank also either. 13 BY MR. OHLERT: 14 Q. Okay. But you're the one saying that Rose will 15 not re-rank content. So I am trying to understand the 16 basis for your opinion. And it sounds like the basis is 17 that Rose doesn't actually say that? 18 A. Correct. 19 Q. So I want a very simple -- like I want a simple 20 answer. Like, we can talk about these passages, but 21 let's get there after you answer the question. Okay? 22 Strike that. 23 Rose never explicitly says it does not re-rank 24 content if a user has already provided a rating on that 25 content, correct?

Page 169 1 MR. PADMANABHAN: Objection. Rule 611. 2 THE DEPONENT: Correct. 3 BY MR. OHLERT: 4 Q. All right. Now, let's go back to the 217 5 Patent, because you were just saying that the 217 Patent 6 very clearly talks about pre and post-ratings. So I 7 want you to point me to where in the 217 Patent talks 8 about that concept. 9 A. Give me one minute. I am searching it. I 10 found it, that's good. Column 28, Patent 217. Column 11 28 and line number 25, and onwards, you will see 12 "before-reading" and "post-reading." There are two 13 different relevancy measures. 14 Q. So your opinion, is that because the 217 Patent 15 talks about relevance rankings before a message is 16 opened; i.e., before-reading, and after it is opened; 17 i.e., post-reading, that that actually refers to ranking 18 or not ranking content before and after a user takes 19 actions on that content? 20 A. No. I'm saying they have one ranking before 21 the reading and then that ranking will be updated based 22 on the feedback immediately. So then we call it 23 post-reading. 24 So what I'm saying, the object on electronic 25 content map here in top of the list before-reading, new	Page 171 1 Q. Why not? 2 A. Okay. So let's say we -- Mr. John Smith is a 3 user, and we have a profile, and he likes, let's say, 4 Dallas a lot in the past, and we have a lot of documents 5 for example related to Dallas visit. And now all of a 6 sudden after coming to Dallas, he doesn't like it -- in 7 the past he did not like it, so now he's saying -- in 8 the feedback case, he's giving -- in case of Rose, he's 9 giving thumbs-down, so now this message is not there -- 10 any more there. So already it is ranked and the user 11 gave a negative feedback and based on that feedback user 12 profile will be updated. Now Dallas will be downgraded 13 in his profile. Basically the profile will venture some 14 weight with keywords. Dallas will have a lower weight 15 with respect to other keywords and so on. 16 Now new message comes, and that talks about 17 Dallas Cowboys, and then that Dallas Cowboys news 18 articles will not be shown on the top of the list or may 19 not be shown to the user at all. 20 So when the update happens, this update will 21 not be reflected with the current messages because the 22 current message is already ranked and we already 23 captured the -- give the feedback on the current 24 messages and the current message is gone from the -- 25 it's not important anymore in terms of the ranking in
Page 170 1 e-mail content, but after the reading, based on the 2 interactions, are then -- post-reading will trigger that 3 electronic mail object may become bottom of the list. 4 Q. Okay. Let's go back to Rose. 5 A. This type of thing -- this type of thing may 6 not happen in other cases -- other places immediate. Go 7 ahead. You want to go back -- 8 Q. Okay. Let's go back to Rose, column 2. 9 A. Um-hum. 10 Q. And -- you know what, actually let's go to 11 column 6 of Rose. Sorry for that. So let's look at 12 lines 36 through 43. Rose teaches that, "Each user 13 profile also comprises a vector based upon the user's 14 indications as to his or her relative interest in 15 previously retrieved documents." 16 A. Um-hum. 17 Q. So that's teaching that users will provide 18 indications and their profile will have a vector that 19 indicates the relevance of previously retrieved 20 documents, right? 21 A. Um-hum. 22 Q. Isn't that discussing determining the relevance 23 of a document based on what a user has previously 24 retrieved? 25 A. No.	Page 172 1 this case. 2 And then when the new message come again -- so 3 for this new message, the -- this updated profile will 4 play a role where we already -- Mr. John Smith -- we 5 know that now in the profile, John Smith doesn't like 6 Dallas, so anything related to Dallas will be 7 downgraded. So that way this type of system works. 8 Q. That's what you're inferring as to how this 9 kind of system works, right? 10 A. I -- I do work in this area, so I know this is 11 the way it works. That's my -- 12 Q. So you never -- you couldn't point to a 13 statement in Rose that says it won't consider messages 14 that a user has already rated, right? 15 MR. PADMANABHAN: Objection. Rule -- Rule 611. 16 THE DEPONENT: Correct. 17 BY MR. OHLERT: 18 Q. And you just now said once a user provides 19 feedback on electronic content, now this message is not 20 any more there. What is your support? 21 A. No. 22 (Simultaneous colloquy.) 23 A. Okay. 24 Q. What is your support for that statement? 25 A. No, it is wrong. I think I did not state

Page 173 1 clearly the last part. "The message should not be 2 there," is not correct. The message will be there, but 3 it will not be a part of the ranking list. 4 Q. So if a user provides feedback on a document, 5 the system would never provide that document to the user 6 even if it was relevant? 7 A. If it is irrelevant already -- let's say user 8 says relevant, then it will go to the relevant -- in 9 this example it will go to the relevant bucket. And 10 then the -- I'm trying to say -- you're trying to point 11 out that the profile vector will be updated, right. So 12 since the profile vector will be updated. Now the 13 question is profile vector will work on which document? 14 It will work on the new incoming document. It will not 15 work in this case for the existing or current document. 16 Q. But again -- 17 (Simultaneous colloquy.) 18 Q. -- that's your inference of Rose. You don't 19 have any statement in Rose that suggests that it won't 20 use that profile vector to rank the relevance of that 21 content, correct? 22 MR. PADMANABHAN: Objection. Rule 611. 23 THE DEPONENT: The argument I have in this 24 case -- supporting argument is that in Patent 217 I 25 showed you there is a pre-reading, post-reading, that	Page 175 1 A. -- see where Rose has a -- 2 (Simultaneous colloquy.) 3 Q. Sir, sir, please don't speak over me. Again, 4 for the benefit of the court reporter, we really need to 5 not speak over each other. Thank you. 6 My point is, you either can point to an 7 explicit statement in Rose or you cannot. And if you 8 can't, that's fine. But then the answer to my question 9 becomes, "yes," you cannot point to that. Okay? It's 10 not okay to say "no," or "I don't know," and then be 11 unable to point me to a specific -- 12 (Simultaneous colloquy.) 13 A. Sure. I cannot point out it. 14 Q. Okay. So let me just ask the question to get a 15 clean record. 16 Strike that. 17 You are assuming that Rose will not use the 18 user's profile vector to re-rank the relevance of 19 content that the user has already rated, but you can't 20 point to any explicit statement in Rose to that effect, 21 correct? 22 MR. PADMANABHAN: Objection. Rule 611. Go 23 ahead. 24 THE DEPONENT: Correct. 25 BY MR. OHLERT:
Page 174 1 type of things are there. But in Rose, we don't have 2 pre-reading or post-reading are not clearly say. So I 3 assume that in case of Rose -- but the updated profile 4 will not be used to re-rank the -- the current document. 5 It will be -- updated profile will be used to re-rank 6 the incoming new documents or incoming new messages. 7 That's what I'm saying. 8 BY MR. OHLERT: 9 Q. But, again, that's your assumption about Rose. 10 You can't point to any specific statement that says that 11 Rose will not use a user's profile vector to rate the 12 relevance of content the user has already rated, 13 correct? 14 MR. PADMANABHAN: Objection. Rule 611. 15 THE DEPONENT: Okay. 16 BY MR. OHLERT: 17 Q. You agree? 18 A. I'm not agreeing or disagreeing in this case, 19 because it is not clear from here. 20 Q. Okay. This is a "yes" or "no" question, sir. 21 And either Rose has a specific statement about this, and 22 I'm -- 23 A. No. I don't -- 24 (Simultaneous colloquy.) 25 Q. -- am going to ask you to point me to it.	Page 176 1 Q. So you just gave an example where someone ranks 2 an e-mail about the Dallas Cowboys, and then that 3 informs future documents going forward, right? 4 A. Um-hum. 5 Q. Do you recall that? 6 A. Yes. 7 Q. What if a user got an e-mail about Dallas 8 Cowboys and ranked it negatively, and then got 10 9 million e-mails about the Dallas Cowboys and rated every 10 single one of those positively, wouldn't the Rose system 11 want to re-rank that original document because the 12 user's preferences might have changed? 13 MR. PADMANABHAN: Objection. Rule 611. 14 THE DEPONENT: That's a very good argument, but 15 I think here the system -- the works the -- it will -- 16 you are saying -- let's say Dallas Cowboys has 10 17 million users -- messages now, so those 10 million 18 messages will come to the users, and based on the user 19 profile we see that user profile likes Dallas Cowboys, 20 right. And so all of these messages will be delivered 21 to the users and then the users will give a feedback. 22 Based on that feedback, so in this 10 -- or one million 23 documents, original Dallas Cowboy articles will not be 24 there. Only the new messages will be -- will be ranked 25 and presented to the users.

Page 177 1 BY MR. OHLERT: 2 Q. Doesn't the fact that the user ranked each of 3 those documents positively after that initial one 4 suggest that their interest might have changed? 5 MR. PADMANABHAN: Objection. Rule 611. 6 THE DEPONENT: Yeah. Inter -- okay, yeah, 7 that's a -- that's a very good question. 8 So you're saying at the beginning it doesn't 9 like it, and now user likes it, and now -- now the -- 10 this e-mail message -- this messaging system works only 11 for the new incoming messages. They don't -- if they 12 consider, lets say, all the historical data or all data, 13 plus the new incoming messages and rank it, that's 14 possible. But usually this type of system focuses on 15 only the new incoming messages, which one unread or 16 which -- that will be -- try to be ranked based on this 17 system. Because if you consider the historical data, 18 you may end up with too many messages also and from 19 there you have to do the filtering or ranking. That 20 might be problematic also. 21 BY MR. OHLERT: 22 Q. So it sounds like you are citing your 23 experience with these kinds of systems to say that 24 that's not usually how they work, correct? 25 A. Yes.	Page 179 1 are -- then you will create the -- there are other issue 2 may arise. So I am saying when you -- let's say you 3 already see the message and you -- user already gave 4 the -- already gave the feedback, now we should not -- 5 in the error calculation we will use it for that data 6 once and update the model or update the weight, and then 7 we move to the next batch. Or we can consider all the 8 historical data and build a model from the scratch. 9 That's also possible. 10 But I'm saying this -- this message should 11 not -- that we already inspect it, should not 12 participate in the ranking process unless if it is a new 13 message. If it is -- it comes as a new unknown message, 14 then it's possible. But if it is already in the system, 15 it should not participate in the ranking process again. 16 BY MR. OHLERT: 17 Q. Okay. So earlier you talked about how a 18 computer system might make a prediction of relevance for 19 a user, a user might provide feedback, and the system 20 might try to re-rank that. But you're saying that 21 wouldn't apply in the example of Rose, right? 22 A. Okay. Let me understand the question. 23 So let's say if the duplicate message that 24 comes repeatedly and if there is a -- if you give the 25 similar feedback, like what you said, then in that case
Page 178 1 Q. But isn't it true that you could design a 2 system that would want to work that way, that -- 3 A. That's possible. 4 Q. -- would want to evaluate whether a user's 5 preferences for content changed based on subsequent 6 information? 7 A. That's possible, yes. 8 Q. And I think earlier -- you know, way back 9 earlier today in the deposition, you were talking about 10 error rates. And so a user -- or the system might 11 predict a user's likely interest in a document, and then 12 the user provides feedback, and then the system tries 13 again, and it uses that to iterate on the error rates to 14 try to take that error rate to zero. Do you remember 15 that? 16 A. Um-hum. 17 Q. Isn't that another reason why a system might 18 want to re-rank content even though a user's provided 19 feedback on it? 20 MR. PADMANABHAN: Objection. Rule 611. 21 THE DEPONENT: No. If the system already gives 22 some data and give the feedback, then that should not be 23 used again. It can be used -- it should be used in the 24 training purpose, but it should not be used for 25 re-ranking purpose or -- because then you are -- you	Page 180 1 in this part of -- in case of Rose, the weight vector 2 will go up for those keywords in that. So the profile 3 will have a bunch of keywords listed in simple case. 4 So those -- so he likes Dallas Cowboys, so 5 Dallas Cowboys, all of those keywords will -- their 6 score will go up over time due to this feedback. And, 7 now, when the new message come, we try to rank it based 8 on this updated profile. 9 Now the user will love Dallas Cowboys news 10 articles, and it will be -- I mean, it will be -- I'm 11 sorry. It will had been shown in the highly relevant to 12 the users. Dallas Cowboys news articles will be shown 13 as highly relevant to the users because user already 14 gave positive feedback. But this will go with the new 15 incoming messages essentially. 16 Q. Let's look at Rose again. In the same column, 17 the next sentence from what we were talking about at 18 line 38 says, "Each time a user provides a new response 19 to a retrieved message, the profile vector is modified 20 in accordance with the results of the indication." Do 21 you see that? 22 A. Yes. 23 Q. And so the user's profile vector will be 24 updated every time they provide feedback on electronic 25 content, correct?

Page 181 1 A. Yeah. So it may be updated periodically or it 2 may be updated in a synchronized way or immediately, 3 that's correct. 4 Q. So setting aside periodically or 5 non-synchronously, you will agree that the user's 6 profile vector will be updated each time they provide 7 feedback on electronic content, right? 8 A. The reason I'm saying this because I in- -- I 9 read many patents related to this topic, and I saw -- I 10 don't know it was Krugert, Creacher [sic] -- some of the 11 patent talked about this issue. They update the profile 12 periodically. The reason is, if you -- every time user 13 give feedback you trying to update the profile. It will 14 be time-consuming and expensive from the computer 15 resource perspective. 16 So what do they there, let's say every five 17 minutes or every hour, they will update that profile. 18 That's one way to deal with that. Or at the end of the 19 day, they will update the profile. That way you can 20 save your resources and so on because you have to pull 21 the -- those profiles through the memory and do it and 22 the competition and cost involved and the data transfers 23 are required. Data transfers are required and so on. 24 So these are always expensive thing. 25 But -- so that's why they develop these	Page 183 1 time they provide feedback on content? Yes? 2 A. Yes. 3 Q. And then this says that, "For example, if the 4 user indicates interest in a document all of the 5 significant terms in that document can be given 6 increased weight in the user's profile." Do you see 7 that? 8 A. Um-hum. 9 Q. The user's profile is not recording the user's 10 rating on that document. It is including specific 11 metric to see each of the terms in that document. Do 12 you see that? 13 A. Correct. 14 Q. And so I understand you dispute that Rose would 15 re-rank that content, but you would at least agree that 16 if Rose did re-rank that content it would appear more 17 relevant because all of the terms in that document have 18 been given increased weight in the user's profile, 19 right? 20 MR. PADMANABHAN: Objection. Rule 611. 21 THE DEPONENT: Correct. 22 BY MR. OHLERT: 23 Q. And you understand that generally when Rose 24 evaluates the relevance of content, it does so by 25 comparing a document's vector to a vector representing
Page 182 1 periodic things. Although the -- and on that approach 2 what you are suggesting with the -- 3 Q. Sir -- 4 A. -- way that it was written immediately, that's 5 possible. And I saw, especially Patent 217, in certain 6 cases local relevancy or local importancy, it talks 7 about it will be updated immediately. But on the other 8 hand, cognate users, local relevancy, that will be 9 updated slowly or periodically as I mentioned in figure 10 -- in some figure in the Patent 217. 11 Q. Sir, do you dispute that Rose will update a 12 user's profile vector each time that user provides 13 feedback on electronic content? 14 A. No, I don't. Because that way -- 15 Q. Okay. Okay. Let's -- let's just stay there. 16 I have limited time today. I need your answers, and if 17 I want you to elaborate I will ask. Okay? 18 A. Sure. Yeah, that's what I am trying -- 19 Q. And your counsel can also ask questions at the 20 end of this deposition to elaborate, if they would like. 21 So if there's something important, they can point that 22 out. I really just need direct answers to my questions. 23 Okay? 24 A. Thank you. 25 Q. So Rose will update the user's profile each	Page 184 1 the user's profile, right? 2 A. Correct, yeah, [inaudible]. 3 Q. Okay. Let's go to column 2, and I'll focus you 4 on line 29. 5 A. Yeah, column 2. 6 Q. This says that, "Using this profile, items of 7 information to be presented to the user; e.g., messages 8 and electronic mail network or documents within a 9 particular bulletin board category are ranked according 10 to their likely degree of relevance and displayed with 11 an indication of the relative relevance." Do you see 12 that? 13 A. Yes. 14 Q. So Rose contemplates being used with messages 15 in an electronic mail network as well as messages 16 displayed on bulletin boards, correct? 17 A. Correct. 18 Q. And you would understand that an electronic 19 mail network, that's referring to e-mail, correct? 20 A. Um-hum, yes. 21 Q. And you don't dispute that Rose is dealing with 22 content that is sent from a sender, correct? 23 A. Okay. So in the -- Rose deals user profiles 24 and the document profiles and match it based on that. 25 And that's more content or attribute-based matching, and

1 then they combine it with a correlation and come up with 2 the one unified score. So which is different from the 3 Patent 217, the ranking process. 4 MR. PADMANABHAN: That's not his question. 5 BY MR. OHLERT: 6 Q. You don't dispute that Rose is dealing with 7 content that is sent from a sender, correct? 8 A. Correct. It can be, yeah. 9 Q. And when you're talking about your arguments 10 about Rose, you -- that's not your argument? You're not 11 arguing that Rose does not involve content sent from a 12 sender, correct? 13 A. Correct. 14 Q. Okay. Let's talk about column 6 in Rose. 15 Specifically I will focus you on lines 5 to 6. Can you 16 let me know when you are there? 17 A. Sure. I'm here. 18 Q. So this says that, "Traditionally the ranking 19 of messages was based only on the content of the 20 messages in accordance with the present invention, 21 however, the ranking of messages was carried out by 22 combining data based upon an attribute of the message, 23 for example its content, with other data relating to 24 correlations of indications provided by users who had 25 retrieved the message." Do you see that?	Page 185 1 users whose interests in movies are similar or opposed." 2 Do you see that? 3 A. Yes. 4 Q. So Rose considers movies to be a kind of 5 electronic content that it rates, correct? 6 A. Correct. 7 Q. And a user's interactions with that content can 8 be used to inform the relevance of other users whose 9 interest in movies are similar or opposed, correct? 10 A. Um-hum, yes. 11 Q. And when it references other users whose 12 interests in movies are similar, you understand that's 13 referring to cognate users, correct? 14 A. (Reading to self.) Yeah, correct. 15 Q. Let's go to column 7, lines 35 through 37. And 16 this says, "In accordance with the invention, a 17 combination of attribute-based and correlation-based 18 prediction is employed to rank the relevance of each 19 item of information." Correct? 20 A. Right. 21 Q. So Rose is referring to evaluating each item of 22 information and it's not making a distinction about 23 whether that content has been ranked by a user 24 previously, correct? 25 MR. PADMANABHAN: Objection. Rule 611.
Page 186 1 A. Yes. 2 Q. And so when this talks about evaluating 3 messages based on their content, you understand that 4 would be evaluated with reference to the user profile 5 that is developed based on that user's interactions with 6 content? 7 A. Correct. 8 Q. Let's go to column 5, lines 55 to 60. This 9 says that "Each time a user sees a movie he or she can 10 record his or her reaction to it, like or dislike." Do 11 you see that? 12 A. No. Where is it line number? 13 Q. Column 5, line 55. 14 A. Line 55. Okay. Yeah, each -- "each time user 15 sees a movie..." Yes. 16 Q. It says -- and so each time a user sees a 17 movie, they'll record their reaction to it. 18 A. Um-hum. 19 Q. And this will use that reaction to update the 20 user's profile for the movie database. Do you see that? 21 A. Um-hum. 22 Q. Is that a "yes"? 23 A. Yes. 24 Q. "And this information is also used to provide 25 information to rank that movie for viewing by other	Page 188 1 THE DEPONENT: (Reading to self.) It may be 2 the new -- a new types of information -- a new -- each 3 type of -- each item of information means new incoming 4 information. 5 BY MR. OHLERT: 6 Q. But Rose doesn't make that distinction? 7 (Simultaneous colloquy.) 8 A. Yeah, correct. 9 Q. So at lines 43 to 47 of this column 7, Rose 10 says that, "For example, multiple regression analysis 11 can be utilized to combine the various factors. In this 12 approach regression methods are employed to identify the 13 most important attributes that are used as predictors; 14 e.g., salient terms in a document and users having 15 similar feedback responses." Do you see that? 16 A. Um-hum. Yeah, I see. 17 Q. Do you agree that when Rose refers to users 18 having similar feedback responses, it's referring to 19 cognate users? 20 A. (Reading to self.) They are trying to identify 21 the most important stuff. So it's not in a document. 22 It's nothing with the -- with the cognate users or 23 cognate -- so they are trying -- using regression, they 24 try to identify which are the important terms we should 25 focus on -- or we should take into consideration in the

Page 189 1 profile eventually. And I think the cognate part may be 2 more even relevant to the -- in this space the 3 regression of the top correlation-based, there it may be 4 associated. That's my understanding. 5 Q. And so the start of this paragraph refers to a 6 combination of attribute-based and correlation-based 7 prediction, right? 8 A. Right. 9 Q. And previously we talked about how Rose refers 10 to evaluating content-based on both the content itself 11 as well as feedback from other users, right? 12 A. Correct. 13 Q. And you understand that when Rose talks about 14 content, that is evaluated based on their user profile, 15 which is developed based on their actions on electronic 16 content, right? 17 A. Correct. 18 Q. And so is it fair to say that Rose generally is 19 saying its invention looks to two kinds of feedback when 20 determining relevance? One is content-based feedback 21 that looks at the user's actions and the other is 22 correlation-based feedback that looks at the actions of 23 other users? 24 MR. PADMANABHAN: Objection. Rule 611. 25 THE DEPONENT: Yeah. So correlations, yeah	Page 191 1 do -- to determine this weight, they will utilize 2 regression. That's my understanding. 3 BY MR. OHLERT: 4 Q. Yeah, sure. So is it fair to say that Rose is 5 using regression to identify the terms in that document 6 that it should look to when determining relevance? 7 A. To determine relevance will be done through the 8 user explicit feedback -- user thumbs-up/thumbs-down. 9 And then based on that, you will like certain -- if user 10 gives a thumbs-up, that means that document is relevant 11 to that user. And if user gives thumbs-down, that means 12 it doesn't like it. 13 And then if a user gives a thumbs-up, then 14 whatever the thumbs there, all of the keywords will be 15 -- you have a positive post in the ranking -- in the -- 16 in the -- in the profile. But now this is just for one 17 user. But you have many users and many documents out 18 there, and then you have to figure out which are the 19 important terms in those collection of users. 20 So that they want to determine using 21 regression, and then they -- that will give you -- 22 regression will give you some weight. That weight will 23 be used in the final calculation. That way I interpret. 24 Q. Okay. And I think we're on the same page, but 25 I just want to make sure we are not talking past each
Page 190 1 (reading to self) feedback and content means -- yeah, 2 that's correct. 3 BY MR. OHLERT: 4 Q. And so when we go down a little later in that 5 paragraph it says, "Regression methods are employed to 6 identify the most important attributes that are used as 7 predictors; e.g., salient terms in a document and users 8 having similar feedback responses." 9 Is it fair to say that that refers to the two 10 ways that Rose can determine content? First, by looking 11 at the salient terms in a document; and second, by 12 looking at users having similar feedback responses? 13 MR. PADMANABHAN: Objection. Rule 611. 14 THE DEPONENT: My understanding is they're 15 using regression for something else. So they're -- 16 because in a document you may have many, many terms, and 17 which terms you want to focus on. So that -- they're 18 trying to determine weight for those terms. And here 19 they're combining correlations with attribute-based. So 20 these two measurements, you need to combine it and it 21 come up with a score. 22 So they -- they want to do the weighted score. 23 So attribute will have some weight and the -- and the 24 correlation will have some weight and then multiply this 25 to corresponding ways and sum it up. So in order to	Page 192 1 other. So a moment ago you talked about regression 2 being used to identify what you want to look at for 3 relevance, right? 4 A. Which are the salient terms, yes. Which are 5 the salient terms in a large -- across multiple 6 documents, among multiple users. 7 Q. Okay. And so Rose discusses using regression 8 to identify which of the salient terms that it should 9 focus on for determining relevance, correct? 10 A. Correct. 11 Q. And in the same way, Rose also uses regression 12 to identify users having similar feedback responses so 13 that it can focus on the users that are most relevant in 14 making that determination? 15 A. I think they use one short -- utilize 16 regression only once for this to -- across the 17 document's keywords and then the feedback and determine 18 the weight, not separate. 19 Q. Isn't this paragraph explaining how it uses 20 regression? 21 A. Where? 22 Q. So we've -- we've been talking about a sentence 23 that says, "Regression is used to identify the most 24 important attributes; e.g., salient terms in a document 25 and users having similar feedback responses." You with

1 me? 2 A. Yes. 3 Q. And you just said that regression can be used 4 to identify the salient terms; i.e., which of those 5 terms that it should actually look to when determining 6 relevance, correct? 7 A. Right. I mean, and you see at the end, "how 8 much should be weighted," right? Regression -- 9 Q. Of course. 10 A. -- should be given some weight. That's the 11 important part. 12 Q. Sir -- okay. 13 A. Yes. 14 Q. Strike that. 15 You will agree that regression can be used to 16 identify the salient terms in a document; i.e., which of 17 those terms that Rose should look to when determining 18 the relevance of content, correct? 19 A. Correct. 20 Q. And in the same way, because it's part of the 21 same sentence, Rose also uses regression to determine 22 users having similar feedback responses that it should 23 use when evaluating relevance, correct? 24 A. Correct. 25 Q. And those users having similar feedback	Page 193 1 content, right? 2 A. Correct. 3 Q. Okay. Let's look at Claim 1 of Rose, which I 4 think is on the same page, just to the right. Do you 5 see that? 6 A. Um-hum. 7 Q. So first this talks about "storing user 8 profiles for users" in step A. Do you see that? 9 A. Um-hum. 10 Q. And then it says, "Determining an attribute 11 based relevance factor." Do you see that? 12 A. Um-hum. 13 Q. Do you see that? 14 A. Yes, I saw it. 15 Q. And then in step C it says, "Determining a 16 measure of correlation between the particular user's 17 interests and those of other users who have accessed the 18 said item of information." Do you see that in step C? 19 A. Um-hum. 20 Q. And then step D, "Combines the relevance factor 21 and said degree of correlation to produce a ranking 22 score for said item of information." Right? 23 A. Correct. 24 Q. And now step E repeats each of those steps for 25 each item of information to be presented to said
1 responses, those would be cognate users, correct? 2 A. No, I cannot say this. Did you this say -- 3 this doesn't mention anything about cognate users here. 4 And since they don't say the cognate user, I cannot say 5 it's a cognate user either. And I don't think the 6 way -- if you see the correlation analysis, the equation 7 they put on the top of this page, there they consider 8 all the other users receive the same electronic content 9 that were participants regardless of the cognate or 10 non-cognate. 11 Q. Okay. 12 A. Whether they are similar or not similar. 13 Q. Does that matter to the claims -- 14 A. I don't know. 15 Q. -- in the 217 Patent? 16 A. I don't know. 17 Q. I guess you would agree that users with similar 18 feedback responses would be cognate users, correct? 19 A. Users with similar responses -- can you say it 20 one more time, sir? 21 Q. You would agree that users with similar 22 feedback responses would be cognate users? 23 A. Correct. 24 Q. Because cognate is based on whether users have 25 similar interests, which is based on their feedback on	Page 194 1 particular user. Do you see that? 2 A. (Reading to self.) Yes, I saw it. 3 Q. And so if a user is trying to, you know, 4 understand the relevance of e-mails in their inbox, Rose 5 teaches that it's going to do these steps for each item 6 of information, correct? 7 MR. PADMANABHAN: Objection. Rule 611. 8 THE DEPONENT: Let me try to understand this 9 because I didn't -- did not read his claim yet. 10 (Reading to self.) So what is your question? 11 BY MR. OHLERT: 12 Q. If a user is trying to understand the relevance 13 of e-mails in their inbox, Rose teaches that it's going 14 to perform each of these steps for each item of 15 information in that user's mailbox, correct? 16 MR. PADMANABHAN: Objection. Rule 611. 17 THE DEPONENT: Yes, it is possible. 18 BY MR. OHLERT: 19 Q. Okay. Let's go to column 4 of Rose, and I 20 think this will probably be my last kind of 21 Rose-specific question, at least with this document. 22 So are you at column 4? 23 A. Yes. 24 Q. In line 40 to 42, Rose teaches that, "In an 25 e-mail system, all of the messages addressed to that
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Page 197 1 user are ranked." Do you see that? 2 A. 42? 3 Q. It looks like it's -- sorry. Line 38 to 40. 4 A. 38 to 40. 5 Q. And I'll just read the full passage so that 6 you're on the same page. Rose at line 38 to 44 says, 7 "Once the user's profile is retrieved, all of the 8 messages to be provided to the user are ranked on the 9 basis of a predictive degree of relevance to the user. 10 For example, in an e-mail system all of the messages 11 addressed to that user are ranked." Do you see that? 12 A. Yeah. 13 Q. And so your opinion is that if a user has 14 provided feedback on an e-mail, Rose would not re-rank 15 that e-mail as part of this process, correct? 16 A. (Reading to self.) Okay. So if you see the 17 previous sentence, "This profile is used to rate the 18 message stored within the system." So -- yes. So if 19 you have a bunch of messages you receive, then this 20 ranking system will come up with the rank. But every 21 time a new message comes, then they will try to rank it. 22 That's my understanding. 23 But if you want to build a system where you 24 want to consider the historical messages also, or old 25 messages to rank it -- anyway, the old messages will go	Page 199 1 it will consider or it will -- so the -- it will be 2 compared against the incoming messages. And incoming 3 messages -- in the e-mail system, you have a bunch of 4 incoming messages, and those will be ranked. And once 5 it is ranked, then we already got -- receive the 6 feedback. So that means if it is relevant, then you go 7 to the relevant site, and then next time we have a new 8 set of messages that will be ranked again. This way the 9 algorithm will process. 10 But I am not disagreeing with you that it may 11 be possible to build a system where you can also 12 consider the historical messages or rated messages to 13 it. That's possible. Very possible. 14 Q. So your answer just now spoke a lot about 15 ranking incoming messages, but Rose doesn't use the word 16 "incoming" in these paragraphs. Rose says that "all 17 messages addressed to that user will be ranked." Isn't 18 that true? 19 A. Correct. 20 Q. Okay. I have uploaded to the chat the 21 Institution Decision in this case. Can you open that 22 and let me know when you have it open? 23 A. Okay. 24 Q. And let's go to paragraph 22. 25 A. One minute, I haven't opened it.
Page 198 1 to the bottom of the rank usually because it's already 2 too old or of a temporal aspect usually considered in 3 all -- in most of the patent I saw. Even Patent 217 in 4 some cases. I think even Rose also considered temporal 5 aspect. 6 Q. So you're testifying now that Rose considers a 7 user's actions on content beyond explicit actions, such 8 as implicit actions, like how long ago they last read 9 the e-mail? 10 A. No. Okay. Let me see if I say correctly or 11 wrong. 12 Q. Here, let me -- let me ask a simpler question, 13 and let's just see if we can get on the same page there. 14 Okay? 15 Strike that. 16 So Rose teaches that, quote, all of the e-mails 17 to a user will be ranked in column 4, correct? 18 A. Right. 19 Q. And your opinion is that, in reality Rose would 20 not rank e-mails that a user has already provided 21 feedback on, correct? 22 A. It depends on the scenario, but the way it was 23 written, yes, you are right. So it will consider all of 24 them. So all of them means it may include the 25 historical one or not. I'm not sure from this item, but	Page 200 1 Q. Of course. Sorry. 2 A. It is the IPR2025? 3 Q. Yes. So just looking at the front page, this 4 is a document that's titled, "Decision, Granting 5 Institution of Inter Partes Review." Do you see that on 6 the front page? 7 A. Yes. 8 Q. Let's go to page 22, please. 9 A. Yeah. 10 Q. So the Board says that, "Petitioner points out 11 that Rose's system ranks messages in an electronic mail 12 network...according to their likely degree of relevance 13 and displayed with an indication of their relative 14 ranking. For example, they can be displayed in order of 15 rank. Patent Owner's argument that a document 16 previously indicated as relevant would not be ranked 17 suggests that, after a user rates an e-mail, Rose would 18 exclude that ranked e-mail from ongoing ranked e-mail 19 listings. On this record, doing so is contrary to 20 Rose's e-mail system." And, quoting Rose, the Board 21 says, "In an e-mail system, all of the messages 22 addressed to that user are ranked and displayed in order 23 from the highest to the lowest ranking." Do you see 24 that? 25 A. Um-hum. Yeah, I saw it.

Page 201 1 Q. And so the Board agreed that Rose teaches that 2 all of the messages will be ranked, not just those that 3 the user has not already provided feedback on, correct? 4 A. Correct, yeah, the Board said that. 5 Q. Does your declaration or your opinions in this 6 case rebut anything about the Board's statement here? 7 A. Yes. I think we provided some write-up on 8 that, the declaration. 9 Q. Okay. So you disagree with the Board in this 10 passage even now -- 11 A. Correct. 12 Q. -- after we've covered Rose? 13 A. Correct. 14 Q. Okay. Let's go to your declaration. And can 15 you just point me to where in your declaration you 16 address the Board's argument on page 22 of the 17 Institution Decision? 18 A. Yeah, I saw it. Paragraph 177. 19 Q. Okay. So in paragraph 177 you say, "As the 20 following passages demonstrate; however, Rose calculates 21 a ranking score of predicted relevance for each message 22 before it is presented to a -- the first user." Do you 23 see that? 24 A. Right. 25 Q. Do any of the passages you cite after this say	Page 203 1 the combination of Rose and Bieganski, correct? 2 A. Right. 3 Q. You understand that the Board concluded that a 4 person of skill in the art would have been motivated to 5 combine Rose and Bieganski, correct? 6 A. That -- yeah, Board interpret it, but I 7 disagree. 8 Q. Okay. And the Board stated that "Rose and 9 Bieganski are both concerned with recommending content 10 to a user based on other users' content preferences," on 11 page 28. Do you understand that? 12 A. Page 28. 13 Q. Of the -- of the Institution Decision, yes. 14 A. Hold on. Okay. Page 28. Yeah, I open it, 15 Page 28. Which line you are talking? 16 Q. The Board states that "Rose and Bieganski are 17 both concerned with recommending content to a user based 18 on other users' content preferences." Do you see that? 19 A. Um-hum. 20 Q. And so the Board wasn't concerned with the kind 21 of content that Rose or Bieganski looked at, correct? 22 A. Correct. 23 Q. I understand your point is that Rose and 24 Bieganski are directed to different kinds of content; is 25 that true?
Page 202 1 that Rose only evaluates the relevance of content before 2 it is presented to a first user? 3 A. No. 4 Q. Okay. Let's take a short break. Let's go off 5 the record and we can talk about it. 6 THE VIDEOGRAPHER: Going off record at 7 1:55 p.m. 8 (Off the record.) 9 THE VIDEOGRAPHER: Back on record at 2:02 p.m. 10 BY MR. OHLERT: 11 Q. So, Dr. Khan, welcome back. I'm going to 12 upload to the chat Exhibit 1007, which is the Bieganski 13 reference. Can you open that and let me know when you 14 have it open? 15 A. Yeah, I can open it. It's open. 16 (Exhibit 1007 was marked for identification.) 17 BY MR. OHLERT: 18 Q. Okay. You do not dispute that Bieganski is 19 analogous art to the 217 Patent, correct? 20 A. Correct. 21 Q. And you understand the Board's Institution 22 Decision concluded that Bieganski is an analogous art to 23 the 217 Patent, right? 24 A. Where is that mentioned? Okay. 25 Q. Your declaration makes a few points discussing	Page 204 1 A. Yes, to some extent. And there are other 2 issues, yeah. 3 Q. And you understand the Board rejected that 4 argument, right? 5 A. Correct. 6 Q. Okay. The Board also concluded that Bieganski 7 can be directed to textual information sources such as 8 internet documents, correct? 9 A. Yeah, correct. 10 Q. And you understand that Rose deals with those 11 kinds of textual information sources such as internet 12 documents? 13 A. Correct. 14 Q. Okay. I guess -- can you explain why you think 15 that a person of ordinary skill in the art would not be 16 motivated to combine Rose and Bieganski? 17 A. Okay. So I think in the declaration I clearly 18 state this, but let me pull out and I can tell you. I 19 can tell you, but at high level. 20 Q. High level would be fine. 21 A. Give me one minute. 22 Q. If you would like, I can point you to paragraph 23 196 of your declaration, if that's helpful. 24 A. Yeah, thank you. 25 All right. First of all, in Patent 217 when

1 you consider a set of users that are recipient of the 2 same electronic content, and that is cognate to the 3 users. So this condition need -- two condition need to 4 satisfy simultaneously. 5 In Rose patent, if you see the equation, they 6 put -- they consider all the users that receive the same 7 electronic content, that's fine, but they don't consider 8 the cognate there. That's one difference with this. 9 And then with respect to Bieganski -- okay, 10 Bieganski -- there's a Fox -- Dr. Fox argument, I tried 11 to dispute. But let me talk about -- (reading to self). 12 Okay. So combining this will not work 13 because -- because Bieganski doesn't address the same 14 content whereas every claim of Patent 21 -- 201 15 paragraph, I said, "Bieganski doesn't address the 'sent' 16 content, whereas every claim of 217 Patent addresses the 17 relevancy of 'sent' content. The Bieganski reference 18 doesn't address the problem of recommending a particular 19 type..." Okay, so that we already discussed, that's 20 fine. 21 And then -- and then. Okay. And then the 22 problem is combining Rose and Bieganski would not be a 23 simple change. Because if you see, Bieganski uses two 24 threshold. One is the minimum neighbor of similarity; 25 the other one is the maximum neighborhood site.	Page 205 1 involving contents sent from a sender, and it only looks 2 to Bieganski to understand the threshold values that you 3 critique elsewhere. 4 A. Um-hum. 5 Q. And so that combination doesn't rely on 6 Bieganski to identify content sent from a sender, right? 7 MR. PADMANABHAN: Objection. Rule 611. 8 THE DEPONENT: Let's say a -- the Bieganski 9 algorithm has three steps, right. One is the 10 recommendation. Then you have to get rid of the 11 popular, very frequent item or non-popular -- least 12 frequent item, you want to get rid of it. And then -- 13 then you do the weighted one and come up with the score 14 or what they call the serendipity -- serendipitous 15 congal function or integrators -- serendipitous congal 16 integrators. 17 So keep in mind that Bieganski entirely ignores 18 the popular item or popular -- if you have a -- that 19 means if you have a popular item, Bieganski will discard 20 it. It will not be -- will not pick it up in their 21 recommendation system. 22 Now, this may -- this may negatively effect 23 when you combine Rose and Bieganski, because some of the 24 popular items are based on that -- whatever the cognant 25 user will find, that may play some role. So I don't
Page 206 1 And when you combine it, these threshold are 2 not trivial, and it may vary from one user to another 3 user. And so -- so that's why I tried -- I argued that 4 POSITA ordinary skill set would not be able to do it by 5 combining these two together -- 6 Q. And -- 7 A. -- and would get the exact result. 8 Q. So let's take that a piece at a time. 9 A. Sure. 10 Q. One of your arguments is that Bieganski is not 11 discussing content that is sent from a sender, right? 12 A. Right. 13 Q. But you agree that Rose teaches that aspect of 14 the claims, right? 15 A. Correct. 16 Q. And so Bieganski doesn't need to teach that if 17 Rose already has that teaching; isn't that correct? 18 MR. PADMANABHAN: Objection. Rule 611. 19 THE DEPONENT: But you are combining these two, 20 right, Rose and Bieganski? And the one you are saying 21 is defined sender, other one doesn't talk about the 22 sender. So how do you do the metric? 23 BY MR. OHLERT: 24 Q. Well, the way it is explained in Meta's 25 petition is that Rose operates as it normally does,	Page 208 1 know whether they are combining Bieganski will work or 2 not. That's questionable. 3 And then as I said, the Rose -- if you want to 4 use the Rose recommendation -- I'm sorry, Rose 5 correlation metrics, they are -- in the equation, they 6 consider -- Rose considers all the users that recipient 7 of the same electronic content. But they do not -- they 8 do not define shared between the similar users or 9 cognate users versus non-cognate users. They don't. 10 BY MR. OHLERT: 11 Q. So my question was, the Rose/Bieganski 12 combination does not rely on Bieganski to identify 13 content sent from a sender, correct? 14 A. Correct. 15 MR. PADMANABHAN: Objection. Rule 611. You 16 can answer. 17 THE DEPONENT: Correct. 18 BY MR. OHLERT: 19 Q. And part of the argument in your declaration is 20 that a person of skill in the art would not have known 21 how to implement the threshold values that are set in 22 Bieganski, correct? 23 A. Correct. 24 Q. And that refers to Bieganski's discussion of a 25 minimum neighbor similarity and a maximum neighborhood

1 size -- 2 A. Right. 3 Q. -- when I say, "threshold"? Do you get that? 4 A. Correct. 5 Q. Okay. And your declaration states that in 6 paragraph 202, "The two threshold selections of 7 Bieganski are not trivial," right? You never elaborate 8 why it is your opinion that these thresholds would not 9 be trivial in your declaration, correct? 10 A. I briefly started, because I said, "This 11 threshold may vary from one targeted user to another 12 one." So keep in mind that for each users in the 13 Bieganski method, they utilize profile, and profile we 14 describe in terms of the items. And how many common 15 items are there is based on that they would calculate 16 the similarity. And then they want to get rid of some 17 of the users who are very frequent who are -- that will 18 be if the -- if -- if maximum neighbor -- 19 Q. And -- 20 A. -- and then also minimum neighbor similarity, 21 this will play a role to get rid of some of the -- some 22 of the users. When I'm saying this number is varies 23 from one user to another user. So it is not trivial to 24 set one threshold, it's all the users. 25 Q. I am asking a very direct question. Your	Page 209 1 way they use -- for the pruning purpose they use it. 2 Q. Why are the teachings in Bieganski not 3 sufficient to explain to a person of skill in the art 4 how to implement the minimum neighborhood similarity and 5 maximum neighborhood size taught in Bieganski? 6 A. Because this threshold is sensitive to that 7 each user, and it is not like one global threshold you 8 can use. If you use one global threshold across all 9 users, that's possible, but I don't know whether it will 10 work or not. So it will be the best case if we can come 11 up with -- for each individual user some threshold, and 12 that will be the ideal case. 13 But I think in this case a POSITA may need to 14 come up within the middle ground, so he may needs to 15 come up with something in the middle. For a group of 16 user, may you need to come up with the threshold. 17 So that is not -- that -- I'm trying to argue 18 that this is not a trivial problem, that you just simply 19 merge those two methods together and get the desired 20 result. That's not the case. 21 Q. I mean, Bieganski received a patent on these 22 thresholds, didn't they? 23 A. Yeah, yeah. They got it, yeah. 24 Q. And so you would expect that Bieganski itself 25 would teach how to implement these thresholds, wouldn't
Page 210 1 report simply says, "The two threshold selections in 2 Bieganski are not trivial." Your declaration does not 3 elaborate why it is your opinion that these are not 4 trivial to implement, correct? 5 MR. PADMANABHAN: Objection. Rule 611. 6 THE DEPONENT: You can see the next -- the very 7 next sentence I said, "Furthermore, these thresholds may 8 vary from one targeted user to another." 9 BY MR. OHLERT: 10 Q. So when you say "furthermore," you mean that 11 that sentence is explaining why these threshold 12 selections are not trivial? 13 A. I'm -- I'm providing my supporting document -- 14 supporting algorithm, yeah. 15 Q. Okay. And so the reason you say that the two 16 threshold selections of Bieganski are not trivial is 17 that the thresholds may vary from one user to another, 18 right? 19 A. Correct. 20 Q. Do you think Bieganski teaches how to perform 21 minimum neighbor similarity and maximum neighborhood 22 size? 23 A. I saw they assume some threshold in advance and 24 use it to -- for the pruning purpose. The example they 25 gave in Bieganski, 7 -- 60 percent, 70 percent. That	Page 212 1 you? 2 A. Keep in mind that the patent was released in 3 the year of 1991, you said, right, when collaborative 4 filtering was just starting. And -- and at that point, 5 my understanding is the threshold, maybe they did it by 6 manually or by hand. They may consider only a few 7 users. But here we're talking about -- in case of an 8 e-mail messaging system, if you want to use it, we are 9 consider -- we apply -- we may need to consider more 10 than 100 users in a particular organization. So then 11 threshold selection will not be trivial. 12 Q. Okay. Sir, can you go to the top of Bieganski 13 and tell me when Bieganski issued as a patent? 14 A. Sorry, 2001. I misspoke. I said 1991. 15 Q. Those are pretty big differences in years, 16 right, 2001 versus 1991? 17 A. Right. 18 Q. And so when Bieganski in 2001 is talking about 19 how to implement these threshold values, that would be 20 much easier than if he was trying to do it in 1991; 21 isn't that true? 22 A. Yeah, that might be true. Okay. Can you give 23 me a time to see it -- a couple of minutes to see 24 whether they talk about special threshold selection in 25 the beginning?

Page 213 1 Q. How about we go to the Institution Decision 2 actually? 3 A. Sure. 4 Q. And so I believe it was on page 28 of that 5 Institution Decision that it is discussing Bieganski 6 combined with Rose. 7 A. Yeah, 28. 8 Q. And then I think specifically on page 30 is the 9 discussion addressing these threshold selections. Let 10 me know when you're there. 11 A. I'm there. There I agree with the Dr. Fox 12 argument in that skill art -- 13 (Simultaneous colloquy.) 14 A. -- yeah, skill art do it -- can select this. 15 Q. And -- 16 (Simultaneous colloquy.) 17 A. -- same problem, yeah. 18 Q. And the Board says, "The threshold selections 19 in Bieganski are numerical parameters used to optimize 20 recommendations and that we agree with Dr. Fox that 21 selecting a number to optimize recommend -- 22 recommendations is within the ability of a skilled 23 artisan." Do you see that? 24 A. Um-hum, sure. I see it. 25 Q. And so the Board did not agree that combining	Page 215 1 THE DEPONENT: If you see they said, "These 2 parameters may be configured by the..." -- column 7, 3 line number 19, "These parameters may be configured by 4 the administrator of the recommendation in general. 5 Minimum neighborhood similarity ensures all that." So 6 that means that it's a manual process. And when it is a 7 manual process if, you have a few user system this will 8 work perfectly all right. But when you have a diverse 9 set of users, large number of users, then this manual 10 process may not work well or it may be subjective, time- 11 consuming. Those type of things will start to happen. 12 BY MR. OHLERT: 13 Q. So part of why you think a person of skill in 14 the art would not be able to combine Rose and Bieganski 15 is not that they wouldn't be familiar with these 16 thresholds, it's that implementing these thresholds for 17 a small number of users would be easy, but it would be 18 more complex when dealing a large number of users, 19 right? 20 MR. PADMANABHAN: Objection. Rule 611. 21 THE DEPONENT: Yeah. Obviously, for the large 22 number of users -- when you have e-mail system for a 23 large number of users, these will be very difficult to 24 deal with that. And we are talking about the e-mail 25 messaging system here. There we want to combine Rose
Page 214 1 Rose and Bieganski would not be trivial, correct? 2 A. Correct. 3 Q. And so my question is, you say that it would be 4 trivial -- or sorry -- strike that. 5 You say that a person of skill in the art with 6 Bieganski would not know how to implement these 7 threshold values. My question is, why doesn't Bieganski 8 itself teach how to do that? 9 A. Okay. There are a couple of possibilities. 10 One possibility is -- so you're saying -- let me make it 11 clear. So Dr. Bieganski -- I'm sorry, the Bieganski did 12 not disclose the threshold. That's what you're saying? 13 Or did not talk about how to run this threshold, right? 14 Q. Well, I think what I am saying is that 15 Bieganski teaches these thresholds, it has a patent on 16 them. And so doesn't that beg the question, why would 17 this be not trivial to implement if Bieganski teaches 18 these concepts? 19 A. Do you know where did they teach? Okay. 20 Q. I mean, there's passages here where it's 21 explaining these concepts. This is also cited in the 22 petition. 23 A. 1627? 24 Q. That is one passage that they cite. 25 MR. PADMANABHAN: 1627.	Page 216 1 and Bieganski; am I correct? 2 BY MR. OHLERT: 3 Q. Sure. And let's say we are dealing with 10 4 users. 5 A. But the -- in the organization there are 6 talking about -- Patent 217, in an organization they 7 will have -- I assume that they will have a good number 8 of users. Not like 5, 2, or 3, or 10. 9 Q. The 217 Patent never specifies the number of 10 users that are needed to infringe its claims, correct? 11 A. Correct. I agree with that part. 12 Q. And so the number of users isn't relevant to 13 whether something does or doesn't meet the 217 Patent 14 claims; is that right? 15 MR. PADMANABHAN: Objection. Rule 611. 16 THE DEPONENT: Correct. Correct. 17 BY MR. OHLERT: 18 Q. And so when we're talking about combining Rose 19 and Bieganski, I think you said that this would be 20 possible if there were a small number of users, correct? 21 A. Yeah, that's my first argument. And I think 22 that actually supports my claim. They're saying their 23 administrator can set up these parameters. And if you 24 are a few users, administrator can easily do it. But, 25 again, it will be a lot of work for that administrator

Page 217 1 to do it, to come up with the parameters of the 2 thresholds. But when you have many, many users or 3 mid-sized company where you won't be using your e-mail 4 messaging system like Patent 217, so in that case this 5 will -- this manual threshold selection will not work. 6 Q. Okay. But, again, if you had something on the 7 scale of 20 users, you think a person of skill in the 8 art would have been able to make that combination, 9 right? 10 MR. PADMANABHAN: Objection. Rule 611. 11 THE DEPONENT: May not work with the diverse 12 users, the different background, different interest it 13 may not work. But if you have a -- let's say similar 14 set of users, not diverse, then 10, 5 may work. 15 Actually all this encompasses a time when you do 16 something with the -- the human, that is -- you know, 17 that it's time-consuming, subjective, and is it not easy 18 to do it. And you have to do multiple times. You have 19 to run it and set the threshold and bury the threshold 20 and do the experiment. Many, many hours after that you 21 might get some useful results. 22 BY MR. OHLERT: 23 A. Okay. But, again, if you were just dealing 24 with a small number of users, it would have been well 25 within the skill of a person of ordinary skill in the	Page 219 1 (Simultaneous colloquy.) 2 Q. So you think she's a well-respected 3 professional in the industry? 4 A. Um-hum. 5 Q. Okay. Let's look at the abstract of Dumais. 6 This says that the very -- let's see. This says that 7 "various components and processes are provided to enable 8 data processing on multiple data types," correct? 9 A. Multiple data types and -- yeah. 10 Q. And so Dumais is able to be used with a number 11 of different types of data, correct? 12 A. Yes. From this writing, yes. 13 Q. And then let's go to paragraph 8. 14 A. Paragraph 8, okay. 15 Q. You don't contest that Dumais tracks an 16 individual user's actions on electronic content, 17 correct? 18 A. Correct. 19 Q. And Dumais in paragraph 8 teaches that "scores 20 or weights can be assigned based on opening, viewing, 21 scrolling, editing, printing, annotating, saving, 22 forwarding," and so forth. Do you see that? 23 A. Correct. 24 Q. And that's describing different ways that 25 Dumais can monitor the actions of users on electronic
Page 218 1 art to implement Bieganski's minimum neighbor similarity 2 and maximum neighborhood size in the context of the 3 teachings of Rose, correct? 4 MR. PADMANABHAN: Objection. Rule 611. 5 THE DEPONENT: Yeah, probably it may work, yes, 6 in that context with the few number of users. 7 BY MR. OHLERT: 8 Q. I am uploading Exhibit 1005 to the chat, which 9 is the Dumais reference. Can you tell me when you have 10 that open? 11 A. Yeah. 12 (Exhibit 1005 was marked for identification.) 13 BY MR. OHLERT: 14 Q. Okay. Looking at the cover of Dumais, you 15 understand Dumais is assigned to Microsoft, correct? 16 A. Yes, she's a very good person, Dumais is. I 17 read her paper when I was a student. 18 Q. And so you're referring to Suzanne T. Dumais, 19 one of the listed inventors? 20 A. Yeah. 21 Q. And you are familiar with Ms. Dumais? 22 A. Yeah, I know Dr. Dumais with her work in my 23 past experience when I was a student. You asked me some 24 interesting question about my Ph.D., so at that time I 25 read some of her paper. She probably --	Page 220 1 content, correct? 2 A. Correct. 3 Q. And when it says, "Forwarding," that's an 4 example of something that can be done with e-mail, 5 correct? 6 A. Yeah, forwarding is part of the e-mail. But 7 forwarding that is -- there are other places forwarding 8 can be used too. 9 Q. But you would agree generally when you're 10 forwarding something, you're referring to e-mail, right? 11 A. Correct. 12 Q. And at the very least you are referring to 13 sending a document from a sender to a recipient, 14 correct? 15 A. Correct. 16 Q. And if you wanted to know who a document is 17 forwarded to, you would need to explore e-mail headers. 18 Like who that document is to or who that document is 19 from, correct? 20 A. Correct. 21 Q. Okay. Let's go to paragraph 21. Can you let 22 me know when you are there? 23 A. Okay. 24 Q. This teaches in the last sentence, "By 25 observing that one user interacts with a subset of other

Page 221 1 users over a network, it may be determined or inferred 2 that this subset of users belongs to a desired social 3 network of interest for the one user as opposed to 4 plurality of other users who are never or rarely 5 interacted with." Do you see that? 6 A. Give me one minute to look. Okay. Yeah. 7 Q. And so when Dumais talks about identifying a 8 social network of interest you would agree that's 9 talking about identifying cognate users, correct? 10 A. Yeah. 11 Q. And it says that that "social network of 12 interest will be determined for the one user as opposed 13 to a plurality of other users." Do you see that? 14 A. Yeah, I saw it says, "Those other users are 15 never -- are rarely interacted with." 16 Q. And so Dumais talking about developing a social 17 network of interest for a single user, right? 18 A. (Reading to self.) 19 MR. PADMANABHAN: Objection. Rule 611. 20 THE DEPONENT: But -- okay. So I don't know 21 whether they talk about social network means time -- 22 what about the social network is meant, but they are 23 talking about some sort of -- yeah, the relevant user 24 set, yeah, for a given user. 25 BY MR. OHLERT:	Page 223 1 you see that? 2 A. Which say -- oh, in the middle or in the item 3 22, paragraph 22? 4 Q. Yeah, let me ask it again. I am just reading 5 the last sentence of paragraph 22. 6 A. Okay. 7 Q. And so this says -- it says up above that 8 monitoring can occur, and then it's giving you examples 9 of monitoring. 10 A. Okay. 11 (Simultaneous colloquy.) 12 A. Yes. Yes. 13 Q. Okay. And so you agree Dumais discusses that 14 monitoring can include tracking when a document is 15 forwarded, replied to, or sent to. Fair? 16 A. Correct. 17 Q. And to know who a document is forwarded to, 18 sent to, or replied from, you would necessarily need to 19 examine the "to" and "from" fields in how that document 20 is transmitted, correct? 21 A. Correct. 22 Q. And these are generally actions that can be 23 done on an e-mail that is being sent from a sender to a 24 recipient, correct? 25 A. Correct.
Page 222 1 Q. And so it's talking about the relevant user set 2 for a given user, and that means that the relevant user 3 set for a different user might be different. Is that 4 fair? 5 A. I'm sorry, can you say one more time? 6 Q. And so Dumais talking about the relevant user 7 set for a given user, and that means that the relevant 8 user set for a different user might be different? 9 A. Correct. 10 Q. Let's look at paragraph 22. That should just 11 be the next one down there. And so paragraph 22 is 12 generally discussing Dumais's monitor. Do you see that? 13 A. Um-hum. 14 Q. And it says, "That monitoring can include 15 observing when files are opened or closed, edited, added 16 to or deleted from, read or written to, cut, pasted, 17 last edited, forwarded, replied to, sent to, last 18 viewed," and so on. Do you see that? 19 A. Um-hum. Yes. 20 Q. And so Dumais talks about how monitoring can 21 include tracking when a document is forwarded, replied 22 to, or sent to some other user; is that correct? 23 A. But there was a forward. They said -- is this 24 the forward -- here, or reply? No, right? 25 Q. It says, "forwarded, replied to, sent to." Do	Page 224 1 Q. Okay. 2 MR. OHLERT: Would it make sense to just take a 3 short break? I'll try and be quick and then hopefully 4 we can wrap this up in the next 30 minutes or so. 5 MR. PADMANABHAN: Sure. 6 MR. OHLERT: Let's just take five minutes. 7 Back at 2:40. 8 THE VIDEOGRAPHER: Going off record at 9 2:34 p.m. 10 (Off the record.) 11 THE VIDEOGRAPHER: Back on-record at 2:40 p.m. 12 BY MR. OHLERT: 13 Q. Let's go to paragraph 52 of Dumais. Can you 14 let me know when you are there? 15 A. Yeah, 52. 16 Q. And Dumais teaches that, "Models can be derived 17 for individuals or groups of individuals such as via 18 collaborative filtering techniques that develop profiles 19 by the analysis of similarities among individuals or 20 groups of individuals." Do you see that? 21 A. Um-hum. Yes, I saw it. 22 Q. And so Dumais can generate models for 23 individuals or for groups of people, right? 24 A. Um-hum. 25 Q. And these models can be developed by using

1 collaborative filtering. Do you agree? Page 225 2 A. Correct. 3 Q. Collaborative filtering is one of the ways that 4 the 217 Patent discusses how to identify cognate users; 5 isn't that correct? 6 A. Correct. But also in Patent 217 they talk 7 about the two conditions. One is the cognate users, 8 other one is the recipient of the same content. 9 Q. Okay. But focusing on cognate, you understand 10 that one of the ways the 217 Patent can identify cognate 11 users is using collaborative filtering, right? 12 A. Correct. 13 Q. And so when Dumais talks about identifying 14 similarities among individuals or groups, that's 15 teaching how to identify cognate users, correct? 16 A. Correct. 17 Q. And so when Dumais talks about identifying 18 these models, it's doing so by looking at similarities 19 among individuals, including the usage of items, right? 20 MR. PADMANABHAN: Objection. Rule 611. 21 THE DEPONENT: I don't know whether that -- 22 Dumais talks about the start, right. User submits a 23 query and the query will be modified or re-edited and 24 submit to the search engine. And search engine will 25 give you some -- searches other objects, and then those	1 you see that? Page 227 2 A. Uh-huh. 3 Q. And it also refers to a "personalization 4 component 410 that includes a user model 420 based on 5 user activity." Do you see that? 6 A. Yeah. 7 Q. And this continues to say that, "The 8 personalization component can influence search results 9 by modifying a query and/or modifying results returned 10 from a search." Do you see that? 11 A. Correct, um-hum. 12 Q. And so is that what you were talking about when 13 you talked about Dumais modifying search results using 14 these user profiles? 15 A. Correct. 16 Q. Okay. And so a user model can influence 17 results and modify queries. Do you agree? 18 A. (Reading to self). Sorry, can you say one more 19 time, please? 20 Q. So a user model can modify search results and 21 queries for a user, you agree? 22 A. Correct. 23 Q. And continuing on in paragraph 40, right at the 24 end of the paragraph on the page it's, "A global 25 database 490 of user statistics may be maintained to
1 objects will be presented to the user. But before Page 226 2 presentation they will do another reordering based on 3 the user interest and present to the users. In a 4 certain way that user will had been happy. 5 And that there the collaborative filtering is 6 used to build a profile for the -- if you have a new 7 user, so you may not have the profile right. So for 8 that we need to find profile, then collaborative 9 filtering can be used. 10 And also for -- when you look for -- when 11 you -- as a user when you search some items, your query 12 will had been modified based on the collaborative 13 filtering -- will help us to augment the queries or 14 additional terms or inject additional terms on the 15 queries based on that because collaborative filtering 16 will give you group profiles and produce group profiles. 17 You have certain terms that those groups like 18 it and use it as a part of that group. Then we will 19 pull out those terms and add them to the query terms and 20 the query will be submitted to the search engine 21 augmented phrase or extended phrase. 22 Q. Let's go to paragraph 40 of Dumais. Can you 23 let me know when you are there? 24 A. Yeah. 25 Q. This paragraph makes reference to figure 4. Do	1 facility [sic] updates to the user model 420." Do you Page 228 2 see that? 3 A. Um-hum. 4 Q. So Dumais is teaching that it has a global 5 database of user statistics that can help update that 6 user model for users, right? 7 A. Correct. 8 Q. And then the final sentence here says that, 9 "User model 420 and/or global statistics 490 can be 10 associated with user activity or interaction data to 11 facilitate data manipulation or processing." Do you see 12 that? 13 A. Um-hum. I see it there. I can see it, yeah. 14 Q. Okay. So is it fair to say that user model 420 15 is going to relate to user activity of that particular 16 user? 17 A. Okay, yeah -- so what is it you have to say? 18 Q. Is it fair to say that user model 420 relates 19 to user activity data for that particular user? 20 A. Correct, yeah. "User model is user profile 21 that monitors the user activities," correct. 22 Q. And then the global statistics 490, that could 23 include user activity of other users, correct? 24 A. All the users, and then -- yeah. 25 Q. And let's go to paragraph 41 just continuing

1 on. This teaches that, "Relevance feedback is a 2 two-cycle variation of this process wherein a query 3 generates results that lead to a modified query using 4 explicit or implicit judgments about the initial result 5 set, which yields personalized results that are 6 personalized to a short-term model based on the query 7 and result set." Do you see that? 8 A. Um-hum. 9 Q. And then the next line is that, "Longer-term 10 models can be also used in the context of relevance 11 feedback," right? 12 A. Yeah, I see. 13 Q. So paragraph 41 is teaching that these user 14 models can be used long-term to help evaluate the 15 relevance of content to users, correct? 16 A. Let me understand one more time you are trying 17 to say. (Reading to self.) Okay. Yeah, I saw it, 18 "longer-term user model." 19 Q. And so paragraph 41 teaches that, "These user 20 models can be used long-term to help evaluate the 21 relevance of content to users," correct? 22 A. But I think there "long-term" means you can -- 23 final result, you can summarize it. Because as you see 24 here at the end there is, "Modification of results can 25 also include various types of agglomeration and	Page 229 1 Q. And one example in step 2 is that Dumais's user 2 models can be based on content previously encountered, 3 correct? 4 A. Which line? 5 Q. Paragraph 45 in step 2 Dumais teaches that, 6 "User models can be based on content previously 7 encountered," right? 8 A. In paragraph 45, right? 9 Q. Yes. 10 A. Encounter, yeah. Documents (reading to self) 11 -- so, yeah. 12 Q. And as an example of content previously 13 encountered, Dumais lists e-mail and instant messages, 14 right? 15 A. Yes. 16 Q. And Dumais's user models can be based on 17 monitoring client interactions, correct? 18 A. Um-hum. 19 Q. And so when it's talking about monitoring 20 e-mails, that can include monitoring e-mails that the 21 user previously dealt with and interacted with, right? 22 A. Which one? The 46, client interaction? 23 Q. No, but I'll just withdraw the question and 24 move on. 25 "Dumais's user models can be based on
1 summarization of all subset of results." 2 So basically they tried to -- with the 3 information overlook problem. So is -- long-time user 4 model means -- my understanding from this reading from 5 here that you can -- short-term goes with each 6 individual users and longer-term considers more 7 multiple -- group of users maybe, and then they do some 8 sort of class time or summarization for the results. 9 Q. Okay. And continuing on in paragraph 41 this 10 says that -- in the second-to-last sentence, 11 "Modification of results usually includes some form of 12 re-ranking and/or selection from a larger set of 13 alternatives, which can include a consideration or 14 weighting from determined activity data." Do you see 15 that? 16 A. Um-hum. 17 Q. And so you agree that Dumais will re-rank 18 search results as part of this relevance process, right? 19 A. Yeah, personalizations. 20 Q. Okay. And then paragraph 43, the very last 21 sentence says, "The user model can be obtained from a 22 variety of sources." And then the next couple of 23 paragraphs list examples of those kinds of sources. Do 24 you see that? 25 A. Um-hum.	Page 230 1 monitoring client interactions, topics of interests 2 derived from keywords and relationship in an 3 organizational chart," correct? 4 A. Right. Yeah, I saw it 46, yes. 5 Q. And so paragraph 46, that's describing both 6 local and global interests, right? 7 MR. PADMANABHAN: Objection. Rule 611. 8 THE DEPONENT: Okay. Monitoring -- (reading to 9 self.) So that talks about, yeah, the keywords, 10 relationship, the organizational chart, appointments, 11 and so forth, so on. 12 BY MR. OHLERT: 13 Q. And when Dumais says those words, it's 14 referring to a global and/or a local importance for the 15 user, right? 16 A. I don't think -- 17 MR. PADMANABHAN: Objection. Rule 611. 18 THE DEPONENT: I -- I don't agree with that 19 part. 20 BY MR. OHLERT: 21 Q. You would agree that an organizational chart is 22 an example of a local importance value in the 217 23 Patent, correct? 24 A. Organization chart may be something else here. 25 Is it in the hierarchy of the organization? I'm not
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1 sure whether it talks about that and -- and -- and also 2 as I pointed out, the primary focus of the Dumais on the 3 chart, get the sources relevant, then re-rank it and 4 present to the users in a personalized manner. 5 And then I also talk about -- and in the Patent 6 217, if I remember, local importancy is a function of 7 global -- a cognate user's global importancy and 8 individual importancy components. And a global 9 importancy where they consider the -- how important the 10 user is and the digital mine based on the -- not only on 11 the organization chart or organization rank for sender's 12 importancy can be determined based on how many important 13 messages the sender sends. That -- where eventually the 14 Patent 217 will learn that algo- -- or will learn that 15 weight. 16 Q. You would agree that one way to determine the 17 local importance of a sender to a recipient is to look 18 at an organizational chart as described in the 217 19 Patent, correct? 20 A. Did I say that before? I can't remember. I 21 don't think so. 22 Q. Okay. Sir, let's go to the 217 Patent in 23 column 30. Please let me know when you're there. 24 A. Column -- 25 Q. Column 30.	Page 233 1 consideration some of the posts in the organization 2 chart that may play a role here, that's true. But other 3 part, I don't know how to do it here. 4 BY MR. OHLERT: 5 Q. And so you can't answer that question because 6 you can't identify how local importance is evaluated in 7 the 217 Patent? 8 A. No, I said local -- local importancy is a 9 function of three factors that Patent 217 clearly state. 10 One is the individual importancy component, then -- 11 Q. And you -- let's try to cut through it because 12 we're really short on time. 13 A. Sure. 14 Q. Can you point me to -- you know what, 15 withdrawn. 16 Go back to Dumais. Let's look at paragraph 48, 17 please. 18 A. Yeah. 19 Q. Dumais's user models can be based on a profile 20 of user interest which can be specified explicitly or 21 implicitly derived via background monitoring. Do you 22 agree? 23 A. (Reading to self.) Yeah, uh-huh. 24 Q. Let's go to paragraph 58. 25 A. In Dumais? Page 235
Page 234 1 A. Yeah. 2 Q. And this talks about the "local importance of 3 the sender to the individual recipient, which can depend 4 on where within the organizational chart the sender is 5 relative to the receiver," correct? 6 A. Correct. 7 Q. And so when Dumais talks about examining 8 relationships based on an organizational chart, that is 9 an example of local importance as described in the 217 10 Patent, correct? 11 MR. PADMANABHAN: Objection. Rule 611. 12 Is there a question pending? 13 MR. OHLERT: There is. 14 THE DEPONENT: Oh, what is your question? 15 BY MR. OHLERT: 16 Q. When Dumais talks about examining relationships 17 based on an organizational chart, that is an example of 18 local importance as described in the 217 Patent, 19 correct? 20 MR. PADMANABHAN: Objection. Rule 611. 21 THE DEPONENT: So I see that there is a keyword 22 organizational chart. But local importance, it depends 23 on a -- as I said, three factors, right. Cognate, then 24 global importancy, and individual importancy component. 25 So -- and global importancy takes into	Page 236 1 Q. Of Dumais. Okay. Dumais teaches that search 2 component 650 can receive a user query. Do you see 3 that? 4 A. Search component -- (reading to self). Um-hum. 5 Q. And Dumais continues on to explain that, "The 6 search component can extract items, quote, such as 7 e-mails, co-worker evaluations, documents published in 8 the last year, web page images, audio recordings, and so 9 forth." Do you see that? 10 A. I see it. 11 Q. And so Dumais teaches that its searches can 12 return e-mails, correct? 13 A. (Reading to self.) Yes, it can be. 14 Q. So e-mails are an example of the kind of 15 content that's being re-ranked when Dumais modifies its 16 search queries; is that correct? 17 MR. PADMANABHAN: Objection. Rule 611. 18 THE DEPONENT: Sorry, can you say one more 19 time? 20 BY MR. OHLERT: 21 Q. So e-mails are an example of the kind of 22 content that's being re-ranked when Dumais modifies its 23 search queries; isn't that true? 24 MR. PADMANABHAN: October. Rule 611. 25 THE DEPONENT: Correct.

1 MR. OHLERT: I understand you have a hard stop, 2 so we are going to stop at this time. 3 Mr. Padmanabhan, I assume -- do you have any 4 additional questions? 5 MR. PADMANABHAN: No. Well, I have -- I was 6 going to have one question, but... 7 MR. OHLERT: Okay. I pass the witness, so you 8 can ask your question. 9 MR. PADMANABHAN: I just have one. 10 EXAMINATION BY MR. PADMANABHAN: 11 Q. Can you open your declaration to paragraph 185? 12 A. 185. 13 Q. Are you there? 14 A. Yeah. 15 Q. Do you see the very first sentence that you 16 testified to. You say, "In Rose, the second similarity 17 measure employs correlations and ratings from all users 18 across the system from the same item or electronic 19 object." Do you see that? 20 A. Yes. 21 Q. Do you still agree with your testimony? 22 A. Yes, I agree, and I said it also in the 23 testimony. 24 MR. PADMANABHAN: That's all I have. 25 MR. OHLERT: Okay. I just have one more	Page 237 1 the opinions he provided in his declaration, including 2 because he could not elaborate at times about why his 3 opinions were that way in light of the claims of the 217 4 Patent. 5 And, Mr. Padmanabhan, if you would like to add 6 anything, please feel free, but otherwise we can go off 7 the record. 8 MR. PADMANABHAN: The only thing I would add is 9 much of the questioning was topics that were not covered 10 in his deposition -- by his declaration, but you were 11 entitled to ask those questions. I just want to put 12 that in there. 13 MR. OHLERT: Understood. 14 THE VIDEOGRAPHER: Elizabeth, would you like to 15 get copy orders on the record? 16 COURT REPORTER: Yes, please. I'm sorry. 17 Counsel, if I could get copy orders on the record, 18 please. 19 MR. OHLERT: So I think for us, we would like a 20 rough. We don't need the transcript expedited. 21 MR. PADMANABHAN: Yes, we are the same way. We 22 would like a rough, but we don't need the transcript 23 expedited. 24 THE VIDEOGRAPHER: Okay. Going off-record at 25 3:03 p.m.
1 question. 2 FURTHER EXAMINATION BY MR. OHLERT: 3 Q. Dr. Khan, at any point during the breaks in 4 today's deposition, did you speak with your counsel 5 about the substance of today's questioning? 6 A. No. 7 Q. Okay. 8 MR. OHLERT: Let's call it there. Before we go 9 off the record, I would just like to note that we 10 reserve the right to pursue an additional day of 11 deposition with Dr. Khan. He was late to the deposition 12 by at least 30 minutes, if not longer. At various 13 points throughout the day he struggled to answer 14 questions, including ones as simple as, "You would agree 15 that this document says," followed by reading sentences 16 from the document. 17 At times Dr. Khan would sit there as if a 18 question was not pending and not answer the question, 19 requiring additional delays. And at other times he 20 would read a document over and over again, only to get a 21 simple question of "Is this sentence in the document?" 22 at which point after multiple tries he still could not 23 answer those simple questions. 24 Overall it just calls into question Dr. Khan's 25 analysis and whether he really is capable of delivering	Page 238 1 (Proceedings of Latifur Khan, Ph.D., concluded 2 at 3:03 p.m. PST) 3 * * * 4 (NOTE: All quotations from exhibits are reflected 5 in the manner in which they were read into the record 6 and do not necessarily denote an exact quote from the 7 document.) 8 * * * 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
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1	DECLARATION UNDER PENALTY OF PERJURY	Page 241	
2			
3	I, Latifur Khan, Ph.D., do hereby certify under		
4	penalty of perjury that I have reviewed the foregoing		
5	transcript of my deposition taken on January 22, 2026;		
6	that I have made such corrections as appear noted		
7	herein; that my testimony as contained herein, as		
8	corrected, is true and correct.		
9			
10	DATED this _____ day of _____,		
11	20____, at _____, California.		
12			
13			
14			
15			
16	_____		
17	Latifur Khan, Ph.D.		
18			
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22			
23			
24			
25			
1	REPORTER'S CERTIFICATION	Page 242	
2			
3	I, Elizabeth A. Willis-Lewis, Certified Shorthand		
4	Reporter in and for the State of California, do hereby		
5	certify:		
6	That the foregoing witness was by me duly sworn;		
7	that the deposition was then taken before me at the time		
8	and place herein set forth; that the testimony		
9	and proceedings were reported stenographically by me		
10	and later transcribed into typewriting under my		
11	direction; that the foregoing is a true record of the		
12	testimony and proceedings taken at that time.		
13			
14	IN WITNESS WHEREOF, I have subscribed my name		
15	on this date: February 5, 2026		
16			
17			
18			
19			
20	_____		
21	Elizabeth A. Willis-Lewis, CSR		
22			
23			
24			
25			

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scores (4)	Shelard (1)	Space (11)	store (3)
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