

Page 1	Page 3
1 UNITED STATES PATENT AND TRADEMARK OFFICE 2 BEFORE THE PATENT TRIAL AND APPEAL BOARD 3 ----- 4 X CORPORATION, 5 Petitioner, 6 v. 7 STERLING COMPUTERS CORPORATION, 8 Patent Owner. 9 ----- 10 11 12 13 14 DEPOSITION TAKEN VIA ZOOM VIDEOCONFERENCE 15 OF 16 DR. VICTOR "PAUL" MARSTON 17 Taken Monday, November 17, 2025 18 Commencing at 11:59 GMT 19 20 21 22 23 24 Stenographic Reporter: Christine M. Clark 25 Registered Professional Reporter	1 I N D E X 2 PAGE 3 Examination by Mr. Plail 4 4 5 E X H I B I T S 6 NUMBER DESCRIPTION PAGE 7 Exhibit 13 2004-2005 Academic Calendar for the 102 University 8 Exhibit 14 2005-2006 Academic Calendar for the 102 University 9 Exhibit 15 List of Documents cited in 102 Dr. Marston's Declaration 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Page 2	Page 4
1 VIDEOCONFERENCE APPEARANCES: 2 FOR PETITIONER: 3 ETHAN PLAIL, ESQUIRE 4 WHITE & CASE LLP 5 701 Thirteenth Street, NW Washington, DC 20005 6 Phone: 202.626.3586 Email: ethan.plail@whitecase.com 7 8 and 9 10 NEERAJ GUPTA, ESQUIRE 11 WHITE & CASE LLP 12 75 State Street 13 Boston, Massachusetts 02109 14 Phone: 617.979.9338 15 Email: neeraj.gupta@whitecase.com 16 17 FOR RESPONDENT: 18 DEVAN PADMANABHAN, ESQUIRE 19 PADMANABHAN & DAWSON PLLC 20 9800 Shelard Parkway, Suite 120 21 Plymouth, Minnesota 55402 22 Phone: 612.444.3768 23 Email: devan@paddalawgroup.com 24 25	1 DR. VICTOR "PAUL" MARSTON: 2 a witness in the above-entitled action, 3 after having been first duly affirmed, deposes 4 and testifies as follows: 5 EXAMINATION 6 BY MR. PLAIL: 7 Q. All right. Good morning, Dr. Marston. 8 A. Hi. 9 Q. Have you ever been deposed before? 10 A. No. 11 Q. So I'm going to go over some of the rules of the road. 12 I'm going to ask a series of questions. Please do your 13 best to answer them and please try to always give a 14 verbal answer for the benefit of the court reporter. 15 A. Yes. 16 Q. If there's ever a point where you don't understand one 17 of my questions, just let me know, and we can go over 18 it or break it down or figure it out. 19 A. Okay. 20 Q. Sound good? 21 A. Yeah. 22 Q. So I understand that you have printed out in front of 23 you a copy of your declaration, which if you look in 24 the bottom right corner, is that marked Exhibit 2030? 25 A. The bottom right corner of the front page?

Page 5	Page 7
1 MR. PADMANABHAN: His is not marked. 2 A. No. It's not marked. It just says Declaration of Paul 3 Marston, and it's got the Case Number and the US Patent 4 number. 5 MR. PLAIL: Devan, would you stipulate that 6 that's Exhibit 20- -- 7 MR. PADMANABHAN: Yeah. Yeah. I'll 8 stipulate that's Exhibit 2030. 9 MR. PLAIL: Okay. Thank you. 10 MR. PADMANABHAN: I have a copy. 11 MR. PLAIL: 2031. My apologies. It's 12 Exhibit 2031. 13 MR. PADMANABHAN: 2031. 14 MR. PLAIL: Yeah. 15 MR. PADMANABHAN: Okay. 16 Q. (MR. PLAIL) Do you have any other documents in front 17 of you? 18 A. Yes. I've got the printouts of some of these. I have 19 the printouts of Justin's three declarations, and I 20 have the printouts of the -- some of the documents 21 which were mentioned in my declaration. And I also 22 have a list of the -- not the -- numbers of the 23 documents which are in my declaration, which are in, as 24 far as I can make it, chronological order, with the 25 dates, the Metadata, with the author and the final	1 the dates, the two dates, the author and modifier. And 2 I've numbered them one -- one to 24, which is, as far 3 as I could determine, in the chronological order in 4 which they were finally saved. 5 MR. PLAIL: Thank you so much. 6 Devan, we would just ask that that one sheet 7 please be attached to the record. 8 MR. PADMANABHAN: Okay. 9 THE WITNESS: Yes. I'll have to send it to 10 you, of course. 11 Q. (MR. PLAIL) Okay. So because we're doing this 12 deposition remotely, just a couple of additional pieces 13 of guidance or directions here. 14 A. Okay. 15 Q. The first is I would ask that you not have any kind of, 16 you know, additional communication, windows up on your 17 computer as we're going through the deposition, any 18 chat boxes or anything which could be used to 19 communicate off the record. 20 A. Nothing. 21 Q. I'll ask that you -- that there be no kind of nonverbal 22 or visual communications that occur outside of the -- 23 outside of what we can see here on the record. 24 A. Okay. 25 Q. And then lastly, if you refer to any of these documents
Page 6	Page 8
1 author, but no other comments. It's just simply a list 2 of them. You can have it. I mean it's not got any 3 information you haven't got. 4 Q. Thank you. So just to recap, you have the three 5 declarations submitted by Justin Marston? 6 A. Correct. 7 Q. And you have a number of the documents you referred to 8 in your declaration. 9 Can you let me know which of those documents you 10 have in front of you? 11 A. Sure. Okay. I can read them out. EX2004, EX2047, 12 EX2053, EX2054, EX2055, EX2049, EX2007. 13 Am I going too fast? Is it all right? 14 I'll go slower. EX2056, EX2057, EX2058, EX2063, 15 EX2064, EX2070, EX2071. I also have EX2075. EX -- all 16 of these are relating to my employment at the time. 17 EX2075, EX2076, EO- -- EX2077 and EX2078. 18 Q. And you have no other documents that are marked with an 19 exhibit number or a declaration? 20 A. Nothing in front of me. 21 Q. Okay. Other than -- sorry -- you have the one. You 22 have the one sheet that you mentioned which has a -- 23 A. It's a single sheet, which is just a list which is what 24 I just read from to say which ones I printed out. All 25 it has on it is the number, the title on the documents,	1 in front of you, can you please let me know -- 2 A. Yes. 3 Q. -- the exhibit number and page or paragraph that you're 4 referring to -- 5 A. Yes. 6 Q. -- so that it's clear to the record what you're looking 7 at, and we're all looking at the same thing? 8 A. Yes, I can do that. 9 Q. Thank you. 10 A. And I will do that. 11 Q. Thank you so much. 12 (Reporter request for one person to speak at 13 at a time.) 14 Q. (MR. PLAIL) And then one kind of additional rule for 15 the road is from time to time your counsel may object 16 to one of my questions. Unless you're specifically 17 instructed not to answer, you must still answer the 18 question. 19 A. Yes. 20 Q. All right. Did you speak with Justin Marston in 21 relation to your deposition today? 22 A. No. 23 Q. Did you review Mr. Justin Marston's deposition 24 transcript? 25 A. I have not seen it.

Page 9 1 Q. Did you -- 2 A. Sorry. Did I review what? His interview? 3 Q. Deposition transcript. 4 A. That means the -- your questioning of him? 5 Q. Correct. 6 A. No, I haven't seen that. I only have his declarations. 7 And I have not spoken to him at all since he had his 8 examination. 9 Q. Okay. Did you speak with a Dr. Kahn? 10 A. Dr. Kahn? 11 Q. Yes. 12 A. Who -- who is Dr. Kahn? 13 Q. I suppose that's a no then. You didn't speak to him? 14 A. No. 15 Q. Okay. Did you review a declaration of a Mr. Kahn? 16 A. No. 17 Q. Okay. Other than your counsel, did you speak to anyone 18 else about today's deposition? 19 A. My wife. 20 Q. Anyone else? 21 A. There is someone praying for me, but he doesn't know 22 anything about it. 23 Q. Very well. And then did you speak with a Tony 24 Morton-Jones? 25 A. Sorry. When?	Page 11 1 Q. If you look in the upper right-hand corner, it says 2 Patent US 7,716,217. Do you see that? 3 A. Yes. 4 Q. Do you understand that this is a US patent that ends in 5 the numbers 217? 6 A. Well, yes, because I can read it. It ends in 217, but 7 I have no idea what the 217 signifies. 8 Q. That is basically a serial number for the patent. So I 9 will refer to this patent from time to time as the '217 10 Patent. 11 A. Okay. 12 Q. If you look in the inventors' column, you can see it 13 lists Justin Marston and yourself, Paul Marston, as the 14 inventors. Do you see that? 15 A. Correct. 16 Q. This is the patent that is the subject of this action. 17 Do you understand that? 18 A. Yes. 19 Q. And you said earlier you have not read it. 20 Do you mean you have not read it in preparation for 21 this deposition? 22 A. Yes, I do mean that. 23 Q. Okay. Have you read it previously? 24 A. I can't remember. It was presumably made 20 years ago. 25 Did Justin show it to me at the time? I can't
Page 10 1 Q. In preparation for this deposition? 2 A. I did speak to him, yes. 3 Q. Okay. In preparing for this deposition? 4 A. No. I -- I -- sorry. I don't fully understand the 5 legal language. I spoke to him before I made my 6 declaration. 7 Q. Okay. 8 A. I have not spoken to him specifically about this. I 9 told him that I would be cross-examined, and that was 10 all. I haven't discussed anything about what I would 11 say at the -- at the cross-examination. 12 Q. Okay. Thank you very much. 13 All right. I'm going to go ahead and put an 14 exhibit on the screen. 15 A. Okay. 16 Q. It's always a little different over a Zoom deposition. 17 One second. 18 Do you see my screen? 19 A. I do. 20 Q. I'm going to go ahead and zoom out a little. 21 You'll see in the bottom right corner that this is 22 exhibit marked 1001. 23 A. I know of it, but I have not read it. 24 Q. Okay. And so this is the '217 Patent? 25 A. If you say so.	Page 12 1 remember, but it wouldn't worry me whether he had or 2 not. He's my son, and I know that I did spend a lot of 3 time with him preparing for it. So when he told me 4 that he was submitting it as a patent, I trusted him, 5 whatever was in it. 6 Q. Okay. All right. I'm going to go ahead and direct us 7 to a specific portion of this patent. 8 A. Okay. 9 Q. So I'm going to scroll down here to... 10 A. Gracious. 11 Q. It's a long one. I'm going to direct us to column 33, 12 line 60 through 62, which is here. I'm going to go 13 ahead and share this. 14 A. Which column are you looking at? 15 Q. I'm actually looking at this paragraph here -- 16 A. Okay. 17 Q. -- which I will unhighlight since that makes it hard to 18 read. 19 A. Yes. 20 Q. So can you -- so this paragraph is discussing computing 21 the cognate importance; is that right? 22 A. Yes. 23 Q. And it says that the electronic mail system may store 24 for each user a set of n other users who is considered 25 to be most similar to the user concerned. This is that

Page 13 1 user's cognate group. 2 Do you see that? 3 A. Yes. 4 Q. So this is discussing how the system will compute a 5 cognate group of individuals who are most similar to 6 the user; is that right? 7 A. Well, as far as I can -- yes, as I read it. And I mean 8 a lot of the language at the time that we developed it, 9 I was really very familiar with because, you know, all 10 the different terms. If you read my comments, which 11 I'm sure you have in the various documents, I often 12 commented in detail on what the terms meant and how 13 they should be computed, but that was 20 years ago. 14 My memory isn't as good as it was when I wrote 15 this. So I will not be able to tell you the details of 16 what each term meant because I can't remember. But at 17 the time I would have lived and breathed it for four or 18 five months with it on my mind a lot, as I was helping 19 my son to develop it. 20 And the formulas, I obviously recognize as ones I 21 wrote, but they're very complex, and I'm not sure I 22 could write them now. But I reckon I know that I wrote 23 that formula because there was no one else who was a 24 statistician involved in preparing the material which 25 went into the application for the patent.	Page 15 1 system which is what Justin had been developing for 2 some time. So I'm not sure quite what the question is. 3 If you're asking me exactly what cognate means, 4 well, I can't remember. But I know that cognate groups 5 was one of the inputs, as well as how the user himself 6 reacted. Cognate groups was one of the means that was 7 used to determine whether an incoming electronic mail 8 would be deemed important or unimportant, relevant or 9 not so relevant. 10 Q. Okay. So cognate groups was one of the inputs into the 11 relevant system? 12 A. Yes. 13 Q. And what are some of the advantages of using a group of 14 individuals in this context, from a statistical 15 perspective? 16 A. Well, because we know -- I mean, for example, in 17 statistics there is a method called cluster sampling. 18 And that means that you take -- because it's usually 19 cheaper but less accurate, instead of going and finding 20 individuals, you take clusters. For example, if you're 21 doing a survey of school children, you might take 22 particular classes of children and give them 23 questionnaires rather than try to find individual 24 pupils in a number of schools. 25 The downside in statistical theory is that the
Page 14 1 Q. All right. Understood that it was a while ago. I just 2 want to kind of go over some of these terms in the 3 patent to just to kind of go through and discuss them. 4 So -- 5 A. You can try. 6 Q. Do you see where it says a set of n other users is 7 considered to be the most similar to the user 8 concerned, and that is the user's cognate group? 9 A. Yes. 10 Q. So a cognate group here is a set of n other users? 11 A. Presumably. 12 Q. Is it a set of n other users? 13 A. Well, as far as I can remember. I know that we were -- 14 we were looking at the time at the idea of classes and 15 the fact that if someone was similar as a user to other 16 users, they would be likely to have the same interests 17 and to rank incoming electronic mail in a similar way. 18 That was the core part of what the whole thing was 19 doing. 20 The exact terminology, most of these come from 21 Justin and with some input in terms of coding, people 22 coding it, to use terms which would be understood by 23 the people who had to write the actual coding of this, 24 to put the patent into the practical use that it was 25 intended to have within the context of the TransMail	Page 16 1 pupils who are all in the same class -- I don't mean 2 social class. I mean class of pupils -- are likely to 3 be similar to the ones that you would get if you 4 sampled individually. So in statistical accuracy 5 terms, it's a disadvantage. 6 But obviously, if you want to find out what 7 someone's interests are going to be in terms of 8 incoming electronic mail, then the assumption that 9 there is likely to be similarity between different 10 people in the same natural group helps you to determine 11 the likely relevance of the incoming mail to that 12 individual. 13 So, you know, if, for example, you had a group of 14 Evangelical Christians, it's quite likely that some 15 parts of that, some kind of incoming mail, if one of 16 them found it relevant, it will be relevant to others. 17 So that's why cognate groups would be very useful as 18 one means of determining relevance, but alongside how 19 that individual themselves had reacted to past incoming 20 electronic mail or similar types of the one now being 21 considered by the system. 22 Q. And would one of the other advantages of using a group 23 be to reduce the likelihood of an outlier? 24 A. Reduce the likelihood of what kind of outlier? 25 Q. Well, if you were to just compare two users to each

Page 17	Page 19
1 other, there is a chance that -- let me rephrase that. 2 A. Oh, I see. Sorry. 3 Q. If you were to compare User A and User B together, 4 there would be a chance that some action by User B 5 would be an outlier which would not be statistically 6 significant for user A? 7 A. Yes. That's -- yes. So in that sense, yes. If you've 8 got a group, you're more likely to get an association 9 than two individuals. Yes, that's true. 10 Q. And it's more likely that that association would 11 accurately represent the likelihood that a specific 12 email was relevant to User A? 13 MR. PADMANABHAN: Objection, Rule 611. 14 (Reporter clarification.) 15 MR. PADMANABHAN: Objection, Rule 611. 16 Q. (MR. PLAIL) And you still answer, Dr. Marston. 17 A. Do I have to answer? Okay. 18 Can you repeat the question? 19 Q. Absolutely. And it is more likely that that 20 association, a group of cognate users would more 21 accurately represent the likelihood that an email was 22 relevant to User A? 23 A. I would say it was statistically more likely, yes. 24 Q. Okay. I'm going to direct you to a different section 25 of this patent, which is column 1, lines 46 through 48,	1 A. I don't know. Or I can't remember. I mean I don't -- 2 I don't remember whether Justin mentioned that at the 3 time, but certainly now I don't know. I don't know the 4 precise definition of what that is. But this kind of 5 application, you see, was Justin's area, not mine. 6 I was writing the statistical formula to determine 7 the relevance, not saying exactly how many different 8 contexts it could be used. 9 Q. And from a mathematical perspective, would an email 10 management system and a document management system be 11 significantly different? 12 A. Given I don't know what the difference is between the 13 two, I can't answer that question. 14 Q. So do you agree that the math in this patent can be 15 used for a document management system? 16 A. I can't answer that question. But if Justin says that 17 it can, then because I know that Justin had a certain 18 level of statistical ability, as was shown in the 19 article that he wrote, which was the article by the 20 youngest person to submit anything to Nature, and the 21 size of correspondence and that he did the rather 22 complicated statistics at the back of that. Although, 23 he didn't have the same level of statistical ability as 24 I did, obviously, I would believe that if he says it 25 could be applied in that context, then that is correct.
Page 18	Page 20
1 which is right here. Actually, I may be in the wrong 2 section. One second. 3 All right. I'm going to share my screen again. 4 I'm going to direct you to column 3, lines 46 5 through 48. This portion of the patent is talking 6 about using the relevant system in a document 7 management application. Do you see that? 8 A. I can read it, yes. 9 Q. Is this portion of the patent discussing using the 10 relevant system in a document management application? 11 A. I don't know because I didn't write it. 12 Q. Do you see where it says, "determining relevance in 13 document management applications"? 14 A. Let me just see if I can see it. Yeah. 15 I can see it says, "For example, one or more 16 embodiments may be used for determining relevance in 17 document management applications." Okay. 18 Q. So the system can be used for determining relevance in 19 document management applications? 20 MR. PADMANABHAN: Objection; 601, 602. 21 THE WITNESS: Do I still answer? 22 Q. (MR. PLAIL) Yes. 23 A. Yeah. My answer would be, if Justin says it can, then 24 it can. 25 Q. And what is a document management application?	1 Q. And did you create a special set of algorithms for use 2 within a document management system? 3 MR. PADMANABHAN: Objection; Rule 601, 602. 4 But you can answer. 5 A. Given that I don't know what one of those is, I can't 6 answer of the question. 7 Q. (MR. PLAIL) All right. Let's break this down a little 8 bit. So a document management system -- strike that. 9 Do you understand what a document is? 10 A. I don't know if there's a technical definition of a 11 document. No, I don't know. It's not something that 12 would be necessary. So it's not something that would 13 be necessary to me in terms of what I have done since, 14 and I can't remember everything that was discussed 15 20 years ago. 16 Q. So, I'm sorry. I'm just a little confused by your 17 answer. You're saying that the definition of a 18 document is not something that would be necessary to 19 what you're doing? 20 A. What I'm doing now, no. 21 Q. Okay. But at the time, was a distinction between the 22 document in some other form, a file, relevant? 23 A. I can't remember because I can't remember all of the 24 discussions that I had with my son, but he -- he knew a 25 lot more about -- well, obviously, he was writing the

Page 21 1 whole context of the TransMail system and how that 2 could be used in different contexts. And to change -- 3 THE REPORTER: I'm sorry. What? I didn't 4 hear you after the word contexts. 5 THE WITNESS: Sorry. I can't remember what 6 I said. 7 A. He -- Justin was writing the whole TransMail system in 8 which the formula part that I wrote was set into that 9 context. But, you know, exactly what all the different 10 terms were and how far the mathematical system applied 11 to different -- the mathematical formula applied to 12 different aspects of that system, I really left to 13 Justin. 14 Q. (MR. PLAIL) So what is your general understanding of 15 what a document is? 16 A. I've never had to think about the definition. I'd have 17 to look it up on Google to see what it says a document 18 is. 19 Q. So you don't have a general definition of what a 20 document is? 21 A. I think that if you asked 99.9 percent of people what 22 their definition of a document is they wouldn't be able 23 to give you a precise definition. And I'm one of that 24 99.9 percent of people that have never had to think how 25 is a document different from something else.	Page 23 1 A. Not that I remember doing, but I mean I can't remember 2 exactly what I did doing 20 years ago. I can't even 3 remember if Justin mentioned that there was a 4 difference. So I don't -- I don't -- I can't answer 5 with any certainty. Since I've affirmed that I'll tell 6 the truth, I can't answer with any certainty exactly 7 how much detail at that time I understood the different 8 contexts in which he believed that we could use this 9 system. 10 I'm not being evasive. I just can't remember 11 exactly what we discussed. 12 Q. But if -- you testified earlier that if Justin had put 13 in a system to be used with a document management 14 system, you would agree with that? 15 A. I would believe that he would be -- yeah, I would 16 agree. When you say agree with it, I'm sorry. But 17 you'd have to define what you mean by agree with it. 18 Q. What do you consider -- 19 A. What do you mean? Would I -- sorry. 20 If you mean would I believe it was true because 21 Justin said it, then the answer is yes. But if you 22 mean have I, independently of Justin, arrived at the 23 belief that given the definitions of all of those terms 24 that it's true, then I -- then I can't answer that 25 question. If Justin said it could be used like that,
Page 22 1 I mean in terms of history, a document would have 2 been a piece of paper with a signature and a seal on 3 it. But obviously, one can talk about documents, 4 presumably, which are electronic documents now, I 5 imagine. I've never really given much thought to the 6 definition of the word document. I'm sorry, you know. 7 Q. You understand that there are electronic documents? 8 A. I presume that that's a valid use of the term document 9 to say an electronic document, yeah. Is it a file, or 10 is it a folder? Are those documents? I don't know 11 because it's not something that I've had to think about 12 to be honest. 13 Q. All right. So I guess my question is pretty simple. 14 Since you haven't had to dive into the precise 15 difference between an electronic document or a file or 16 a folder or -- 17 A. Yeah. 18 Q. -- a historical document, does that mean you did not 19 create a special set of algorithms to deal with these 20 types of files? 21 A. A different set of algorithms to deal with different 22 files? 23 Q. Yes. 24 A. Is that the question? 25 Q. Yes.	Page 24 1 then because I believe that he was both clever and 2 truthful, I accept that he would have been correct. 3 But if you're asking me can I independently arrive at 4 that conclusion, the answer is no, because I don't know 5 enough about the definitions of the terms to be able to 6 answer the question. 7 Q. So you -- so Justin was responsible for the application 8 side of the patent; is that correct? 9 A. Yes, depending on what the application side means, but 10 certainly to take the formulas and to put them into the 11 contexts that he intended them to be used in the 12 TransMail system and arriving at exact definitions of 13 terms, which would be understood by people wanting to 14 apply the patent then, yeah, he was -- he was 15 responsible for that. 16 But I do note that in my comments at the time, in 17 many of the different documents, I was a lot more 18 familiar at the time with the terms that he was 19 developing, and sometimes I would query the use of a 20 particular term. But when I read it now, I'm -- I just 21 cannot remember exactly what the different terms meant. 22 So I can't -- I can't attest. I can't attest now, for 23 example, that I was correct in -- in the comments that 24 I then made, but at the time I believed them, and I 25 understood them. And they were part of the development

Page 25 1 between myself and Justin, with some comment from some 2 others. Well, and one other, really, one of his 3 coders, to develop the language used in the context. 4 But you're really asking me questions which I can't 5 answer within the range of my contributions to the 6 patent and my competence in now remembering what the 7 different terms meant. 8 Q. So Justin was responsible for taking the formulas and 9 putting them in the context of the transmittal system 10 and arriving at the exact definitions of terms? 11 A. Finally that he wrote the document that was put 12 forward, but I did have -- at that time, I did have a 13 part in the development of the terminology. And I 14 understood more about, as he explained things to me, 15 what the different terms would mean in -- yeah, in the 16 context of his TransMail system and what it would mean 17 to people who were, say, coding it to put it into 18 practice. 19 Q. So what I'm trying to get at here is where this patent 20 says, "may be used for determining relevance in 21 document management applications," that portion of this 22 patent would have been under Justin's responsibility? 23 A. Yeah. Anything like that would have been, yeah. If he 24 said it -- 25 Q. And so where Justin --	Page 27 1 not -- 2 A. It's not -- 3 Q. -- as good? 4 A. It's not very good. I mean I think most people, 5 including Americans, will realize that when you get 6 older, your memory doesn't work quite as well as it 7 used to. And I mean I've written a lot, quite a lot of 8 different books. I look now at the two 400-page books 9 that were published by me in America in 2000, and I 10 can't remember all of those philosophical and 11 theological concepts which were contained in it. But 12 at the time, I was living and breathing it. 13 So if you ask me how exactly Immanuel Kant impacted 14 on the history of philosophy and thinking about 15 science, when I was studying that, I could have given 16 you a very detailed answer, but now it would be quite 17 hazy. And to some extent, when you read what I -- you 18 know, if I read what I wrote then, I can remember the 19 general context, but I can't remember the exact meaning 20 of all the terms because I -- I haven't been living and 21 breathing it for in that space for 25 years, since I 22 wrote those books. 23 So sometimes I read them, and I think, gosh, did I 24 really write that. Or I look at the list of the 25 bibliography, and I think did I really read all that,
Page 26 1 A. If he said it would be, then I believe him, you know. 2 Q. All right. So you believed this statement in the 3 patent then? 4 A. You keep trying to ask the question in a way that I 5 can't answer because in order to answer that, I would 6 have to now remember what each of these terms meant and 7 to reaffirm that I now believe this. 8 All I can say is, if he wrote it in the 9 application, then at the time I would have accepted 10 that that was true. But if you're asking me do I now 11 believe it's true or could I now arrive at the 12 conclusion that it's true independently of Justin, then 13 I can't answer yes. 14 Q. So just so -- 15 A. If he says it could be, then I believe that it could 16 be, yeah. 17 Q. So just so we're clear, this patent, the '217 Patent, 18 you're a named inventor on it; is that right? 19 A. Yeah. I can read my name on it, yeah. 20 Q. And you worked on the inventions in this patent? 21 A. Well, of course, yes. That's shown in the 22 documentation that you have as well as I do. 23 Q. But that was 20 years ago? 24 A. It was 20 years ago, yeah. 25 Q. So your recollection of what occurred 20 years ago is	Page 28 1 and the answer is yes. But can I remember them all? 2 No. 3 So, you know, at the time, I was very much involved 4 with my son. It was for his benefit. I wasn't doing 5 it for gain. It's because he asked me, and he was my 6 son. And -- and I trusted him that whatever he did 7 with it and put my name to would make sense. So if he 8 said it could be applied to other management systems, 9 which I guess is the catalyst, can you only apply it to 10 a very specific context of email, if he thought you 11 could apply it to more general systems, then, in my 12 view, he would have been correct. 13 Q. Okay. I'm going to ask you a question about one of the 14 figures in the patent. 15 A. Yes. 16 Q. Do you see my screen? 17 A. I do, yes. 18 Q. This is Figure 22 of the '217 Patent. Do you see that? 19 A. Quite lightly. 20 Q. Just for the record, Dr. Marston, this is Figure 22 of 21 the '217 Patent? 22 A. Yes. I can read that, what it says at the top, Sheet 23 22 of 22, and at the bottom it says Figure 22. 24 Q. What is this figure showing? 25 A. I can't remember, but it does look similar to some of

Page 29	Page 31
1 those which are in earlier documents. And in some of 2 them I note that I made the comment this needs 3 revision. The comment was sent to Justin, and I've 4 made some detailed comments on various parts of it. 5 If you're asking me now can I remember what it's 6 all about, that's an easy question, and the answer is 7 no. But when I have looked at some of the -- which 8 they are, but some of the documents -- or at least one 9 I remember looking at in the last couple of days, it 10 had a big kind of cross across it. And my comment was, 11 this needs revising. And some of the language was -- I 12 also made comments on as well in saying that this term 13 should be looked at again in my interchange with 14 Justin. But if you're asking me now what it means, I 15 really can't remember at all. 16 Q. And so you see at the top it says, "Determining Local 17 Importance of sender s to recipient r"? 18 A. Yes. 19 Q. At then at the bottom it says, "Determining Local 20 Relevance of mail x from sender s to recipient r"? 21 A. Yes. I can read it. 22 Q. Is it fair to say that this figure is discussing the -- 23 discussing how to calculate local importance and local 24 relevance? 25 MR. PADMANABHAN: Objection; Rule 601, 602.	1 Q. And so you're not a computer programmer? 2 A. I am not. Well, I mean I did a very small amount of 3 early programing, but, no, I'm not a computer 4 programmer. 5 Q. If you go down to paragraph 11 here. 6 A. Mm-hmm. 7 Q. You say that "I have reviewed the declarations of 8 Justin Marston dated March 12, 2025, July 8, 2025, and 9 September 9, 2025, and I have reviewed the documents he 10 cited in those declarations." 11 A. Yes. 12 Q. "His discussions of our work on the '217 Patent 13 inventions, and the documents corroborating that work, 14 is consistent with my recollection." 15 A. Yes. 16 Q. So in Justin Marston's declaration, there's a number of 17 discussions with his day-to-day activities at 18 BlueSpace. 19 A. Yes. I've read that. 20 Q. Were you involved in the day-to-day activities of 21 BlueSpace? 22 A. No. 23 Q. So do you have firsthand knowledge of the day-to-day 24 activities discussed in Mr. Justin Marston's 25 declaration?
Page 30	Page 32
1 A. I can't remember. I know that we had lots of different 2 terms in this patent. Global relevance and local 3 relevance were two key terms. What exactly they meant, 4 now I can't remember. But the arrows would seem in 5 this diagram to indicate that one is a means for 6 arriving at another. But if you're asking me to 7 explain in detail what it meant, I can't. I can't 8 remember. If you would have asked me 20 years ago, I 9 could have given you another answer. 10 Q. All right. So you do not recall what Figure 22 is 11 pertaining to? 12 A. No. 13 Q. All right. Let's switch to a different document. 14 A. Okay. 15 Q. I'm going to switch to your declaration which is 16 Exhibit 2031. Do you see it on the screen? 17 A. Yes. 18 Q. Okay. Let's start by focusing on your background. 19 A. Yes. 20 Q. So paragraphs 3 through 7 discuss your academic 21 background. Is that fair? 22 A. Correct. 23 Q. And is it fair to say that you do not have a background 24 in computer science? 25 A. I don't have a background in computer science.	1 A. Saying it's consistent with my recollection doesn't 2 mean that I can verify everything that he says in it, 3 nor does it mean that I've read all the different EX 4 documents that he cites. 5 What it means is it's consistent with my 6 recollection, which is not the same thing as I can 7 verify everything in all the documents that he says. 8 But it's consistent with my recollection of what went 9 on in that period. So I know that during that time he 10 was developing BlueSpace and the other things that he 11 was doing. 12 I know for certain when he got married. I know 13 when he moved to London. I can't remember it, but I 14 know it. I've looked it up. I know when he moved to 15 the United States of America. And I know that during 16 the period leading up to moving to the United States of 17 America he visited it a number of numbers of times, and 18 I can't remember exactly how many times he visited it. 19 So I know that in that general background what he 20 says is consistent with my recollection. But that 21 doesn't mean I can verify for myself every single -- 22 being consistent with your recollection doesn't mean 23 that you can verify everything that's stated about it. 24 Q. Okay. Just going back to my question real quick. 25 A. Okay.

Page 33	Page 35
1 Q. Do you have personal knowledge of the day-to-day 2 activities discussed in Mr. Justin Marston's 3 declaration? 4 A. Personal knowledge of the day-to-day activities? Well, 5 can I read? 6 Q. Sure. 7 A. Can I look? 8 Q. Let me -- 9 A. Give me the paragraph. 10 Q. Let me give us an example. 11 A. Okay. 12 Q. One second. I'm sorry. That's me. 13 A. This is the second supplemental declaration? 14 Q. Yes. 15 A. Correct? Page 5? Page -- what page? 16 Q. Let me find -- here. For example, page 4, 17 paragraph 10. 18 A. Okay. And or around April 2005, I met Admiral Inman. 19 Yes. I did know that he was in contact with someone 20 called Admiral Inman at the time and that he was also 21 becoming involved in getting more -- more investment in 22 his company, which seems to be what this is -- this is 23 about, the term sheet to invest in BlueSpace. 24 I certainly knew around that time that he was 25 seeking more investment. I knew that he met with	1 knowledge? 2 A. Well, no. Can I remember if he told me at the time? 3 Well, he would have told me he was meeting with him. 4 He would have told me he was seeking more investment, 5 probably. But I mean now I know that the company that 6 he is CEO now he's seeking more investment. And he 7 would tell me sometimes, you know, we just got a 8 certain investment from concerned moms in such a place. 9 But I don't make a note of them and record them. But 10 in the future, kind of if someone was to ask me in 11 ten-years time, do you know exactly what he was doing 12 with -- with his present Guardian Angels company, I 13 could only say what's consistent with my recollections. 14 But, no, I don't -- I don't have detailed knowledge 15 of what he did each day when he was working for 16 BlueSpace. Why would I? 17 Q. Okay. I'm going to switch back to your declaration. 18 A. Okay. I have it in front of me again. 19 Q. Let's go down to paragraph 16 of your declaration. 20 A. Okay. 21 Q. You say there that, "This work that Justin" -- I think 22 that's supposed to be that Justin and I did "on the 23 relevance model from June 2005 to January 2006 reflects 24 refinement to the formulas to implement the relevance 25 model." Do you see that?
Page 34	Page 36
1 someone called Admiral Inman. And, yeah, so what he 2 says there is consistent with my recollection. 3 Q. Okay. 4 A. But I haven't looked at the document -- sorry. 5 Q. And so, for example, when Justin Marston says, "In 6 July 2005, Admiral Inman's company, Gefinor Ventures, 7 provided a term sheet to invest in BlueSpace," you 8 wouldn't have been knowledgeable about those types of 9 day-to-day details; is that right? 10 A. No, I wouldn't. 11 Q. Okay. 12 A. But I only said it was consistent with my recollection. 13 I didn't say that I was able to verify it with the 14 statements made independently. 15 Q. I'm just asking what parts of Mr. Justin Marston's 16 declaration you have personal knowledge over. 17 And so you don't have personal knowledge over these 18 kind of day-to-day activities in the declaration for 19 his work on BlueSpace? 20 A. Do I have personal knowledge of his work on BlueSpace? 21 I know he was working on it. I know that he was in 22 contact with Admiral Inman, including detailed 23 financial modeling and diligence with Gefinor Ventures. 24 Then why would I have personal knowledge of that? 25 Q. Well, that's what I'm asking. You don't have personal	1 A. Correct. 2 Q. What do you mean by refinement to the formulas? 3 A. Well, I obviously as -- as we looked at them, I mean I 4 can't remember how much I changed the mathematical 5 formulation. I certainly know that we were looking at 6 more careful ways of defining some of the terms. But 7 to really remember it exactly the way in which this 8 refinement occurs, I'd have to get fully back into 9 understanding the different terms in the mod- -- in the 10 material, and I'm not at that point. 11 But the refinement is to the formulas themselves, 12 but also to the way in which the definitions of terms 13 used in the formulas would be put forward in the final 14 patent so that they would be understood by somebody 15 with a reasonable competence in the area who was 16 reading, reading about would know how to translate them 17 into coding and to actually applying them. 18 I don't think that the formulas were fundamentally 19 changed, but you can tweak formulas, or, you know, 20 change exactly how the terms are determined. How much 21 I changed the actual formulas, I really can't remember. 22 Q. But just to be clear -- just to be clear, you can't 23 remember how much you changed the actual formulas? 24 A. Not really, no. I could try to look at them all, if I 25 could remember what they all meant, and to see how much

Page 37 1 one changed from the next. I can say certain things 2 which were altered, but not very much because I just 3 don't remember. And they're quite complicated 4 formulas. 5 Q. When you're saying that you can tell me certain things 6 that were altered, do you have a list on hand of the 7 types of things that were altered? 8 A. No. I was thinking one, one particular thing that 9 wasn't altered as well actually, but you'll probably 10 ask me about that later. So I'll tell you then. But, 11 no, I don't know that. 12 I have -- yeah. When I was preparing for this 13 cross-examination, I haven't really had the ability to 14 read through all the formulas and determine exactly in 15 what way any of them were changed and when they were 16 changed. It would have required an enormous amount of 17 work and would have been, I think, probably beyond my 18 present capability to do that at my age. I'm not as 19 clever as I was 20 years ago. 20 Q. So just to be clear, for the purposes of preparing your 21 declaration, you did not go through and do this 22 enormous amount of work to -- 23 A. No, I didn't. Sorry. No, I didn't. 24 To prepare the declaration, I didn't read all the 25 formulas in every single one of the documents which	Page 39 1 the patent -- or Justin wanted the patent to be 2 understandable to coders. So if the definition of some 3 term was not clear, then it was important for us to 4 clarify it in some way. 5 Sometimes I've read -- I have read my comments and 6 the interchange between myself, Justin and Jon. Well, 7 I'll call him Mr. Fernyhough because I never met him. 8 But I've read those, those comments, and they're not 9 really about changing the formula. They're about 10 clarifying some of the terms or whether one needed to 11 have an additional paragraph at some point to explain 12 them. And I have read one of my comments which was, 13 well, perhaps, a bit unfair. But I said I don't really 14 think at this point that we need to have a paragraph to 15 explain this because anyone who is competent in the 16 area who did not by now understand what this concept 17 meant would have an IQ less than 80. I apologize if 18 that sounds a bit unkind. I wasn't, of course, talking 19 about any specific individuals, but making, in my 20 rather exaggerated way, the point that it ought to be 21 clear by this time. 22 And by the way, Jon didn't say he didn't understand 23 it. He just said we needed to clarify it, and I 24 thought, well, we shouldn't need to. But a lot of it 25 was about the terminology and clarification and also
Page 38 1 were retrieved from mine and Justin's old systems and 2 work out exactly in what ways they were changed at each 3 stage. No, I didn't do that. 4 Q. So if we go to paragraph 24 of your declaration. 5 A. Sure. 6 Q. You see in the middle of that paragraph, it says, "The 7 metadata lists Jon Fernyhough, as the Author and person 8 who 'Last Saved' the document"? 9 A. Correct. 10 Q. And then you say, "I believe Jon Fernyhough was a coder 11 working for Bluespace at the time who was involved in 12 preparing for the coding but not" for "the development 13 of the mathematics as such"? 14 A. Correct. 15 Q. So Mr. Fernyhough was involved in the coding work at 16 BlueSpace? 17 A. I understand from Justin that he was one of his chief 18 coders, yes. I never met Jon. And of course, he was 19 in America, and I was in the sunny UK. So I never met 20 him. I only knew about him through interchanges which 21 happened really through Justin. 22 So I realized from his responses he was not a 23 statistician. In fact, some of the things that he -- 24 some of the comments I made is to say I don't think 25 he's really understood this. But obviously we wanted	Page 40 1 practical issues of how to code it. And I mean one 2 other example is that Jon says at some point you'll 3 need -- I forget what he said -- 250,000 such and such 4 is of memory to do this. And my thoughts were, Jon, 5 that's not my issue. That's a computing issue. And of 6 course, as it happens now, that would be a non-question 7 because everybody has umpteen gigabits and it doesn't 8 cost much. 9 So this was about the practical coding of it and 10 how far we needed to change language and sometimes 11 about the precise nature of the diagrams, but, you 12 know, all of that now is a bit hazy to me to remember. 13 So that was a long answer. So... 14 Q. No problem. Let me just break some parts of this down 15 for the record. 16 So Mr. Fernyhough was involved in the coding work 17 at BlueSpace? 18 A. Yes, he was. 19 Q. And so he would have been focused on the software 20 implementation side of things? 21 A. As I understand it, yes. He was a -- he was either a 22 coder or chief coder in Justin's company. And Justin 23 was wanting this patented system to be -- he didn't 24 write it. But Justin didn't intend it to be just 25 something that he would file a patent and then wait for

Page 41 1 other people to install it. His idea was that the 2 patent was something which was being installed in the 3 TransMail that he wanted everybody to accept instead of 4 the rather inefficient email system that we actually 5 still have because nobody has applied it since. So I 6 still get shed loads of emails, and I don't know which 7 is important and which isn't in at least in one of my 8 email addresses. 9 So Justin intended it, he always intended the 10 patent to be part of the application which was coded in 11 his BlueSpace TransMail. And also while he was doing 12 it to ensure that it was comprehensible and clear to 13 anyone else who wanted to include it in an electronic, 14 you know, communication system. 15 Q. Okay. So then Jon Fernyhough was focusing on taking 16 the mathematical concepts and turning them into a 17 computer program? 18 A. Yeah. 19 Q. Okay. I think, you've answered this question already, 20 I think. But just to confirm, you didn't personally 21 know Mr. Fernyhough? 22 A. No, I never met him. I mean he's in America, and I was 23 in the UK. I never met him. I didn't know him. I 24 never had a verbal conversation with him. 25 The extent of our communication is reflected in the	Page 43 1 So the fact that the document is created and saved 2 by him, indicates to me that he opened up the new 3 document. He copied my -- my formula into them, onto 4 this new document, and then he saved it with some of 5 his own comments. 6 Q. Okay. So looking at paragraph 25, similar question. 7 It says here, "My understanding of why Jon is the 8 listed as the Author is because Justin asked Jon to cut 9 and paste the draft section into a Word document for my 10 review." Do you see that? 11 A. Oh, there it is. Software implementation, after that 12 one. Oh, and that again is both Jon, isn't it? Yeah. 13 Yeah. 14 So basically, I mean I can't remember the events at 15 the time. But reading it, it's obvious that the -- a 16 section of the thing, although it's saved in his name, 17 it comes from our documentation which he's cut, stuck 18 into a new document and put some comments of his own on 19 it. And so -- sorry. 20 Q. Just so the record is clear, I think this is discussing 21 a slightly different document. And I just wanted to 22 dive in to this last sentence where you say, 23 My understanding of why Jon is listed is because Justin 24 asked Jon. 25 So you got this information from Justin Marston?
Page 42 1 various, different, multiple saved documents that we 2 had going through backwards and forwards. And some of 3 the documents are my comments to Jon and Justin. I 4 never communicated independently with Jon. I always 5 communicated in the context that Justin would be 6 reading everything that we said. 7 And in many of the documents we each had a comment, 8 and these were preserved as the documents were saved 9 and resaved. So we got comments from Jon, comments 10 from me. At least one of them has a number of comments 11 from Jon, and I had responded to each one at the time. 12 And sometimes I did a big paragraph of my own in the 13 context of feeding it really back to Justin who 14 ultimately was the person who would put the whole thing 15 together. 16 Q. And so you say here in your declaration, paragraph 24, 17 "My understanding of the document is that Jon cut and 18 pasted the relevance formulas that I had prepared into 19 the document." 20 A. Oh, that is correct, yes. 21 Q. Okay. And then "Jon then commented on my formulas in 22 the blue writing"? 23 A. Well, that's what I surmise to have happened. I know 24 that he did cut and paste them. This is EX2056. And I 25 know that the formulas were mine.	Page 44 1 A. Well, I wasn't -- yes, because I presume he did. I 2 mean I don't think that Jon would have done anything he 3 wasn't asked to do by Justin because he was being 4 employed by Justin. So I mean I have no independent -- 5 I haven't got a record of the conversation when Justin 6 said can you do this. But that's my understanding of 7 why is this, is because I can't think of any other 8 reason that he would have done it than being asked to 9 do it by Justin. I mean he wouldn't have taken it on 10 himself to do it out of the blue because he was 11 employed by Justin. I mean it's just an obvious 12 conclusion that I've made that -- what I'm really 13 saying is, is that he didn't write any of it. It's 14 been cut and pasted, and I'm presuming that it was part 15 of the way in which Justin was trying to push forward, 16 you know, the -- the coding and implementation of the 17 -- of the material which was later patented. 18 You know, I just said my understanding of why. I 19 can't say I can certify with absolute certainty that 20 Jon didn't wake up one morning and decided to take a 21 bit out of the document and send me some comments, but 22 it doesn't seem very likely that would happen unless 23 Justin asked him to do it. 24 Q. So this last sentence is your conclusion or your best 25 guess for why Jon is listed as the author, but you're

Page 45 1 not sure? 2 A. Well, I can't think of any other explanation. But if 3 someone were to put it to me and make it plausible, I 4 would give it some consideration, but that would be my 5 understanding that -- the whole context in which we had 6 these interchanges is, you know, Justin would ask Jon 7 to look at something. He would look at it, make 8 comments, and they would come to me and to Justin 9 usually. They would be sent to both of us. And 10 sometimes I would make comments back later on in the 11 document, as I did on the EX2058, which was originally 12 made by Jon, and then it was saved by me, with my 13 comments on, and some of the other things, the 14 documents you now have, comments to Jon and Justin, for 15 example, which I would have sent back to Justin. 16 Did I send it direct to Jon? I'm not sure. I 17 can't remember. But I didn't have any independent 18 communication with Jon in which Justin wasn't involved 19 as far as I remember. Why would I? You know, it was 20 Justin's company. He was his employee. I was his 21 father. And so we had the interchanges that he wanted 22 us to have. 23 Q. All right. Going back to 24 real quick, you say in 24 Exhibit 2056, that the black text appears to be from 25 the original document, and Jon commented in blue. So	Page 47 1 Q. No. What I'm asking, just my question asked was, you 2 didn't have any particular comments on this one page, 3 correct? 4 A. Well, I didn't save anything with any comments on, if 5 that's what you mean. But some of it would have been 6 made in later comments that I make because there was 7 quite a lot of interchange on it, wasn't there, later? 8 Alterations to documents, comments to Jon and Justin. 9 So there's two different versions of that. 10 So I may well have commented on it in a later 11 document. But without going through it in detail, I 12 can't remember. But I probably -- 13 Q. But in this, in this particular document, you didn't 14 put any comments in it? 15 A. This one-page document I saved into my system without 16 putting any comments on it. 17 Q. All right. If we go to your declaration -- 18 A. Mm-hmm. 19 Q. -- paragraph 26 is discussing Exhibit 2058. 20 Do you see that? 21 A. Yeah. 2058. It's SoftwareImplementationComment. 22 (Reporter clarification.) 23 THE WITNESS: It's called 24 SoftwareImplementationComment. 25 Q. (MR. PLAIL) Let me share my screen.
Page 46 1 let me just switch over to that document. 2 A. Okay. Let me see if I have it. This is 2056. 3 Q. So this is 2056 on the screen. 4 A. I've got it. Formula. Yeah. Let me read it. 5 Q. So my question is pretty straightforward. It's just 6 confirming that the black text here is from the 7 original document, and the blue text here is Jon's 8 comments on the formula; is that right? 9 A. Yes. But this particular one, I haven't -- I haven't 10 commented on. I just got the document. My comments 11 were later made in some of the later documents than 12 this. I sent that. It had much more detailed comments 13 on it. 14 Q. Okay. But this particular version you didn't have any 15 comments on? 16 A. Well, it's only one page, isn't it? 17 Q. Yes. But you didn't have any particular comments on 18 this one page? 19 A. Well, I didn't. I didn't make any comments back. I 20 mean he says there's a small number of inconsistencies 21 in the formula, and he's attempted to rewrite it. I 22 mean some later ones, I have said, well, I don't think 23 he quite understood it. 24 What you're asking me is did he -- did he actually 25 contribute to altering the formula.	Page 48 1 A. Okay. 2 Q. This is 2058. 3 A. Yeah. 4 Q. Just so we're clear, who wrote the black text in this 5 document? 6 A. I'm not sure. I don't know. I'd have to check whether 7 it came originally from Justin or from Jon. I don't 8 know, but I think some of it must have been -- I don't 9 know. That's, again, something where I said -- because 10 there will be my comments in red -- I think this is 11 misguided. Yeah. I've also said later, "As I pointed 12 out in my comments," question mark, "(were they read?) 13 The term 'global relevance' does not appear anywhere in 14 the document till section 10." "And there is no 15 explanation of what it means." 16 So, you know, as far as I can make out, the red 17 comments must be mine, and I'm responding. But who 18 wrote the paragraph? Was it from Justin or from Jon? 19 I'm not sure. Obviously the document came from Jon. 20 But one of the problems in fathoming out what 21 happened in all this stuff is that often parts of and 22 the whole of documents were resaved multiple times. So 23 unfortunately, the originals, it doesn't always say who 24 wrote it. It could have been from one of the earlier 25 documents, and I can't now remember.

Page 49 1 Q. So just for the record, you don't remember who wrote 2 the black text in this document? 3 A. I don't know, no. I can't -- I don't, but I can't 4 remember. 5 Q. But you think the red text is yours? 6 A. I think so because I'm -- I'm listed as the person that 7 saved it. So I can only think. I mean I wouldn't have 8 saved it unless I've made some comments on it. So it 9 seems to be likely that the red text is mine. But I'm 10 surmising from something that happened 20-some years 11 ago, you know. But that would be my best guess that 12 it's -- it's -- some of the black text may have been 13 altered by Jon. I don't know, or it might have just 14 come from Justin. I can't remember. 15 It seems likely that the red text will be mine 16 because I'm the person that last saved it. But if I 17 were commenting on something, I would have written in 18 red because that would be a way of indicating this is 19 my response. 20 Q. Okay. Let's go back to your declaration real quick. 21 You say here at the top of page 10, "I have 22 personal knowledge of EX2058 because it is clearly a 23 part of the interchange between Jon, Justin and myself 24 about the details of coding the formulae"; is that 25 right?	Page 51 1 it. I don't mean I was thinking about it every minute 2 of every day, but it was in my mind the whole time 3 during that period. That was the key period in which 4 the whole thing was being developed and put into form 5 where Justin thought it could be patented. 6 Q. When you say that this is about the details of 7 coding -- sorry -- when you say this is about the 8 details of the coding of the formulae -- 9 A. Yeah. 10 Q. -- so this is about turning the formulas into a 11 computer program? 12 A. Pretty well, yeah. 13 MR. PLAIL: Okay. So we've been going for a 14 little over an hour. Should we take a quick break? 15 THE WITNESS: Sure, yeah. 16 MR. PADMANABHAN: Yes. 17 (Break taken at 1:18 p.m. - 1:24 p.m. GMT.) 18 BY MR. PLAIL: 19 Q. Can we go to paragraph 31 of your declaration? 20 A. Sure. Which one is here? 2063. 21 Yeah, I've got it. 22 Q. Okay. So do you see the name of this document you're 23 discussing here is "Comments to Jon and Justin"? 24 A. Correct. 07/10/05. 25 Q. At this point in time, you were still working with Jon
Page 50 1 A. Yeah. 2 Q. Okay. When you say part of the interchange between 3 Jon, Justin and yourself, are you referring to the 4 communications and exchanges that occurred between Jon, 5 Justin and yourself? 6 A. Yeah. Obviously, yeah. I mean a lot of these, it goes 7 on for a while, really. You know, there's quite a few 8 of these, you know, starting with -- I think probably 9 2056 is the first one. But it goes on down to, like, 10 2070 where I'm commenting. And 2071, I'm commenting to 11 Jon -- Justin and Jon. It was a lengthy and continual 12 interchange over -- over a period of time between 13 August, really starting, really about, you know -- or 14 going on until October. It was part of the continual 15 interchange. 16 Justin was really the sort of kingpin in this 17 because in the end he was probably the only one that 18 understood all of it, but he was the kind of central 19 figure in this interchange. And Jon and -- Jon would 20 have been doing what he was asked to do as Justin's 21 employee. And I was responding because -- well, 22 because I had written the statistics, but also at that 23 time, unlike now, I was really well aware of what all 24 the terms meant. But, no, I mean I can't remember what 25 they all meant, but at that time, I was kind of living	Page 52 1 and Justin to develop some of the concepts for the 2 provisional application? 3 A. That's correct. 4 Q. If you go to the actual Document 2063. 5 A. Yeah. 6 Q. I'll go ahead and pull that up. 7 A. I've got it in front of me. 8 Q. So is it fair to say that in this document you're 9 discussing refining the meaning of the terms IRC and 10 IIC? 11 A. Yeah. And it begins by saying, "You have both 12 suggested to me that local importance values should 13 feed into the IRCs. This is mistaken as I will now 14 explain." 15 Then I go on to -- 16 (Reporter clarification.) 17 A. Sorry. I'll say it slowly. "You have both suggested 18 to me that the local importance studies should feed 19 into the IRCs." Full stop. "This is mistaken as I 20 will now explain." 21 And it goes on to talk about the definition of IRCs 22 and local importance. And I haven't a clue as to what 23 it means now reading it, but I obviously did when I 24 wrote it. 25 Q. (MR. PLAIL) If we go down to pages 3 and 4 of this

Page 53 1 document -- 2 A. Yes. 3 Q. -- you'll see there's a Figure 22a listed here. 4 A. There is. 5 Q. And then there's a Figure 22b listed on the next page. 6 A. There is. 7 Q. And if you see this paragraph that spans those two 8 pages, you say, "It's now occurred to me that the link 9 between IRCs and cognate group identification could be 10 dropped." Do you see that? 11 A. Yes: 12 Q. "We could identify the cognate groups by simply 13 correlating the IICs for users"? 14 A. Yeah. 15 Q. So you're suggesting here changing the flow for how the 16 cognate group is calculated? 17 A. Yeah. It seems I am, yeah. I mean I can't remember 18 it. But when I wrote this stuff, I was fully aware and 19 understanding what these different diagrams mean. I 20 mean now I can't remember, but I think there were other 21 times when I made suggestions to changing the way in 22 which the language was used, yeah. 23 Q. And if you look, there's differences between the 24 Figure 22a and 22b? 25 A. I can see there is.	Page 55 1 And you mentioned comparing it to the final 2 document. So I'm sharing my screen for the final 3 patent. 4 A. Okay. 5 Q. And let's go ahead and go to Figure 22. 6 A. I don't have that, of course, but, yeah. Okay. 7 Oh, yeah. Well, it looks as though that's what was 8 in it. Does it? Yes. That's... 9 Q. So it appears that the final patent is using the flow 10 diagram in Figure 22b and not necessarily the flow 11 diagram in Figure 22a? 12 A. Sorry. Can you say that question again? It looked --- 13 what you've got on the screen, which I don't have a 14 copy of, which is the final patent, it does look -- I 15 think it does look the same as the new one I suggested. 16 Q. Okay. So the patent uses the suggestions embodied in 17 Figure 22b? 18 A. Well, so it would appear from what you've now shown me. 19 So I must have got it right. 20 Q. If we go to paragraph 64 of your declaration. 21 A. Paragraph what? 22 Q. 64. 23 A. My declaration only goes up to -- 24 Q. Oh, sorry. My error. Paragraph 32, referring to 25 Document 2064.
Page 54 1 Q. It's your understanding that 22b reflects these changes 2 to how the cognate group is calculated? 3 A. It reflects what I was suggesting at the time. Whether 4 Justin took it up to put into the final document, I 5 don't know without checking what was in the final 6 document. 7 Q. Okay. 8 A. And I haven't done that, or if I did at the time, I 9 can't now remember. 10 Q. Okay. You have this document in front of you, right? 11 A. I do. 12 Q. So let's just focus in on one more section here. It 13 says at the bottom of this paragraph that spans page 3 14 to 4, it says, "This would give a diagram which could 15 be shown as below." 16 A. Sorry. I'm looking. This would be... Oh, yes. This 17 would give a diagram which is shown here, yes. 18 Q. Okay. 19 A. And then there's said diagram, yes. 20 Q. So the suggested change to how the cognate group is 21 calculated would be reflected in this diagram which is 22 shown below? 23 A. Well, if I said it, then it was probably true, yeah. 24 Q. Okay. And so just if you could just keep that up for 25 one second, I'm going to stop sharing my screen.	Page 56 1 A. Oh, okay. Okay. 2 Q. So the name of this document is Alterations to 3 document? 4 A. Yeah. 5 Q. And you say there on paragraph 32 that "The document 6 reflects changes I proposed making to the draft 7 provisional patent application"? 8 A. Yeah. 9 Q. So these are some additional changes to the draft 10 provisional patent application? 11 A. Um, right. So what -- when is the provisional? 12 Q. Sorry. What was that? 13 A. Yeah. Sorry. I'm just trying to make sense of it all. 14 Changes that I proposed making to the draft. 15 Q. I can represent to you -- 16 A. I mean I don't now know whether by that sentence I 17 meant proposed making before the draft provisional 18 patent application, or I proposed making after the 19 draft provisional patent application was made. But 20 I -- 21 Q. I understand. And so I might be able to clarify that 22 for you. 23 A. Okay. 24 Q. The draft -- the provisional application was filed with 25 the U.S. Patent Office on January 13, 2006.

Page 57 1 A. Yeah. Yes. Well, I think by this statement I must 2 have meant that the changes would be made before it 3 was, obviously, because the date is earlier. So I'm 4 not saying I made those changes after the patent 5 application. I'm intending -- if the English is bad, 6 well, I -- I'm sorry. 7 But when I said making to, what I meant is making 8 them before the application was made, because if it 9 already had been made, you couldn't change them, could 10 you? So otherwise it would -- that would show what was 11 earlier 22a, not 22b. But 22b is what I'm proposing 12 that they put in. And Justin obviously did because 13 that's what's in there. 14 Q. Okay. And if we go to -- 15 A. I apologize if the English is not clear here. 16 Q. If we go to the document referred there as Document 17 EX2064. 18 A. Yeah. Yeah. I've got it here, alterations. Yeah. 19 Q. And so this also appears to include a version of the 20 figure we were just discussing, correct? 21 A. It does, yeah. It looks exactly the same to me. 22 Q. Okay. If you look at the top of this document, it 23 says, "This paper contains the essential summary of 24 what I think I agreed with Justin. I'm sending it 25 separately for you to look at but also to incorporate	Page 59 1 Q. Okay. So separately there means from the comments 2 already made? 3 A. Yeah. 4 Q. Okay. 5 A. It doesn't mean separately to the person. No, it 6 wouldn't have meant that. It would have meant that 7 there was already comments to Jon and Justin made on 8 7/10, for whole -- I'm trying to use American months, 9 which you always put things back to front. 10 So comments to Jon and Justin, which was on the 11 7th, and the alteration was made on the next day. 12 So what I meant -- no. I see what you mean now by 13 the separately. No, it wouldn't have been to Jon 14 separately. It would have been separately from the 15 comments already made, just to reiterate. And then it 16 goes on to make a few further comments as well on it, 17 to clarify. 18 Q. So just to -- 19 A. Yeah. 20 Q. For the record -- 21 A. Yeah. 22 Q. -- the you here would be Justin and Jon Fernyhough? 23 A. Yes. 24 Q. Okay. So this document was also sent to Jon 25 Fernyhough?
Page 58 1 into the document." 2 Do you see that? 3 A. Okay. 4 Q. Who is the you that you're referring to here? 5 A. I think the you would be plural. It would have gone to 6 Justin and to Jon, I presume. But obviously because I 7 no longer have access to the email in which the 8 document was sent, I can't verify that with certainty. 9 But I don't think that the you is -- in English, as you 10 well know, had I been writing it in Elizabethan times, 11 it would have been either thee or you. But you is 12 plural. And I think it highly -- highly, highly 13 unlikely that I would have sent something to Jon 14 without copying Justin into the email. 15 So I could say probably 99.9 percent certainty, as 16 a statistician, that the you would refer to Justin. 17 But I would still have said is what -- I think I agreed 18 with Justin. And you, I mean it's grammatically 19 correct to say I'm sending it to you plural what I 20 think I agreed with Justin to make it clear to the 21 other person involved in the "you" where it was agreed 22 from. And it says -- 23 Q. Just to go back to the document, it does say I'm 24 sending it separately to you? 25 A. Well, separately from the comments already made, yeah.	Page 60 1 A. I would -- from the "you", I would think, yes, because 2 I wouldn't have said I agreed with Justin without 3 sending it and copying it to -- to Jon. That -- so I 4 must have sent it to both of them, yes. 5 Q. All right. Can we look at your declaration again 6 quickly? 7 A. Sure. 8 Q. If we look at paragraph -- if we look at paragraph 33 9 quickly -- 10 A. I've got it. 11 Q. -- we see that there is this document 12 BSMR021005_jfpm2.doc. 13 A. Correct. 14 Q. And then if we scroll down through the following 15 paragraph, we see that the last number in the title of 16 the document changes as we go down? 17 A. Correct. 18 Q. So for paragraph 33, it's jfpm2? 19 A. Yes. 20 Q. For 34 it's jfpm3? 21 A. Yeah. 22 Q. And then it goes on through -- 23 A. Yes. 24 Q. -- to paragraph 37. 25 A. Yes.

Page 61 1 Q. Jfpm6; is that right? 2 A. Correct. Yes. 3 Q. So these were a number of iterative drafts that you 4 were working on -- 5 A. Yes. 6 Q. -- at the time? 7 A. Yes. 8 Q. Okay. 9 A. And jfpm6 contains quite extensive comments from me. I 10 haven't checked all the previous ones to see if any of 11 them were repeated. But I mean this was all made 12 basically over two days. Pm6 was the last one on the 13 14th of October, and the first ones were on the 13th. 14 So you have the alterations of documents which you 15 just looked at, which were on the 8th. And then there 16 was a week. And what we did during that time, no, I 17 missed that pm one. It wasn't in my declaration. But 18 then over the period of the 13th to the 14th, and then 19 on the 15th, the next day, there's another set of 20 comments. 21 So on the 14th, I sent jfpm6. And then on the 22 14th, I also sent a document called "Jon & Juistin" 23 because I've forgotten how you spelled his name. It 24 was a misprint. As well on the 15th. 25 So, yeah, that was part. It was part of an	Page 63 1 Q. Yes, please. Please check. 2 A. Yeah, okay. 612. I'm not sure that I have actually as 3 I look. I can't see it. I can't at the moment find 4 it. So I don't know is the answer. 5 Q. Okay. 6 A. I mean it's unlikely to have been any different from 7 the others very much. But, no, I can't find it, which 8 may be why it's not in the declaration. 9 You know, it's almost by chance that I even have 10 these at all because -- and it's likely good to put on 11 the record. My -- my computer, of course, was replaced 12 long before. So anything that was only saved on the 13 hard drive of the computer, I wouldn't have had. I 14 only had stuff that I happened to put on a separate 15 hard drive, which is a very old one that, well, I think 16 was my -- you know, it was a very old type hard drive. 17 And when I opened it up, it happened to work, and it 18 gave me a number of the files which I forwarded to the 19 -- your company that was asking for it, which is one 20 that Devan works for. So it may be that there was 21 presumably an fpml, but I didn't -- unless you've got 22 it, I didn't happen to save it, you know. 23 Q. Okay. So let's go look at 2065. 24 A. Which one? 65? 25 Q. Yes.
Page 62 1 interchange. It was quite likely that I would have 2 copied them both when I sent emails. It would have 3 made sense at the time. 4 Q. And by them both, you mean both Justin Marston and Jon 5 Fernyhough? 6 A. I do. And -- 7 Q. And so you -- 8 A. Sorry. 9 Q. And so you mentioned that you didn't have jfpml in your 10 declaration; is that right? 11 A. I can't find it. Is it in there? I haven't seen it, 12 but... 13 Q. I'm just confirming. 14 A. Yeah. Well, I could -- I mean as best I can in my 15 advanced age and decrepitude, I did go through and 16 check all of the -- you know, highlighted all of the EX 17 numbers that were in the thing. I mean I have jfpml in 18 my file, but I didn't list it because I didn't think it 19 was in my document. If I missed it, well, you know, 20 sorry about that. 21 Q. Do you have jfpml? 22 A. I'd have to check. Do you want me to check? 23 Q. By check, do you mean checking through your files? 24 A. I mean checking on the computer. So I'd have to switch 25 to...	Page 64 1 A. Yeah. Okay. I haven't got that in front of me, but I 2 didn't do them all, but you can put it on screen if you 3 want. 4 Q. Yes. Give me one moment. So this is 2065. 5 A. If you say so, yeah. 6 Q. If you look in the bottom right corner, it says 7 Sterling EX2065. 8 A. Yes. Yep. Yep. 9 Q. Okay. 10 A. Okay. 11 Q. If we -- let's go ahead and go to the metadata page so 12 that we're -- 13 A. Okay. 14 Q. -- aligned. So we'll see that this is jfpm2, correct? 15 A. Yeah. It's got -- 16 Q. It says -- 17 A. And it's got Marston as the things, yeah. 18 Q. Yeah. So the author is blank? 19 A. Yes. 20 Q. Or there's a full stop there? 21 A. There's nothing there. I don't know who it was. 22 Q. Okay. And then last saved is Marston? 23 A. It is. 24 (Reporter clarification.) 25 MR. PLAIL: Saved.

Page 65 1 A. All of the fpm2 that we've got, jfpm2, 3, 4, 5 and 6 2 have no original author in the metafile, and I'm listed 3 as the person that last saved it. 4 Q. Okay. And so just one question. This jfpm2, that pm, 5 does that refer to you? 6 A. Well, I would imagine so. I think jf must be Jon 7 Fernyhough, and pm must be. 8 Q. Okay. 9 A. Yeah. 10 Q. All right. So if we go up to, for example, page 7 -- 11 let me get up there. Let me zoom into this comment so 12 that you can see it on the screen. 13 So jf in this document would be Jon Fernyhough? 14 A. Yeah, I would think so. 15 Q. And this red text, is that likely you? 16 A. It's likely to be me I think, yes. 17 Q. Okay. 18 A. Because I saved it. I mean a lot of these comments, 19 there's even more of them in jfpm6. So what's it say? 20 Previously used BlueSpace something. I can't read it. 21 It's probably in the later one as 12/6, is it? 21? 22 Q. I can zoom in more, if that's helpful. 23 A. Oh. 24 Q. And so since you are responding to a comment by Jon 25 Fernyhough --	Page 67 1 right? 2 A. Yes. Yes, it is. 3 Q. All right. So let's go ahead and go to that document, 4 EX2069. 5 A. Okay. Hang on. And I'll find it because I have it 6 here somewhere I think. I think I printed it. 7 Did I print it? No. I may not have printed that 8 one. Yeah. Okay. I have read it. It's one of the 9 ones that I read several times actually before today, 10 yeah. There's a lot of comments in it from me. There 11 are, in fact, numerous comments in it, some of them 12 quite lengthy, from me, throughout the 96 pages of the 13 document. 14 Q. Okay. Let me go ahead and pull that up so that we can 15 take a look at it. So this is 2069? 16 A. Yeah. 17 Q. Okay. If we go to page 31 here, you'll see there's a 18 comment here. 19 A. Mm-hmm. 20 Q. Is that zoomed in enough for you? 21 A. Well, not really. Can you do it a little bit more? 22 Q. Sure. Let me... 23 A. Sorry. I didn't print this one. I don't know why I 24 didn't do it. 25 Q. Is that better?
Page 66 1 A. Yeah. 2 Q. -- in jfpm2, is it likely that Jon Fernyhough created 3 jfpm1? 4 A. No. I think that's highly unlikely because jfpm1 would 5 have my initials in it. Was it Fernyhough? No. I 6 don't know. 7 Q. Okay. 8 A. I can't remember. I mean it's possible that he sent me 9 a file called jfpm1 and that that's where that was in. 10 I don't know. 11 Q. Okay. 12 A. I don't why that's important, but obviously the 13 comments are his because it's got his initial on it, 14 and the counter comment is from me. And that 15 particular one is about what term you use rather than 16 email. So -- so, yeah. I mean that's about the -- of 17 it. Do you call it email? Well, no. But do you call 18 it BlueSpace mail relevance? No. It should be 19 TransMail relevance, which is what I said in reply. So 20 it's just about what the label should be. 21 Q. Okay. Let's go to -- if we go back to your declaration 22 for one second -- 23 A. Okay. 24 Q. -- just to we can orient ourselves. If you look in 25 paragraph 37, you'll see that EX2069 is jfpm6; is that	Page 68 1 A. Yeah. The -- yes. My comment is "Go along with both 2 those." I think that says "suggest getting Yui and 3 Debs to review this section." 4 I have no idea who Yui and Debs were, and I didn't 5 know at the time. So I have replied in my comment 6 manner, "Go along with both those," meaning Yui and 7 Debs. Neither involved me in any work. But I don't 8 know who they were. And as far as I can make out, I 9 never got any comment back from whoever Yui and Debs 10 were. 11 Q. Okay. So just to break that down for the record -- 12 (Crosstalk.) 13 THE REPORTER: I'm sorry. What? To the 14 witness, what did you just last say, if you remember? 15 THE WITNESS: Are you talking about me? 16 THE REPORTER: Yes. 17 THE WITNESS: Oh, sorry. 18 A. Yeah. All I was saying is I don't know who Yui and 19 Debs were or are. And as far as I know, we never had 20 any -- well, not as far as I know. I never saw any 21 comments back from a Yui or a Debs. So whether Justin 22 actually did it, I don't know. But I was just -- the 23 comment is clearly remarking go along with both those. 24 Neither involve me in any work. In other words, if 25 someone wants to review it, it won't -- it won't

Page 69 1 involve me in spending any more time on it. So I'm not 2 quite sure what the question is. 3 Q. (MR. PLAIL) All right. Just breaking it down. 4 A. Sorry. 5 Q. Breaking this down a little bit. 6 A. Yeah. 7 Q. This is a comment originally from Jon Fernyhough, 8 right? 9 A. Well, it's got his initials on it. It must be, yeah. 10 Q. And the red is from you? 11 A. Yes. 12 Q. And you don't know who Yui and Debs are? 13 A. No idea. Never did have. 14 Q. And why does this work not involve you? 15 A. Well, it would -- well, I think what you're trying to 16 do is to make a big deal out of a very cognate comment 17 which I made, having spent ages working through making 18 comments on all these things, to say if someone else 19 wanted to review this section, it wouldn't involve me 20 in any work. But obviously, in reality, had they come 21 back and said you need to change this and this and this 22 and this, then it might be that Justin would have asked 23 me to make a comment on it. But it's just kind of a 24 light -- lighthearted remark that you might make to 25 your son, which is basically who it was for, to say,	Page 71 1 actually did ask Yui and Debs, whoever they are, to 2 review the section. How would I know? What I know is 3 that he made that suggestion to... 4 Q. And just to be clear, this is a comment from Jon 5 Fernyhough, right? 6 A. Yes. 7 Q. Okay. 8 A. It's got his initials on it. But you would have to ask 9 Justin whether he did ask Yui and Debs, whoever they 10 are, to review it, because I don't know. If he doesn't 11 say so in his declaration, he probably didn't. 12 I think he did say in his declaration, if I 13 remember correctly -- and you've got it. So you'll 14 know. He did say he tried to get a few other people to 15 comment and didn't get any comments back. Whether that 16 included Yui and Debs, I have no idea because I don't 17 know who they were. 18 Q. Okay. If you go to paragraph 39 of your declaration. 19 A. Okay. Oh, there's a misprint there by the way. 20 Q. That was my question. 21 A. Yes. I had pointed it out to the private firm. I 22 didn't notice when I signed it. I apologize for that, 23 but the EX2070 should be EX2071 in that first line of 24 39. 25 Q. Okay. And just so we're aligned --
Page 70 1 sure, get someone else to look at the section. 2 I think you could read any meaning into it. You 3 know the words, that somehow they rewrite it all. And 4 I could, you know, knock off and go out for a walk. I 5 mean it's just a rather lighthearted comment. 6 Q. I wasn't trying to read any meaning into it. 7 A. That's fine. 8 Q. My question is, this is relating to user interface. 9 Is that fair? 10 A. UI, yeah. I guess UI must be user interface, yeah. 11 Sure. 12 Q. And you weren't particularly involved in the user 13 interface for TransMail? 14 A. No, I wasn't. 15 Q. So it was likely that Yui and Debs were involved in the 16 user interface component? 17 A. I didn't say it was likely. That's a suggestion Jon 18 made. It was rather Justin -- 19 Q. I was asking the question. 20 A. Sorry? 21 Q. I was asking the question, is it likely that Yui and 22 Debs were involved in the user interface aspects? 23 A. I don't know. That's why I was trying to answer the 24 question. 25 It's a suggestion. I don't know whether Justin	Page 72 1 A. I just -- yeah. 2 Q. -- for the record -- one second. Let me get there. 3 A. There is also -- while we're doing the record, well, on 4 paragraph 34 -- 5 Q. Let me just deal with this one first. 6 A. Okay. Okay. 7 Q. Then we can go back. Sorry. Just... 8 So paragraph 39. 9 A. Yes. 10 Q. The first sentence of paragraph of 39 where it says, 11 "The document labeled EX2071," that should instead say 12 the document labeled EX20- -- strike that. Sorry. I 13 said that wrong. 14 In paragraph 39 where it says, "The document 15 labeled EX2070," that should instead say the document 16 labeled EX2071? 17 A. Yes. 18 Q. Okay. And then you were mentioning another change in 19 paragraph 34? 20 A. It's the same thing. I think that the second mention 21 should be 2066, not 2067, in line 3, for line 3. I had 22 told Devan that. He said that it would be fixed. 23 Q. Yes. So I see. So I see. So the second sentence in 24 34, let me just get that. 25 So in paragraph 34, the second sentence says, "I

Page 73 1 have personal knowledge of EX2067." That should 2 instead read I have personal knowledge of EX2066? 3 A. That's correct, yeah. 4 Q. Okay. 5 A. I apologize. When I signed the declaration, I didn't 6 notice it. I'm not very good at proofreading. I did 7 say to Devan earlier, to be a good proofreader, you've 8 got to be neurotic, obsessive. And in spite of my many 9 failings, I'm not neurotic, obsessive. I'm not really 10 good at proofreading, but I had noticed it when I was 11 working through for today. 12 Q. Understood. Understood. 13 Are there any other typographical errors? 14 A. Not that I know of. 15 Q. Okay. Thank you. 16 Let's go back to paragraph 39. 17 A. Okay. 18 Q. So Exhibit 2071 is this document "Comments to Justin 19 and Jon, October 15th.doc"? 20 A. Yeah. 21 Q. Let's go ahead and open that up. 22 A. Sorry. Which -- oh, yeah. 2071. Yeah, I've got it. 23 Q. Yeah. Let me go ahead and share my screen so that -- 24 A. This begins, "Just some thoughts after this morning's 25 conversation with Justin."	Page 75 1 Q. Mm-hmm. 2 A. Would it be done for the things which were already 3 stored and never opened, or would it only be done when 4 they were opened or something in between the two. 5 So it was really about the practicalities of how 6 big a storage space and how much computing time you 7 would need for the system to operate. So that's the 8 context. And I think here I make several suggestions, 9 which the blue, I think, and the black would all be 10 mine. I just put it in blue to make it stand out 11 headline in the System-1, System-2, System-3, System-4. 12 Q. Okay. And so you're here suggesting four different 13 systems to -- 14 A. Yeah. 15 Q. You're here suggesting four different systems that 16 would help solve the issue of implementing the formulas 17 on a computer? 18 A. Yeah. Well, four alternative suggestions, yeah. 19 Q. I guess that's a good question is, these systems are 20 alternative ways to calculate the cognate relevance? 21 A. Yes. 22 Q. So you wouldn't necessarily use all four systems at 23 once? 24 A. I don't -- I don't -- I don't really like that. I'm a 25 flipper. When did I make this? On October the 15th.
Page 74 1 So obviously this does illustrate that Justin and I 2 were having other conversations as -- I'm pretty sure I 3 didn't ever have a conversation with Jon. 4 Q. Okay. 5 A. But I did have some with Justin, which are not recorded 6 in the documentation obviously. 7 Q. And so this is a letter from you to Jon and Justin? 8 A. Yeah. I would have copied him in on anything. I mean 9 he wouldn't have been in on the conversation. But, you 10 know, he would have been copied in on the interchange 11 looking at this stuff, yeah. 12 Q. And it appears that one of the issues you're discussing 13 in this letter is the computational burden of 14 calculating cognate relevance. Is that fair? 15 A. Yeah, that's correct. Yeah. 16 Q. And we previously discussed that computational burden. 17 Was that one of the issues that you, Jon and Justin 18 were working through at this time? 19 A. Let me just read it again before I answer that. I 20 think the -- I think the underlying question was about 21 the size of the matrix that would be needed to do the 22 computations. And so we're looking here at saying -- 23 well, we hadn't actually said at what point, and this 24 is a coding point, I suppose -- at what point would 25 they recalculate the relevance, you know.	Page 76 1 What is it now? It's November. It was, you know, 2 20 years and a month ago that I made the comment. But 3 reading it now, it seems likely to me that they were 4 alternatives rather than you'd use them all. 5 I suppose it's possible that you could have a set, 6 you know, some sort of set button on the system that 7 the user could decide which they wanted. That's -- 8 that's certainly possible. 9 Whether Justin considered that, I don't know. I 10 mean, I -- I can't remember any further feedback. But 11 as you can see, at that time, I was really involved in 12 understanding the system. I was really, you know -- it 13 was in my brain completely, and now, of course, it 14 isn't. So but I don't know what Justin finally decided 15 on that one, but that was just alternatives. 16 So were they alternatives that you had to choose 17 one way or the other when you installed the whole 18 system, or were they alternatives that the user could 19 decide on, depending on how much space or whatever they 20 had? I don't know is the answer to that currently. I 21 don't remember. 22 Q. Okay. 23 A. Or haven't really decided. 24 Q. And so at the bottom of this document, you say, 25 "Anyway, you need to make a decision and then I can

Page 77	Page 79
1 alter the document accordingly." 2 Do you see that? 3 A. I think -- I think it's really -- yeah. I mean I don't 4 know which way I'd alter -- it would be me that altered 5 it. It would probably have been Justin that altered it 6 actually. 7 Q. Okay. But you're saying -- 8 A. Yeah. I don't know. Sorry. 9 Q. You're saying once the team makes a decision about 10 which of these four systems to implement, you can 11 adjust the document to reflect that? 12 A. Well, yeah. But I mean, obviously, Justin would have 13 to do it as well because it would have to describe what 14 it was doing, and I didn't write that. But I had to 15 say I don't know how easy it would be to program. So 16 it's really -- I'm not sure. If you're going to ask me 17 what exact alterations would I have made, I'm not sure, 18 or whether Justin would have made them, because I can't 19 remember that much detail. 20 I suppose it would have been more sensible for me 21 to say we can make to the document because it would 22 obviously have been involving both. But I mean when I 23 wrote it, I wasn't necessarily thinking of someone 24 asking me a question of it in 20 years' time. But when 25 I remembered what the context was -- but I kind of	1 Q. Yeah. So just to clarify one thing. When you say, the 2 document, you are you referring to the patent, the 3 draft provisional patent application that you three 4 were working on at that time? 5 A. Yeah. Well, I refer to -- yeah, I mean the whole -- I 6 mean there's multiple resavings, as the thing is 7 called, you know, BlueSpace mail relevance. I wasn't 8 particularly thinking about the patent application 9 because I never saw that. I was really thinking about 10 the document on which presumably the patent application 11 would be made, you know. 12 In fact, I'm not even sure that I knew he was going 13 to make it into a patent application. I can't 14 remember. Did he tell me? It wasn't something that I, 15 you know, was desperate about because I didn't get any 16 monetary gain from doing any of this work. It wasn't a 17 contract. It was to help him. That was -- that was 18 all. I didn't have a contract to do anything, and I 19 didn't -- nothing was dependent for me on whether it 20 was patented or not. But Justin would have told me he 21 was patenting it, I guess, because we're family. And 22 he would have told me that he was putting my name on 23 it. And I would have said fine, go ahead, you know. 24 I have total trust in what he would do, that it 25 wouldn't -- and it wasn't a big deal for my simple
Page 78	Page 80
1 knocked it off and sent it off to Justin. And I would 2 think, obviously, I copied in Jon because we were 3 working on it together. 4 But in the end, it should be clear that Justin was 5 the driving force behind the whole thing. It was his 6 idea in the first place to look at the whole system to 7 invent transfer. It was his idea, and he was driving 8 it forward. But I helped him as much as I could within 9 my own limited competence because I loved him, and he 10 was my son. 11 Q. You will find patent law can be similar to being a 12 historian sometimes. We're often looking back at 20- 13 30-year old documents. 14 A. Yeah. But, historically, I can read up on all the 15 different reports of when -- I've written a report on 16 the history of European astronomy. And you try and 17 work out -- but you're always, to some extent in 18 writing the history of science, you are making guesses. 19 And if you look at, you know, some of the figures like 20 Isaac Newton, there were two famous historians of 21 science who were both at Cambridge, and they were 22 married, and they had completely different views about 23 Newton. So it is tricky. 24 Q. Yeah. 25 A. We make our best guess.	1 reputation. So I wasn't interested in it really. I 2 mean I was interested in what he was doing, but because 3 of him, not for my career advancement. Sorry. That's 4 a long answer, but... 5 Sorry if I spoke too quick, Christine. I'm trying 6 not to. 7 Q. Can we go to paragraph 40 of your declaration? 8 A. Sure. Oh, okay. Yeah. 9 Q. And so this is discussing Document 2072? 10 A. Yeah. Yeah. 11 Q. And the last modified date for that document is 12 November 10th, 2005? 13 A. Yeah. 14 Q. And this is the last paragraph of your declaration; is 15 that right? 16 A. Sorry. What's the last paragraph? 17 Q. Paragraph 40 is the last paragraph of your declaration, 18 correct? 19 A. Oh, yes. Sorry. Yes. Yes. 20 Q. And so you don't discuss any documents from after 21 November 10th, 2005? 22 A. No. Well, not in the declaration. I didn't -- I don't 23 know that we had a lot of to and fro because, you know, 24 we're talking about November. I think you Americans do 25 something called Thanksgiving, don't you, at about that

Page 81 1 time and turkeys? And then we have Christmas, and we 2 have a New Year. Even when it's family, we have some 3 time off. So I don't know how hard he was working 4 between those times. 5 From his declaration, it seems that he was making 6 contact with lawyers and various other stuff to prepare 7 for the patent. I didn't have any involvement in that 8 process, the lawyer contact, because they would have 9 been American lawyers anyway. So I had no -- I had no 10 involvement in his interchange with the lawyers to 11 submit the patent. 12 Q. Okay. So just to -- to clarify, you were not involved 13 with the discussions or submission of the application 14 to the lawyers? 15 A. No. 16 Q. Okay. And you didn't communicate with the lawyers? 17 A. No, I didn't. 18 Q. Okay. 19 A. That I can say no. That's the first easy to answer 20 question I can make. 21 Q. Okay. And if we look at Exhibit 2072. 22 A. Yeah, yeah. I didn't print that one, but go on. Yeah. 23 Q. So this is the last in time document that you discuss 24 in your declaration, right? 25 A. In the declaration, yeah.	Page 83 1 worked with the lawyers to get it on file? 2 A. I didn't say that. Because if you look at this 3 document -- and I haven't got it. You have. Can you 4 scroll down on this last document? 5 Q. Sure. 6 A. Are there some comments on here from me on it? I just 7 want to check. Is there nothing at all? 8 Q. There's a comment here about updating this figure. 9 A. Who's it from? Me? It must be me. I was the one that 10 saved it. So I said, "yes," this is -- "I have told 11 Justin this needs doing." 12 And again, although, I'm replying to a comment from 13 Justin, and I'm doing it, I may well have sent it to 14 Jon as well. I don't know, but I said "I cannot amend 15 any diagrams." 16 So there may be others on this. I'm not sure. But 17 if there are, then I don't know for certain what Justin 18 did with these comments. So I'm not suggesting that 19 the EX2072 is the final, complete document as was sent 20 to the -- to the patent people or the lawyers, or 21 whoever he sent it to. He may have well made other 22 alterations to it after that. Again, I'm -- 23 Q. So I mean I guess my question is, you're not aware of 24 any alterations you made to the document after that 25 point?
Page 82 1 Q. Okay. 2 A. I don't think I had any further ones that I saved, 3 but... 4 Q. Okay. So you didn't have any documents from after this 5 point? 6 A. As far as I can remember, no. 7 Q. Okay. 8 A. I haven't rechecked the files, but I think that was the 9 last one. 10 Q. And if you had had -- if you had found additional 11 documents, you would have put them in your declaration? 12 A. Well, I don't know because I didn't draft the 13 declaration. It was the lawyers that did it because 14 it's all in law speak. But, yeah, I mean, I guess if 15 there hadn't been any and I would have found them, then 16 they would have put them in. 17 I mean some of the things, as was clear, was saved 18 in Justin's system and not in mine because he did have 19 some that he saved in BlueSpace, and some of them were 20 saved in mine and not easily, but I think this is the 21 last one that I had. 22 Q. Okay. And so by -- strike that. 23 So based on your review of your records, by 24 November 10th, the draft provisional patent application 25 was complete. And at that point, Justin went and	Page 84 1 A. I'm not aware of any, no. 2 Q. Okay. 3 A. But whether -- whether there were any further 4 interchanges, I didn't save them. I can't answer that 5 with certainty because I mean had I known how important 6 it would be, I would have made sure that I saved 7 absolutely everything that went between us and that 8 everything I wrote in it was absolutely clear, but I 9 didn't. You know, I had no previous involvement with 10 patents. I know about copyright from writing all my 11 books, but not about patents. So I -- you know, I 12 wouldn't have known what procedures were going on and 13 so on, what needed changing. 14 Q. Okay. So you're not aware of any alterations you made 15 to the draft -- 16 A. I wouldn't know. 17 Q. -- to the patent provisional -- 18 A. Sorry. 19 Q. Sorry. Let me just get the full question out. 20 A. Sorry. 21 Q. You're not aware of any alterations you made to the 22 draft provisional patent application after 23 November 10th? 24 A. I'm not aware of any. 25 Q. Can you go to Justin Marston's declaration real quick?

Page 85 1 A. I've got it, yeah. September, yeah. Yeah. 2 Q. If you go to paragraph 63 in his declaration -- 3 A. Yeah. 4 Q. -- you'll see there he's referring to a document 5 labeled 2051? 6 A. Yeah. 7 Q. And he says, "In this document, Paul Marston is 8 providing feedback to me regarding a draft of the 9 provisional patent application"? 10 A. That's right. 11 Q. Let's go ahead and look at 2051. 12 A. This is May, isn't it, 2005? 13 Q. I can scroll down here for you. Here's the metadata 14 sheet for 2051. 15 A. Oh, I'm the author. Okay. 16 Q. And so you're the author of this document, 2051? 17 A. Yeah. 18 Q. And this is laying out your impressions at the time of 19 the development of the relevant system? 20 A. Well, I presume it is, but without looking to the 21 document itself, I mean I'm... 22 Q. I'm sharing the document on the screen. 23 A. I haven't -- 24 Q. I have it. 25 A. Yes. I can't read it actually. It's too small. Some	Page 87 1 Came in the summer of 2004. And I did some initial 2 formulas to that which were put together. And then 3 really the work was taken up again in earnest. I mean 4 a few things happened in September. But from April 5 onwards, we started -- he wanted to restart doing it 6 because he had been, I presume, developing other 7 aspects of TransMail during that period, as well as 8 moving to America, and all that kind of stuff. 9 And so from April 2005 was when we started work to 10 ensure that we -- you know, that the formulas were as 11 good as we could get them, and also then to eventually 12 start working on the coding issues and maybe changing 13 some of them in the matrix or, you know, marginally 14 altering the way that something was calculated, which, 15 as you've seen, happened later on. 16 So this was as we were beginning to start to work 17 again in earnest on it together. He had been working 18 in the meantime on other aspects of TransMail because 19 that's what he was doing in that whole period working 20 as CEO of BlueSpace. But this is when we restarted 21 looking at it. And, yeah. So these are my thoughts as 22 we restarted. 23 MR. PLAIL: Okay. All right. We've been 24 going for about an hour again. Should we take a quick 25 break?
Page 86 1 thoughts on the... 2 Q. Is that better? 3 A. Okay. Oh, yeah. I see "because you tend to skim 4 rather than" -- 5 (Reporter clarification.) 6 A. It says, "Because you tend to skim rather than read 7 properly here are the two absolutely central points." 8 So this is 2051. I mean I know you have the full 9 document. If I look, I did print out some of those 10 which weren't in my -- were not in my declaration. So 11 I may be able to see if that's allowed to do. I don't 12 know. 13 Q. (MR. PLAIL) I'm sorry. I think my question was just, 14 this is laying out your impressions at the time -- 15 A. Yeah. 16 Q. -- of the development -- 17 A. Yeah. Yeah. 18 Q. Okay. So this is -- just to get my full question out. 19 A. Yeah. 20 Q. So this is laying out your impressions at the time of 21 the development for the draft provisional application? 22 A. Well, yes. But you're talking about May, aren't you? 23 Q. May 2005. 24 A. Yes, May 2005. Well, the overall patent was that we 25 had the original -- well, Justin, it was his idea.	Page 88 1 MR. PADMANABHAN: Sure. 2 THE WITNESS: Okay. Sure. Yeah. 3 MR. PLAIL: Ten minutes. 4 (Break taken at 2:21 p.m. - 2:32 p.m. GMT.) 5 BY MR. PLAIL: 6 Q. Can you go to -- I think you have a printed out 7 Exhibit 2065. 8 A. 2065, fpm2. No, I haven't got that one. 9 Q. Okay. 10 A. I thought you were on 2051 or something, but in any 11 case -- anyways, so... 12 Q. So you don't have 2065 in front of you? 13 A. I haven't printed it out, no. 14 Q. All right. Let me go ahead and -- 15 A. I have the fpm2 thing. 16 Q. Let me go ahead and share my screen. 17 A. I think you showed it to me earlier. 18 Q. Yes, that's right. 19 A. And I pointed out that the -- there were -- there more 20 comments as it went through to FJFPM6. This is fjfpm2. 21 Q. Let's look at page 88. Zoom into this paragraph on 88, 22 which is discussing communal filtering. Let's see. I 23 think that's as much as I can zoom in and get the whole 24 paragraph in. 25 A. Okay. Yeah. So it's looking at the behavior of other

Page 89 1 recipients and talking about communal developments, is 2 it? Yeah. Okay. 3 (Reporter clarification.) 4 THE WITNESS: Sorry. I was just trying to 5 read the paragraph because it's quite small. 6 THE REPORTER: Oh, okay. You were just 7 reading to yourself. Got it. 8 MR. PADMANABHAN: Can you read it? Is it 9 too small? 10 THE WITNESS: I don't know. I can try 11 increasing the size of the screen or something. 12 MR. PLAIL: I'm not sure how to make it 13 bigger on my end. 14 THE WITNESS: No. I was just seeing if I 15 can try to increase the size of the screen. I can't. 16 Q. (MR. PLAIL) Let me try one thing on my end real quick. 17 A. Sorry. 18 Q. No problem. 19 A. I guess I could have printed all these out, but... 20 Q. Let me know if this is better. 21 A. Oh, yeah. I can see that. Yeah, much better. 22 Q. Okay. 23 A. Yeah. Communal filtering. Okay. 24 Q. Okay. Up here you're discussing correlating the 25 actions of the users on a piece of content, right?	Page 91 1 which looked at my email and ranked it, if you're 2 asking could you have it correlated depending on, say, 3 what I bought on Amazon, that's one question. 4 If you're asking could the system be applied in two 5 different contexts, one of which might be -- I don't 6 know -- Amazon, and the other might be email, which are 7 very different systems, that's a different question. 8 I don't know which I meant at the time, if it was 9 me or whoever wrote this. It's probably Justin. But 10 if it -- I don't know which -- which it was meaning. I 11 would have thought it was probably meaning just the 12 same system that you were using. 13 So you might be able to apply this same idea of 14 correlation and cognate groups to something like Amazon 15 or advertising. And -- and, or you might -- which 16 would be one question. But whether you could make the 17 Amazon purchases correlate, if you're looking at email 18 relevance, that's a different question. I guess either 19 would be possible. I don't know what -- 20 Q. Okay. 21 A. -- Justin had in mind for his system. 22 Q. (MR. PLAIL) So you can make the correlation and 23 cognate groups work for something like Amazon or 24 advertising? 25 MR. PADMANABHAN: Objection; Rule 601, 602.
Page 90 1 A. Yeah. 2 Q. And is there anything in this section that would 3 require the piece of content to be an email? 4 A. The piece of content to be what? I'm sorry. 5 Q. To be an email. 6 A. Well, I'll have to read it to see. 7 We wouldn't have used the term email anyway, of 8 course, because we were calling it TransMail, but... 9 Well, it doesn't mention emails, so presumably not. 10 Q. And so you could correlate any piece of content with 11 the user's action, right? 12 A. Any piece of content? Well, what sort of content? 13 Q. Well, that's my question. Does the type of content 14 matter for the correlation? 15 A. I'm trying to think of what the question really means. 16 Correlate past behavior of other users to the user in 17 question. Well, it depends what you mean by the 18 question. If by the question you mean if it's email, 19 can there their behavior, when they're buying from 20 Amazon affect said. 21 (Reporter clarification.) 22 MR. PADMANABHAN: When they're buying from 23 Amazon affect it is what he said. 24 THE WITNESS: Yeah. Sorry. 25 A. If you're asking -- supposing I had a TransMail system	Page 92 1 THE WITNESS: Do I still have to go ahead 2 and answer? 3 MR. PADMANABHAN: You do. You do. 4 A. Oh. I don't know enough about their systems. So I'm 5 not quite sure I can answer that. I can say in theory 6 you could, but whether you could really, I don't -- I 7 don't know because I don't know enough about how the 8 systems work. Obviously, there must be some kind of 9 cognate ideas involved in any system like that. 10 Would it work? I've not really thought much about 11 it to be honest. And I think trying to think on the 12 hoof when I'm being cross-examined by an American 13 lawyer is beyond my present capabilities. So I can't 14 really answer. I'm sorry, I can't really answer the 15 question would it work, or even do I think it would 16 work because I haven't thought enough about it. 17 Q. Okay. 18 A. And at the time it wouldn't have occurred to me -- 19 sorry. At the time, it wouldn't particularly have 20 occurred to me to ask that question of Justin. I don't 21 know whether he thought about it. You'd have to ask 22 him, I suppose, because he wrote it. 23 Q. So just to go back to my, kind of, original question -- 24 A. Okay. 25 Q. -- relating to the content here.

Page 93	Page 95
1 So for a correlation, you can correlate any piece 2 of content to any action; is that right? 3 A. Can you correlate? Well, if by correlate what you mean 4 is can you make it relevant to it, in some way or 5 another, I guess you could. But obviously, in 6 statistics, correlation has a quite specific meaning, 7 and that wouldn't work in the -- you know, TransMail, I 8 can't. But certainly, yeah, you could make -- yeah. 9 If you had such ingenuity, I guess you could make 10 people's behavior in one area. 11 I mean it would seem pretty obvious that if -- if 12 they're particularly interested in books on theology, 13 they might be interested in papers on theology. I 14 mean, you know, that's -- it's possible to do that. If 15 you were targeting advertising or something, I guess 16 you could do that. But those things, you know -- 17 Q. But the math -- 18 A. The math, would it work? I don't know. 19 Q. But the math would be agnostic to the type of content 20 per se? 21 MR. PADMANABHAN: Objection; Rule 611. 22 A. The math would be -- what is objection; Rule 611? Can 23 I know, or can I ask it? I can't know what 611 means? 24 Okay. 25 Q. (MR. PLAIL) No, you can't. Sorry.	1 Q. And when you said the formula might need to be tweaked, 2 is that something that a person of ordinary skill would 3 be able to do? 4 MR. PADMANABHAN: Objection; Rule 601, 602 5 and 611. 6 A. I doubt if anybody of ordinary skill could understand 7 it in the first place. 8 (Reporter clarification.) 9 A. I doubt whether anyone of -- what was it? Of average 10 competence? 11 Q. (MR. PLAIL) Ordinary skill. 12 A. Ordinary skill. No, an ordinary skilled person 13 wouldn't understand it. 14 Q. And then let's go to a different part of this document. 15 A. Sure. 16 Q. Actually, I'm going to change the line of questioning a 17 little bit. 18 Can you go to paragraph 15 of your declaration? 19 A. Fifteen? 20 Q. Yes. 21 A. Oh, yeah. My other activities, yeah. 22 Q. Yeah. So your other activities during this time period 23 relate to, I guess, four different categories. 24 One, is your full-time teaching at the University 25 of Central Lancashire?
Page 94	Page 96
1 A. Okay, fine. I don't know because I'm not a lawyer. 2 What was the question? Oh, yeah. What was the 3 question? 4 Q. Let me read it back. 5 A. Okay. Yeah. 6 Q. Would the math for the cognate relevant system be 7 agnostic to the type of content? 8 A. I don't know whether it would have to be tweaked. It 9 probably would, but the same basic ideas of looking at 10 past behavior to predict what someone would be 11 interested in must be transferable to different 12 situations, I would have thought, yeah. 13 Q. Okay. So, for example, it could be used for an email, 14 or it could be used for a webpage, or it could be used 15 for some other form of content? 16 A. I would imagine it could. 17 Q. Okay. 18 A. I have never really thought it through because, you 19 know, I'm not -- I'm not a computer person really. So 20 I can't answer the question definitively, but the same 21 principle could be applied elsewhere. 22 Q. Okay. So the same principles could be used for whether 23 you had an email or a webpage or some other form of 24 content? 25 A. I would -- I would guess so.	1 A. Yeah. 2 Q. The second is your organizing of the charity Scibel? 3 A. Yeah. 4 Q. Third is your sessional lecturer -- 5 A. Yeah. 6 Q. -- at the Nazarene Theological College? 7 A. Correct. 8 Q. And then fourth would be writing two Christian books 9 that were published in 2006; is that right? 10 A. I was doing a lot. 11 Q. But those are the -- those are the four main 12 categories? 13 A. Yeah. Correct. 14 Q. So the sessional lecturer on an undergraduate ethics 15 course at the Nazarene Theological College -- 16 A. Mm-hmm. 17 Q. -- was that similar to other colleges and universities 18 in terms of their academic calendar? 19 A. Academic calendars? Yes. 20 Q. Yes. 21 A. Yes. 22 Q. So it would have a similar academic calendar to other 23 universities? 24 A. Yeah. It would run from about September, October to 25 something like April or May. I was -- I was going --

Page 97 1 it was one -- it was one evening a week. It wasn't, 2 you know, anything more than that. It was one evening 3 a week. 4 I'm not quite sure why they put all this stuff in 5 really, but, anyway, they asked me what I was doing. 6 So those were other things. So my time -- my time was 7 busy. But because Justin was my son, you know, 8 thinking about and working on what he asked me to do, 9 particularly from April to November in 2005, would be, 10 you know, a priority in my -- my thinking. And I would 11 make time for it. And in those days I had a lot of 12 energy. I've run out now. But I had a lot when I was 13 -- then. Yeah. So that's just the background to the 14 context in which we were working together. 15 But looking at the number of times we had 16 interchanges in that thing and the amount of stuff that 17 I seem to have written on it, I was obviously making 18 time for it, as far as I could, in reaction to his time 19 scale in which he was developing other aspects of the 20 BlueSpace at that time and the TransMail system. 21 Q. All right. I'm going to put a document up on the 22 screen. 23 Do you recognize this document? Here, I can zoom 24 in a bit. 25 A. What is it? A calendar of some kind, isn't it?	Page 99 1 end of May or beginning of June, I think in those days. 2 They keep shortening the year, but that's what it would 3 have been. That's what it looks like there. 4 Q. Okay. 5 A. Sure. 6 Q. And there was also student vacation between what 7 appears to be December 20th and January 3rd? 8 A. Yeah. It would be something like two or three weeks 9 usually, yeah. 10 Q. And that was for the winter holidays? 11 A. Well, it was over -- it was over Christmas and New 12 Year's, obviously. We don't have Thanksgiving. We 13 just give thanksgiving every day in England, but we 14 don't have a Thanksgiving thing. But it would be over 15 Christmas and the New Year. And the university was 16 actually shut during the Christmas, New Year week, 17 except for the library, which was open all the time. 18 Q. So the university was virtually shut between 19 December 20th and January 3rd? 20 A. No. It was shut for about a week between Christmas and 21 New Year, but, you know, it was still there after the 22 20th, but it depends on what you wanted to do. I mean, 23 obviously, I can't remember what I was doing. I know 24 what I was teaching on, but I had a full-time load. 25 Sometimes we would be preparing lectures over that
Page 98 1 Q. Yeah. This is the academic calendar for the years 2004 2 to 2005 of the University of Central Lancashire. 3 A. Lancashire, yes. 4 Q. Lancashire. Do you recognize this document? 5 A. Well, I mean I don't meditate on it during the night. 6 So, you know, I mean I can't even read it very well 7 because it's so small, but they would produce that kind 8 of document, yeah. 9 Q. Let me try my trick to zoom in. Sorry. 10 A. What's the -- what's the -- I mean, what's the -- yeah. 11 What's the question? Yeah. 12 It looks like that. They did produce a calendar 13 like that every year. 14 Q. Okay. So I guess, based on what you were discussing 15 before, I just kind of want to confirm. 16 A. Yeah. 17 Q. The academic calendar would run from September through 18 May; is that right? 19 A. About that, yeah. 20 Q. And then summer break was between what appears to be 21 May 23rd through around September 4th? 22 A. Yeah. That sounds about right, yeah. I mean there 23 would be other things going on during that time. But 24 the main teaching -- the main teaching though would 25 have been in the academic year, September to about the	Page 100 1 period, you know. It wouldn't be marking, but we could 2 be preparing or marking stuff even at the end of term. 3 It wouldn't be a heavy load during that period for the 4 last few weeks. 5 Q. Okay. So it wouldn't be a heavy load over the 6 Christmas holiday break? 7 A. Not so much. I mean there might be some marking to do 8 or preparation. 9 Q. Okay. And then there's also another student holiday 10 around what appears to be Easter. March 21st through 11 April 10th? 12 A. By the way, we have an Easter break for students. I 13 don't think you do in America, but we do. It's about a 14 week in America. It's about two or three weeks in... 15 Q. And similar to the Christmas holiday, there may be some 16 revisions and preparation, but not a heavy load during 17 the holiday? 18 A. No. Yes. 19 Q. Sorry. Just for the record, you said no, yes. 20 A. Oh, okay. 21 Q. Do you agree that it's similar to the Christmas 22 holiday? 23 A. Uh-huh. 24 Q. There may be some revisions and preparation, but not a 25 heavy load during the holiday?

Page 101 1 A. That's correct. 2 Q. And by that holiday, I'm referring to the Easter 3 holiday, between March 21st and April 10th. 4 A. Yes. 5 Q. And then there is a summer holiday, what appears to be 6 between May 23rd and September 4th; is that right? 7 A. Yes. That would be at the time for me, at that time 8 where there might be some meetings, but there wouldn't 9 be lecturing going on. 10 Q. Okay. So similar to the other holidays that we've 11 discussed. There may be some revisions. There may be 12 some prep work. But overall not a heavy load between 13 May 23rd and September 4th, 2005? 14 A. Yes. 15 Q. All right. And you said that the Nazarene Theological 16 College used a similar -- 17 A. Yes. It would be. Sorry. Yes. The Nazarene College 18 would have a similar academic structure as everybody 19 does in England, all the universities do. 20 MR. PLAIL: Okay. I'm going to pull up a 21 similar document for the next academic year, 2005 22 through 2006. Give me one moment. 23 MR. PADMANABHAN: Are you marking these as 24 exhibits? 25 MR. PLAIL: Oh, yes.	Page 103 1 preparation, but not a heavy load? 2 A. Yes. 3 Q. And just for the record, we're referring to Exhibit 14 4 here. 5 So to discuss your role at the university, during 6 2005, you were a full-time lecturer? 7 A. Yes. Throughout that period, yes. 8 Q. And can you describe your general responsibilities at 9 the university? 10 A. Yeah. Obviously, I was lecturing on, well, statistical 11 theory was the main area. I also lectured on a history 12 of science course, a philosophy of science course. And 13 I had a module called Christianity, Science and 14 History, which got an award. So I was involved in 15 that, and as I said, the mainstream was statistical 16 theory which I was lecturing on. 17 You know, I would be going to various meetings, 18 department -- that's what always happens, departmental 19 meetings and all that kind of stuff as well. So that 20 was going on. 21 I would be marking scripts for all of those 22 students during that time, doing any preparation that 23 was needed. And for the Nazarene College stuff, 24 obviously, I had to prepare that from scratch. I had 25 gotten a master's degree from there in my spare time,
Page 102 1 MR. PADMANABHAN: Okay. 2 MR. PLAIL: Actually, can we mark this as 3 the first, as Exhibit 13? And then this one I'll mark 4 as Exhibit 14. 5 (Exhibits 13 and 14 are marked for 6 Identification.) 7 THE WITNESS: They would be fairly similar, 8 yeah. 9 MR. PLAIL: And then I would ask that the 10 sheet that we discussed at the beginning of the 11 deposition, with a listing of exhibit numbers and other 12 dates, which Mr. Paul Marston has in front of him, be 13 marked as Exhibit 15. 14 (Exhibit 15 is marked for identification.) 15 MR. PLAIL: And, Devan, if you could please 16 provide that to the court reporter, I would appreciate 17 it. 18 Q. (MR. PLAIL) All right. Yes. Sharing for the 2005 19 through 2006 academic year. 20 A. Mm-hmm. 21 Q. You said it would be fairly similar? 22 A. Yes. 23 Q. So like with the 2004 through 2005 academic year, 24 between December 19th through January 2nd of 2005 25 through 2006, there would be maybe some revisions in	Page 104 1 in 2004. And I was asked to do -- because I had 2 written a number of theological books, and they asked 3 me -- and it was an academic. They asked me to 4 participate in a -- you know, a particular module. 5 They do a fair number of evening courses, and this 6 was an evening course. So I was traveling up and down 7 to Salford in South Lancashire to do -- well, near 8 there anyway -- to do that at the same time. 9 Q. Do you have a recollection of which courses you taught 10 during semester one, going from September through 11 January of 2004 to 2005? 12 A. Well, no more than I've already told you. 13 Do you mean which particular modules? No, I don't 14 remember. 15 Q. So you don't remember which modules? 16 A. Well, why would I? You know, I mean it's 20 years ago. 17 I knew -- I know -- I know the three extramural. 18 They're not extramural. They were part of degree 19 courses, but they were electives. So I had those in 20 those days. But which statistics modules I was 21 teaching, that I can't remember. There would have been 22 some probably year one statistics, year three. You 23 know, I -- no, I can't remember. 24 Q. And the same for the second semester, between January 25 and May?

Page 105 1 A. Well -- sorry, I didn't mean to interrupt. 2 Yeah. They -- most of them would have been 3 yearlong courses in UCLan. That's what they were. 4 They weren't semester courses. 5 Q. You referred to UCLan. 6 A. Oh. University of Central Lancashire. It's just 7 changed its name to University of Lancashire. But 8 throughout that period, you know, the earlier period, 9 it was the University of Central Lancashire. It was a 10 polytechnical at some stage as well before that. I 11 mean there is a whole history of it, but it's the same 12 institution and the same courses. They didn't change 13 in each change of the name. 14 Q. Okay. Can you go to paragraph 22 of Justin Marston's 15 declaration? 16 A. Justin's, yeah, sure. Twenty-two. Okay. I've got 17 that, yeah. 18 Q. Okay. So I'm going to ask some questions about -- if 19 you look below 22, there's work during August 21st. 20 A. Yeah. 21 Q. Through September 21. 22 A. Mm-hmm. 23 Q. So it appears that by this August 21st date, if you 24 look at paragraph 22, that you, Jon and Justin had 25 produced Exhibit 2073; is that right?	Page 107 1 A. Yeah. 2 Q. And the date here is the August 21st, 2005 date that we 3 were previously discussing? 4 A. Yeah. That's what it says, yeah. 2005, August 21st, 5 yeah. 6 Q. All right. So you can see that the document itself is 7 86 pages? 8 A. Mm-hmm. 9 Q. Is that right? 10 A. Yeah. 11 Q. Okay. So if we scroll up, through the math section, if 12 we go to the top of the math section, you'll see that 13 there's this Section 8, Blogs, right? 14 A. Yeah. 15 Q. And then it jumps into Section 9, Mathematical 16 Algorithm Framework. 17 A. Okay. 18 Q. And there -- and then goes on from there; is that 19 right? 20 A. As I read it on the fuzzy screen, yes. 21 THE REPORTER: It's a little small. 22 MR. PLAIL: Okay. Let me work on that. 23 Q. (MR. PLAIL) Is that better? 24 A. Yeah. Yes. 25 Q. Okay. So Section 8 relates to blogs, correct?
Page 106 1 A. So he says, yeah. 2 (Reporter clarification.) 3 THE WITNESS: So he says. 4 A. 2073? 5 Q. (MR. PLAIL) Yes. 6 A. Okay. 7 Q. And then in -- 8 A. Okay. 9 Q. In paragraph 23, Justin Marston discusses changes from 10 that period ending in August 21, 2005 through 11 September 21, 2005. And those changes are reflected in 12 the Document 2032; is that right? 13 A. As I read it, yeah. 14 Q. Do you have either of those documents, 2032 or 2073, in 15 front of you? 16 A. No, I don't. 17 Q. Okay. So I'm going to go ahead and pull up 2073 as a 18 baseline first to orient us and then jump into 2032. 19 Okay. So this is Exhibit 2073. You'll see it has 20 87 pages. The document itself is 86 pages. 21 A. Mm-hmm. 22 Q. And the last page is a metadata slip sheet. Is that -- 23 A. It's -- yeah. It's Justin as the custodian and the 24 author. 25 Q. And last saved by Justin Marston?	Page 108 1 A. That's what it says. 2 Q. And then Section 9 is the start of the mathematical 3 algorithm framework? 4 A. Sure. 5 Q. Okay. And then you'll see that this Section 8 ends on 6 page 54; is that right? 7 A. Yep. 8 Q. Okay. All right. I'm going to jump over to 9 Exhibit 2032. 10 A. Mm-hmm. 11 Q. So this is Exhibit 2032, you can see here on the 12 bottom. 13 A. Yes. 14 Q. And you can see that it is 89 pages. 15 A. Mm-hmm. 16 Q. So if we go back over to this other document just to 17 remind you, going back over to 2073, this was 86 pages, 18 correct? 19 MR. PADMANABHAN: Our screen hasn't changed. 20 So... 21 MR. PLAIL: Oh, it hasn't? Okay. 22 THE WITNESS: I've got 1 of 90 on my screen. 23 So... 24 Q. (MR. PLAIL) Let me try that again. 25 So if we go back over, we see that 2073 is

Page 109 1 86 pages; is that right? 2 A. It says 87 on my screen. 3 Q. Right. But the last page is a metadata slip sheet. 4 A. Oh. 5 Q. So if you look -- 6 A. Oh, I'm sorry. Yeah, yeah. Okay. Yeah. 7 Q. If you look in the internal of the document, it says 55 8 out of 86 right here. 9 A. Yeah. 10 Q. Okay. So the document itself is 86 pages? 11 A. Uh-huh. 12 Q. So between August 21st and September 21st, you, Jon and 13 Justin added three pages of content to the draft 14 document; is that correct? 15 MR. PADMANABHAN: Objection; 601 and 602. 16 You can answer. 17 A. Sorry. No. That doesn't follow from that. You can't 18 just simply say that we added three pages. You could 19 say it was three pages longer, which is not the same 20 thing. 21 Q. (MR. PLAIL) So between August 21st and September 21, 22 you, Jon and Justin had made the draft document three 23 pages longer; is that correct? 24 A. That's correct. 25 Q. And so just to look here, we have -- again, on page 54	Page 111 1 just jumps directly to the mathematical algorithm 2 framework, and those two pages of content are not 3 there; is that right? 4 A. Yes. 5 Q. Okay. So -- 6 A. Well, you said jumps -- sorry. You said it jumps 7 directly. Yes. Yes, I see what you're -- in terms of 8 the pagination, yes. 9 Q. Right. So that additional section on the algorithm 10 overview is not in the Document 2073, and was added to 11 the Document 2032? 12 A. Yes. 13 Q. Okay. And then there's an additional page of material 14 that was incorporated into the document elsewhere; is 15 that right? 16 A. If you say so. I... 17 Q. I'm asking. 18 A. Uh-huh. 19 Q. We've established there's three -- three -- 20 A. Oh, yes. 21 Q. It is between -- three pages longer. So we've gone 22 over two of those pages, right? 23 A. Yes. 24 Q. And there's an additional page elsewhere, correct? 25 A. Well, it depends on what you mean by the question.
Page 110 1 we have the blog section. 2 A. Mm-hmm. 3 Q. I'm going to go back over to 2032. And you'll see that 4 the blog section is again on page 54 of 2032; is that 5 right? 6 A. Yes. 7 Q. So the sections leading up and through the blog section 8 in both documents result in 54 pages of content, right? 9 A. Yes. That's apparent from the documents, yes. 10 Q. All right. So if we go to the next portion, you'll see 11 that a section called Algorithm Overview has been 12 added, and there's a number of definitions that have 13 been added here. Do you see that? 14 A. Okay. Mm-hmm. 15 Q. And it goes through these definitions for about a page. 16 And then there is a figure that has been added here. 17 Do you see that? 18 A. Yeah. 19 Q. And then it goes to the mathematical algorithm 20 framework. 21 A. Yes. 22 Q. Do you see that? So this is about two pages of 23 content, correct? 24 A. Mm-hmm. 25 Q. All right. And when we go back to 2073, in 2073 it	Page 112 1 Again, if you mean have they added one page and left 2 everything else the same, I don't know without looking 3 at it in great detail. It might be that some of the 4 sections took longer to describe and added a page on. 5 I don't know without looking. 6 Q. Okay. 7 A. It may actually change in the -- you know, in the 8 mathematical algorithm framework without comparing each 9 one. 10 Q. Okay. So my question is, if you go back to Justin 11 Marston's declaration -- 12 A. Yeah. 13 Q. I'm just going to give an example here. 14 A. Okay. 15 Q. Sorry. One second. So if you look at, for example, 16 paragraph 17 of Justin Marston's declaration. 17 A. Go back there. Okay. 18 Q. You'll see that he provides hours' estimates for some 19 of these time periods such as between June 7th, 2005, 20 and August 16, 2005 he approximated about 20 hours were 21 needed to make those revisions. Do you see that? 22 A. He made that, yeah. I have noticed this earlier 23 actually. I'll explain why in a minute. 24 Q. And so if we go down to the time period of August 21st 25 through September 21st, 2005, I'll represent to you

Page 113 1 that Mr. Justin Marston indicated that he spent 2 approximately three hours on the revisions between this 3 time period during his deposition. 4 My question is, about how much time did you spend 5 drafting the provisional patent application between 6 August 21st, 2005 and September 21st, 2005? 7 A. Well, to be honest, when I read this statement in 8 Justin's, my reaction was to say it's impossible to 9 make those kind of hours' estimation because it's not 10 how creative activity works. 11 I'm now putting on my history of science hat. If 12 you look, for example, at what Kekule, the German 13 chemist said before he discovered the benzene ring, he 14 said, you should learn to dream, gentlemen, to take a 15 nap. Like, people like Duhem and Poincare and 16 philosophers of science say, when you're undertaking 17 any creative activity, you can often be thinking about 18 it, as I think Duhem said, when he was going for a walk 19 or doing something else. 20 And as I read -- because I thought about this. I 21 read these statements of hours from Justin. I thought, 22 I can't make that kind of statement anymore than when 23 the doctor says on a scale of 1 to 10 how severe is the 24 pain, because I don't know how much he feels pain and 25 what a 5 pain would look like.	Page 115 1 anything quickly. And he was involved in a lot of 2 other activities during that time. But when he sent me 3 anything or we had an interchange, I would react within 4 a reasonable time period, having thought about it. 5 So the actual interchanges between us, if you'd 6 like, the time scale, largely, until the final period 7 when, you know, between sort of -- well, really between 8 August and October, we were working very much with lots 9 of interchanges. The time scale was dependent on what 10 Justin was doing and how much he was, as he says, in 11 his thing on Section 18 of his declaration. 12 He says, "To the best of my recollection, every 13 single day during the Summer of 2005, I worked on 14 BlueSpace business to support the TransMail product." 15 But that's to support the TransMail product. It 16 doesn't mean he was working specifically on, you know, 17 the relevance of the TransMail product, which is part 18 of the wider context in which he was trying to write 19 the material which eventually went into the patent. 20 Q. Just to the break this down, so for the period between 21 August 21st and September 21st, 2005, you don't have an 22 estimate for the number of hours you worked on it? 23 A. No. 24 Q. And you said that in terms of timing, things were 25 largely driven by Justin.
Page 114 1 So as far as the hours of sitting in front of a 2 computer and typing out the formula is concerned -- I'm 3 sorry if I'm going too fast. My apologies. 4 As far as sitting in front of the computer and 5 typing out formulas is concerned, you can make an 6 estimate of that time. As far as spending time 7 thinking about the concepts, if you're fully absorbed 8 in them, it's very different. 9 So I can tell you how long my wife spent Hoovering 10 the house last week. I can't tell you how long it took 11 me -- I'm often asked how long did it take you to write 12 this book. Well, the answer is a lifetime very often 13 because the thinking processes can be going on. 14 So my problem is I can't really say how many hours 15 I spent doing it. And even if I worked through in 16 great detail any changes which were apparent between 17 the documents, it would be impossible for me to say how 18 long it took me, or to conceptualize that maybe some 19 terms should be defined differently or made 20 differently. 21 So if Justin feels he can make those hours, then 22 it's consistent with my recollections. But I can't 23 make -- I can't make them for me. And I would also add 24 another point, which is that the driving force for this 25 whole thing was Justin. I wasn't pushing to do	Page 116 1 A. Yes, that's correct. 2 Q. Okay. 3 A. I did it in the first place because he asked me. I 4 mean it was his idea. And what would you do if you're 5 a father and your son came and said, will you help me 6 with this, Dad? You know, I happened to have the skill 7 that he wanted for that particular element of it. If 8 he asked me to rebuild his wall, I couldn't have done 9 it. But, you know, I tried to do what I could. 10 Q. And so just to make sure we're aligned, even a vague 11 estimate for the number of hours you worked between 12 August 21st and September 21st, 2005, ten hours, five 13 hours? 14 A. I don't make vague estimates. 15 Q. Any estimate for that time period? 16 A. Well, if I don't make any vague estimates, I'm not 17 going to make any estimates. No, I don't know. 18 Q. So you will not make any estimates for the amount of 19 time you spent on the relevance portion of the draft 20 provisional patent application between August 21st and 21 September 21st, 2005? 22 A. I don't feel able to do that, no. 23 Q. Okay. Who is Tony Morton-Jones? 24 A. He's a close friend and a colleague at that time, at 25 the university. Tony Morton-Jones remains a close

Page 117 1 friend. We go to the same church, and I see him quite 2 often on a weekly basis. And I went through with 3 him -- at the time when his then wife disappeared with 4 their two children while he was out one day, and he 5 went through a nervous breakdown and a remarriage. So 6 we are pretty close. 7 And at that time, we were both working at the 8 University of Central Lancashire. He is a 9 statistician, a Cambridge-trained statistician. And I 10 may have even shared an office with him. I can't 11 remember at that time. So that's who he was and is. 12 You know, a close friend and a colleague. 13 Q. Okay. So if we go to paragraph 12 of your 14 declaration -- 15 A. Sure. 16 Q. Actually, I think we can just go to Exhibit 2047. 17 A. Sure. Yeah. Let me find it. Well, see if I can find 18 it. Well, I know what it says anyway. Okay. Yeah, I 19 got it. That's EX -- oh, 247 did you say? 20 Q. Yes. 21 A. Or 204? 22 Q. 2047. 23 A. Okay. I haven't gotten that one. What is it? 24 Q. Here, I will share my screen. 25 A. It's not in my declaration, is it?	Page 119 1 created by Dr. Morton-Jones? 2 A. It was. 3 Q. Okay. The document also shows that it was last edited 4 by Dr. Morton-Jones? 5 A. That is also correct. 6 Q. And if we go through, there are a number of redlines 7 throughout the document. 8 A. Uh-huh. 9 Q. Do you see that? 10 A. They are, and they were made by Dr. Morton-Jones. 11 Q. Okay. And so did you send a copy of the original draft 12 provisional patent application to Dr. Morton-Jones in 13 order to get his comments on it? 14 A. Yes, I did. 15 Q. And when about did you send that draft to 16 Dr. Morton-Jones? 17 A. Well, it would have been shortly before this TransMail 18 -- TransMail document -- formula, which is 2047. It 19 would have been -- I don't know the exact date, but I 20 think -- I have 2004, is dated the 4th of October. And 21 so I probably sent it on or immediately after that day. 22 And he's replied on the 10th of August. So the 4th of 23 August and the 10th of August. He's obviously copied 24 the content, put it into a new document, made his 25 comments, and then saved it.
Page 118 1 Q. It is cited in paragraph 12 of your declaration. 2 A. Is it? Okay. Let me look. 3 (Reporter clarification.) 4 THE WITNESS: Oh. Oh, it's reflected in 5 2047. Yes. I see it, yes. 6 Q. (MR. PLAIL) So if we go to 2047, which I put up on the 7 screen -- 8 A. Okay. Yeah. 9 Q. If we go to the metadata portion of 2047 -- 10 A. Uh-huh. 11 Q. -- you'll see that the author is listed as 12 Morton-Jones. 13 A. Yes, I see. 14 Q. And last saved by Morton-Jones, correct? 15 A. Yes. I see. Sorry. Yes. I can see it now. It's 16 number 2. I'm sorry. I'm -- my apologies to you. I 17 have got it. Yes. I now have it, yes. Sorry. 18 Q. So the metadata shows that this document was created by 19 Mr. Jones? 20 A. That's correct, yes. 21 Q. Just a point of clarification, does he go by 22 Mr. Morton-Jones or Mr. Jones? 23 A. He was always called Dr. Morton-Jones. 24 Q. Dr. Morton-Jones. Thank you. 25 So the metadata shows that this document was	Page 120 1 Q. So just to clarify the date, it looks like it was last 2 modified on September 9th, 2004; is that right? 3 A. Yeah. That's what I've got, yeah. 4 Q. So you would have likely received this from 5 Dr. Morton-Jones around September 9th, 2004? 6 A. Yeah. 7 Q. Okay. And then you mentioned some comments. Are those 8 the parts of the document indicated with the 9 redlining -- 10 A. Yeah. 11 Q. -- notation? 12 A. Uh-huh. 13 Q. Okay. And so the blue text and the other redlines in 14 here are provided by Dr. Morton-Jones? 15 A. I don't know why, but my copy of the document, it 16 doesn't seem to have the red and blue on it. But, so I 17 know that he did make various comments and suggestions. 18 Is it on the screen? 19 MR. PADMANABHAN: Yes. It's on the screen. 20 THE WITNESS: Oh, yeah. Okay. Thank you. 21 A. Yes. That's right. I do recognize them. But I have 22 looked at it recently. 23 Q. (MR. PLAIL) Okay. 24 A. And he did make a particular suggestion, and it's on 25 that page. He suggested changing the factor, which is

Page 121 1 used in the rather complicated linear algebra from one 2 minus Alpha, minus Beta. He suggested changing it to 3 one minus Beta times one minus Alpha. 4 THE REPORTER: You're going too fast. 5 THE WITNESS: I'm sorry. 6 THE REPORTER: He suggested changing it to 7 what? 8 A. It's got Greek letters in it as well. 9 He suggested changing -- there's a factor on that 10 page 2 of one minus Alpha minus Beta, two Greek 11 letters, Alpha and Beta, you get them in your symbols 12 thing, A and B in your Greek symbols. And he suggested 13 changing that to one minus Beta times one minus Alpha. 14 That's the difference that he suggested. 15 Now I checked, and in fact I didn't accept the 16 suggestion, and the later versions of that document do 17 not incorporate the change. So he made a suggestion. 18 And, you know, I read it obviously and didn't make the 19 change. 20 I'd also say that because I'm still in contact, I 21 asked him about this. And you might ask more questions 22 on this. But I had asked him a few weeks ago. He went 23 back to his old laptop, opened it and found this 24 document. 25 Neither he nor I have any further interchange	Page 123 1 THE WITNESS: Yes. Sorry. 2 MR. PLAIL: Let's go off the record for five 3 minutes and get some water. Yeah. 4 THE WITNESS: Okay. 5 (Break taken at 3:29 p.m. - 3:30 p.m. GMT.) 6 BY MR. PLAIL 7 Q. So I'll just repeat my question for the record. 8 A. Okay. Go ahead. Okay. 9 Q. Was Dr. Morton-Jones under any NBA obligations? 10 A. If that means a non-disclosure or something, well -- 11 Q. Correct. 12 A. Look, I was just starting. Justin had just asked me to 13 write something on this. So I did. Asking a close 14 friend and colleague would he give me any comments on 15 this. I didn't ask him to sign a non-disclosure, you 16 know, assertion. Why would I? 17 What I do know is that had he intended to show it 18 to anyone else, he would certainly have asked me, and I 19 would have asked Justin, I'm sure. I mean Tony had met 20 my son. Justin had met Tony Morton-Jones because 21 Justin lived here in the first time of his marriage. 22 You know, so -- well, if he didn't meet him, he would 23 have known about him as a colleague. And I would have 24 told Justin what I was doing. And it wouldn't have 25 occurred to me to publish it or, you know, put it out
Page 122 1 between us on our limited files. And to the best of my 2 recollection, I didn't make any further association. I 3 didn't make any further interchange with him on it. 4 As a friend, he read it quickly, made a suggestion. 5 And as it happened, so I didn't follow it up. And he 6 had no -- no further involvement in the operation. And 7 neither of us would have sent it to anybody else at 8 that time either because there wasn't anyone obvious to 9 send it to. I was not working in a group of 10 statisticians on this. I was doing it on my own. 11 Q. Okay. So the portions of the document in the blue text 12 and that include the notation, the changes are from 13 Dr. Morton-Jones? 14 A. The change suggested is by Dr. Morton-Jones, and it was 15 a suggestion that I didn't take up. 16 Q. Okay. Was Dr. Morton-Jones under any NBA obligations? 17 A. Can you explain what that means? Oh, non-disclosure? 18 Q. Yes. 19 A. Well, I didn't ask him to sign a contract to say that 20 he wouldn't reveal it to anybody. He was a close 21 friend. Had he intended to show it to anybody or put 22 it on any other public or private, he certainly would 23 have asked me. 24 MR. PLAIL: Dr. Marston, do you need a 25 minute? Do you need a minute to take a break?	Page 124 1 for general consumption. It wouldn't have occurred to 2 Tony. 3 So if you mean did I ask him to sign a document 4 saying he wouldn't show it to anybody, no, I didn't. 5 Did I believe that there was any possibility that he 6 would show it to anybody without asking me first? No, 7 I didn't believe he would. And he didn't ask me, and 8 we didn't show it to anybody else. He made his 9 comments, sent it back. And as far as he was 10 concerned, that was the finish of it. 11 And I also asked him, you know, when this whole 12 thing came up again a few weeks ago, and he said he 13 certainly didn't regard himself as in any way writing 14 or contributing to it. He just made some comments as a 15 statistician. He didn't know at that time that I 16 hadn't actually used them. 17 Q. Okay. So if we can go to Exhibit 2054. 18 Do you have that one in front of you? 19 A. I don't think I do. Which one is it? Tell me what its 20 title is. Oh, yes. JamesB, yes. Bluestone Mail 21 Search for JamesB. 22 (Reporter clarification.) 23 A. It says that 2054 is BlueSpace Mail Search for JamesB. 24 The JamesB is all in one word, without the space. 25 Q. (MR. PLAIL) Let me go ahead and put it on the screen.

Page 125 1 So this is Exhibit 2054 on the screen? 2 A. Yeah. I think I've got it somewhere actually. 3 Q. Let me actually make this bigger. 4 A. Yep. I've got it. 5 Q. Okay. One sec. 6 A. And it hasn't used the formula that Tony Morton-Jones 7 suggested. 8 Q. So this is Exhibit 2054? 9 A. Yeah. 10 Q. All right. So let's go down to the metadata sheet and 11 just go over this for the record. 12 So the file name is "BlueSpaceMailSearchfor 13 JamesB.doc"; is that correct? 14 A. Oh, sorry. You're asking me. Yes, it is. 15 And the author is blank, and the last saved by is 16 me, and the custodian is me. It was in -- it was in my 17 external hard drive. 18 Q. Okay. And who is James B? 19 A. I have no idea. 20 Q. Okay. 21 A. I never knew who James B was. Or if I did, I've 22 certainly forgotten. James B would have been an 23 associate of Justin. I don't even know if it was sent 24 to him, because obviously I would have sent it to 25 Justin. I wouldn't have sent it to anybody else, and I	Page 127 1 A. I think so. 2 Q. Okay. Do you know a Rick Turner? 3 A. I don't know him, but I know that he did work for 4 Justin for a while. So Justin told me. I never met 5 him, and I know that he made -- it's not in my 6 declaration, but I've read it. And he did make some 7 comments very soon after we first wrote the documents. 8 And Justin had obviously sent it to him from -- I 9 remember that. I remember it because I read it when we 10 were preparing for this -- that he says I haven't yet 11 read the new stuff from the math's guy. There is only 12 one math's guy, and you're looking at him. 13 So he obviously hadn't read the latest version that 14 I had done of the documents at the time. And Rick 15 Turner made a number of not terrifically well-informed 16 comments, including a suggestion at the end that maybe 17 I should look at game theory, and I can't for the life 18 of me see any connection. 19 I'm sorry. I'm going too fast. My apologies, 20 Christine. 21 But I can't see any connection with that, with game 22 theory in his -- in the comments that Rick Turner made. 23 But I never met him, and I never had any direct contact 24 with him. The contact was that Justin sent me the 25 comments.
Page 126 1 don't know a James B, and there was no James B in any 2 departments at the university or anywhere else that I 3 knew of who was a statistician. 4 Q. All right. So if you look at page 41 of this document. 5 A. Uh-huh. Okay. 6 Q. It is discussing -- or sorry. There appear to be some 7 inline comments in the document. Do you see that? 8 A. There are in red, yes. 9 Q. Who wrote the comments in red? 10 A. Well, I can only think it's me because, you know, it's 11 my document, and I can't -- I mean I can't be certain. 12 But I think this is some comments that I've made and 13 sent the thing back to Justin because there's no one 14 else mentioned. And I don't know a James B. So the 15 only reason that it could have been saved in my file 16 and not in Justin's would be because I made the 17 comments, saved them and sent it to Justin when he was 18 going -- well, he presumably was thinking of sending it 19 to a James B, but I guess you've asked him who James B 20 was. I don't know. I haven't looked at his Trans- -- 21 his statement, but I'm afraid I don't know a James B. 22 And as far as I can remember, I never did know a 23 James B. 24 Q. And so just for the record, the red comments are likely 25 yours?	Page 128 1 Q. Okay. So just to go over this document. 2 A. Yep. 3 Q. So this is 2048. So let's go down to the metadata 4 sheet. 5 A. Yes. 6 Q. The file name is "SomeCommentsOnDocuments," right? 7 A. Yes. 8 Q. And the author is listed as Rick Turner? 9 A. Correct. 10 Q. And this document was last saved by you? 11 A. Yes. 12 Q. All right. Okay. And then to the point you were 13 making earlier, the math's guy here, that's you? 14 A. Yeah. There were no other math's guys. 15 Q. Okay. 16 A. So it must have been me, yes. Even -- sorry -- yeah. 17 He didn't make any comments on any of this after this 18 document, yeah. So... 19 Q. And so he goes over a number of comments relating to 20 using dimensionality in the dataset; is that right? 21 A. Yes, he does. 22 Q. Including multidimensional clustering? 23 A. Yes. 24 Q. Including Bayesian analysis? 25 A. Yes. I know what those are. Yeah, he does mention.

Page 129 1 Q. For Fourier transforms? 2 A. Yes. They're all mathematical ideas, yes. 3 Q. He also goes over some suggestions for using Bayesian 4 methods to weigh importance? 5 A. I can read it. He did, yes. 6 Q. And using similar actions by a group of users are 7 likely to have more importance than a single user's 8 actions? 9 A. Yes. 10 Q. And that you can use a weighted -- you can use a weight 11 to basically combine a number of different readings 12 from single user? 13 A. Where is that? Yeah, probably. I mean that sounds the 14 sort of thing he would say, yeah. 15 Q. And specifically suggests using the square root of the 16 number of users to cut down on the signal to noise 17 ratio? 18 A. Well, that has to do with -- I don't know what it has 19 to do with. It didn't seem to make any sense to me. 20 But if it's something to do with computing, then I 21 wouldn't know about it. The signal to noise is 22 generally just how much -- well, it's kind of how much 23 fuzziness is there, and when you send something. We 24 certainly didn't do it, but that's what was suggested. 25 And I didn't -- but, yeah, I know what Bayesian methods	Page 131 1 A. Yeah. 2 Q. -- people who have the symptoms for that illness are 3 likely to take the test, for example? 4 A. Well, if they take the test, but the trouble is is that 5 -- sorry. I'm going too fast. 6 The trouble -- again, you cite statistics. The 7 trouble is that the tests are not certain. So you 8 know, have you got a kind of cancer somewhere? The 9 test might include -- there are certain things which 10 are particular like that, you know, the male cancer 11 that you tend to get, which most people obviously would 12 take it. You could take the test, but it can have 13 false positives and false negatives. So it simply 14 increases the probability that you've got it. 15 And I've always -- for years, I've said that one 16 day they're going to get a decent method of diagnosis, 17 which is operated by AI, and that it could use that 18 kind of Bayesian thing because each time some new piece 19 of information is fed into it, it changes the 20 probability that you've got a particular illness. Or 21 if you're looking at a bowel cancer, you know, you can 22 have a feces test, or you can have a blood test, or, 23 you know, and each of those changes the probabilities. 24 The Bayesian statistics are a way of combining. We 25 didn't actually use it for the patent. I can
Page 130 1 are, of course. 2 At the university, I was one of the people that 3 would develop the Bayesian ideas that they taught me. 4 We didn't use that particularly. It's -- it's using 5 that multiplying by different probabilities to alter an 6 estimate of a probability. 7 So it sounds as though it might be -- it's the sort 8 of thing someone would probably think would be useful, 9 but we didn't actually use that. 10 Q. Can you describe what Bayesian methods are? 11 A. Yeah. All right. I can give you a medical example, if 12 you want to follow that. If, for example, you are 13 suspected of having some particular -- let's call it 14 Okamoto disease or anything you like. And then you 15 take the particular medical test, the probability that 16 you've got the illness could be affected by the result 17 -- sorry. I'm going too fast. Apologies, Christine. 18 The probability that you have that particular 19 illness could be affected by the result of the test, 20 and you use multiplication probabilities in order to 21 arrive at a new estimate of that probability. 22 Q. I see. So if I'm -- if I could, just so I understand. 23 A. Yeah, sure. 24 Q. The probability that someone would have a specific 25 illness is affected by the results because --	Page 132 1 understand why he would want to suggest it. But, 2 really, basically, Rick Turner was throwing out, off 3 the top of his head, and probably trying to remember 4 all the statistical terms he's heard somewhere or 5 other, whether this might be useful to doing that, like 6 taking the square root of something because the square 7 root is very less than the number itself, you know. 8 There's less difference between 4 and 5 then there is 9 between 16 and 25. 10 But we didn't do that. But it's a bit of a -- it's 11 a little bit of a blunderbuss way of doing the 12 statistics. So we didn't take it up. So I haven't put 13 Rick Turner in my declaration. As far as Justin is 14 concerned -- and I agree with that -- I don't think it 15 had any effect in the way we developed it. And that 16 was the only and final input that we had from Rick 17 Turner. So I don't know what happened to him after 18 that. 19 Q. So just to be clear, the document here is drafted by 20 Rick Turner? 21 A. Yeah. I'm -- so I understand, yeah. 22 Q. Okay. 23 A. He's making suggestions. Sorry. 24 Q. And let's go to -- who's Tim Couper? 25 A. Well, again, I have no idea. This is a -- this is a

Page 133 1 contact of Justin. I think we had one interchange with 2 him, and he didn't seem to understand the concepts very 3 well. I seem to have commented on something like that. 4 But is it in my -- it's not in my thing, is it? 5 Q. Here, I can go ahead and share the relevant -- the 6 relevant document. So this is 2050. 7 A. Actually, I probably have got 2050 printed somewhere. 8 I didn't know you were going to refer to it. Yeah. So 9 I now have -- I have no comments on it. It's just 2050 10 that you're putting on the screen. 11 Q. Okay. And then this is -- the file name of this, 12 looking at the metadata sheet at the back -- 13 A. Yes. 14 Q. -- it's "TimComments15-5-2005"? 15 A. Yes, correct. 16 Q. And the author is listed as Tim Couper? 17 A. Yes. And I think I'm listed -- am I listed as the one 18 who saved it? Yes. 19 Q. It lists Marston, which I believe is you; is that 20 right? 21 A. Yes. 22 Q. And so the black text in this document is written by 23 Tim Couper? 24 A. As I read it, I think he wrote the black text, and my 25 blue is the response which was sent to Justin.	Page 135 1 quite how much I entered into stuff beyond the 2 statistics, but of course nothing to do with the coding 3 and the computing area because I knew nothing about 4 those. 5 Q. Okay. Have you reviewed the source code for Twitter? 6 A. No. I don't even know what it is. 7 Q. Have you reviewed source code for any products made by 8 Facebook or Meta? 9 A. No. 10 Q. Okay. 11 A. I'm not a source code kind of person. 12 Q. Do you have any current relationship with Sterling? 13 A. With who? 14 Q. The current patent owner of the '217 Patent. 15 A. No. I didn't know anything about -- the only reason 16 I've ever heard the name is it appeared somewhere on a 17 document I saw, but I have no idea who they are. 18 I understand that they are the current owner of the 19 patent because I do know that Justin left BlueSpace to 20 form a different company. And the patent was 21 presumably owned by BlueSpace. And when somebody 22 bought it up, they bought the patent. But I know 23 actually nothing about Sterling. 24 Q. Okay. And so you don't have any current relationship 25 with Sterling?
Page 134 1 Q. Okay. 2 A. Because again -- sorry. Again, this contact, I had no 3 idea who Tim Couper was. He may have been someone 4 working for Justin, but you can -- I think if that's in 5 his declaration, that's who he was. But I never knew 6 him, and I had no independent contact with him. 7 Q. Okay. Let's go to 2070. 8 A. That's Jon and Justin, is it? 9 Q. Yeah. 10 A. Okay. 22, yeah. I've renumbered them, you see, just 11 for me to find them. That's all. So... 12 Q. All right. So this is a letter written by you? 13 A. Yes. 14 Q. To Justin Marston and Jon Fernyhough? 15 A. Yes, it is. 16 Q. And this is dated October 14th, 2005? 17 A. That's correct. 18 Q. And you appear to be discussing the -- how to calculate 19 a cognate relevance score in this document? 20 A. So it would seem, yeah. 21 Q. Okay. And then go to 20 -- 22 A. I'm reading this. It seems that I've made a fair 23 number of comments -- of changes and sent the document 24 obviously to Justin, maybe copied it to Jon. I don't 25 know. So until I read all this, I had not remembered	Page 136 1 A. I have no -- well, other than the name appearing on one 2 of the documents, no. I have no relationship at all. 3 Q. Okay. And you were never an employee of BlueSpace? 4 A. No. 5 Q. Okay. Are you being compensated for your time here 6 today? 7 A. I'm being paid as an expert witness, yes. I didn't ask 8 for it, but they offered it. So I said, yes, please. 9 Q. Okay. How much are you being paid? 10 A. Am I allowed to the answer that? Do I have to answer 11 that question? 12 MR. PADMANABHAN: Yes. Tell him your rate. 13 MR. PLAIL: Yes, your rate. 14 MR. PADMANABHAN: Your rate. 15 A. What is it? Is it 500 something? Yeah. I think it's 16 \$500 an hour. 17 Q. (MR. PLAIL) Okay. And were you compensated for 18 preparing your declaration? 19 A. I was compensated for the time that I spent finding the 20 documents and -- and, yeah, sending them through, yes. 21 Q. Okay. And that was at the same rate of \$500 an hour? 22 A. Yes. 23 Q. Okay. 24 A. I would have done it anyway if Justin had asked me, 25 but...

Page 137 1 MR. PLAIL: All right. Let's go off the 2 record quickly. 3 THE WITNESS: Okay. 4 (Break taken at 2:56 p.m. - 3:06 p.m. GMT). 5 BY MR. PLAIL: 6 Q. Dr. Marston, did you discuss during the breaks any of 7 the substance of your testimony with counsel? 8 A. No. 9 Q. I would like to direct you to one additional document. 10 A. Mm-hmm. 11 Q. Which -- do you have it in front of you, Exhibit 2078? 12 A. Nazarene Theological College? 13 Q. Yes. 14 A. I can get it if you want me to. It's on the floor, but 15 I can pick it up here. 16 (Reporter clarification.) 17 MR. PADMANABHAN: It's on the floor. 18 THE WITNESS: It's on the floor. I can pick 19 it up if you want me to. But I know what it says. 20 Q. (MR. PLAIL) Yeah. Just a simple question. I mean I 21 think this kind of relates back to one of the 22 differences between the two Englishes you were 23 discussing before. 24 A. Yes. 25 Q. Is it says on that document that you taught ST301	Page 139 1 Q. Okay. 2 A. The Nazarene College is an associate of Manchester 3 University. 4 (Reporter clarification.) 5 THE WITNESS: The Nazarene College. 6 Nazarene is an American college. 7 THE REPORTER: Thank you. I just didn't 8 hear Nazarene. 9 THE WITNESS: Yeah. The Nazarene College is 10 an associate college of Manchester University for that 11 time. So they -- Manchester University, with people 12 overseeing the academic things that Nazarene was 13 awarding. It's not important, but I just thought I'd 14 explain who they were. 15 MR. PLAIL: Okay. No further questions. 16 MR. PADMANABHAN: I have nothing. We will 17 read and sign. 18 (Discussion held off the record.) 19 THE REPORTER: Mr. Plail, are you ordering a 20 transcript? 21 MR. PLAIL: Yes. Can I please get a rough 22 transcript, and then can I get Wednesday or Thursday 23 delivery? 24 THE REPORTER: Okay. 25 MR. PADMANABHAN: I'll also take a rough,
Page 138 1 Ethics in the Autumn Semester of 2005. 2 What are you referring to as the autumn semester? 3 A. Oh, well, we don't have semesters in my university. 4 I'd have to look. They may have had it -- they may 5 have had -- I can't remember. It was a long time ago, 6 even though I did my MA there. Some universities split 7 it into semesters. So it would have started about 8 September, October and gone through possibly to 9 January, February, if it was one semester. But I can't 10 now remember whether it was one term or whether it was 11 six months. Sorry. I just don't remember. 12 Q. Okay. And would the autumn semester have been the 13 September to January semester? 14 A. Yeah, yeah. 15 Q. Okay. So, and that would have been September to 16 January of 2005 then? 17 A. Something like that, yes. I mean I can't remember the 18 exact dates. I did, I think -- 19 Q. But generally it would have been September? 20 A. It would have been. I mean I -- they paid me, but I 21 didn't do it for the money. I did it from interest 22 because, you know, I enjoyed my time there and wanted 23 to share it with other students who were doing their -- 24 they weren't doing master's. They were doing 25 undergraduate degrees.	Page 140 1 but I'll take regular delivery for the final 2 transcript. 3 (The deposition concludes at 4:11 p.m. GMT.) 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25



LEXITAS™

Exhibits	100:11 101:3 119:22,23	112:20 134:21	204 117:21	2078 137:11
198424_Dr_Victor_Paul_Marston_111725_EX 13 3:6 102:3	11 31:5	20- 5:6 78:12	2047 117:16, 22 118:5,6,9 119:18	20th 99:7,19, 22
198424_Dr_Victor_Paul_Marston_111725_EX 14 3:8 102:4 103:3	12 31:8 117:13 118:1	20-some 49:10	2048 128:3	21 65:21 105:21 106:10,11 109:21
198424_Dr_Victor_Paul_Marston_111725_EX 15 3:9 102:13,14	12/6 65:21	2000 27:9	2050 133:6,7, 9	217 10:24 11:5,6,7,9 26:17 28:18, 21 31:12 135:14
\$	13 56:25 102:3,5	2004 87:1 98:1 102:23 104:1,11 119:20 120:2, 5	2051 85:5,11, 14,16 86:8 88:10	21st 100:10 101:3 105:19, 23 107:2,4 109:12,21 112:24,25 113:6 115:21 116:12,20,21
\$500 136:16, 21	13th 61:13,18	2005 33:18 34:6 35:23 80:12,21 85:12 86:23, 24 87:9 97:9 98:2 101:13, 21 102:18,23, 24 103:6 104:11 106:10,11 107:2,4 112:19,20,25 113:6 115:13, 21 116:12,21 134:16 138:1, 16	2054 124:17, 23 125:1,8	22 28:18,20, 23 30:10 55:5 105:14,19,24 134:10
0	14th 61:13,18, 21,22 134:16	2006 35:23 56:25 96:9 101:22 102:19,25	2056 45:24 46:2,3 50:9	22a 53:3,24 55:11 57:11
07/10/05 51:24	15 95:18 102:13,14	2006 35:23 56:25 96:9 101:22 102:19,25	2058 47:19,21 48:2	22b 53:5,24 54:1 55:10,17 57:11
1	15th 61:19,24 75:25	2006 35:23 56:25 96:9 101:22 102:19,25	2063 51:20 52:4	23 106:9
1 17:25 108:22 113:23	15th.doc 73:19	2025 31:8,9	2064 55:25	23rd 98:21 101:6,13
10 33:17 48:14 49:21 113:23	16 35:19 112:20 132:9	2030 4:24 5:8	2065 63:23 64:4 88:7,8, 12	24 7:2 38:4 42:16 45:23
1001 10:22	17 112:16	2031 5:11,12, 13 30:16	2066 72:21	247 117:19
10th 80:12,21 82:24 84:23	18 115:11	2032 106:12, 14,18 108:9, 11 110:3,4 111:11	2067 72:21	25 27:21 43:6 132:9
	19th 102:24		2069 67:15	250,000 40:3
	1:18 51:17		2070 50:10 134:7	26 47:19
	1:24 51:17		2071 50:10 73:18,22	
	2		2072 80:9 81:21	
	2 118:16 121:10		2073 105:25 106:4,14,17, 19 108:17,25 110:25 111:10	
	20 11:24 13:13 20:15 23:2 26:23, 24,25 30:8 37:19 76:2 77:24 104:16			

2:21 88:4	46 17:25 18:4		able 13:15	absolute
2:32 88:4	48 17:25 18:5	7	21:22 24:5	44:19
2:56 137:4	4th 98:21	7 30:20 65:10	34:13 56:21	absolutely
2nd 102:24	101:6,13	7,716,217	86:11 91:13	17:19 84:7,8
	119:20,22	11:2	95:3 116:22	86:7
3	5	7/10 59:8	about 9:18,22	absorbed
3 18:4 30:20	5 33:15 65:1	7th 59:11	10:8,10 18:6	114:7
52:25 54:13	113:25 132:8	112:19	20:25 21:16	academic
65:1 72:21	500 136:15	8	22:3,11 24:5	30:20 96:18,
30-year 78:13	54 108:6	8 31:8 107:13,	25:14 27:14	19,22 98:1,
31 51:19	109:25 110:4,	25 108:5	28:13 29:6	17,25 101:18,
67:17	8	80 39:17	32:23 33:23	21 102:19,23
32 55:24 56:5	55 109:7	86 106:20	34:8 36:16	104:3 139:12
33 12:11 60:8,	6	107:7 108:17	37:10 38:20	accept 24:2
18	6 65:1	109:1,8,10	39:9,19,25	41:3 121:15
34 60:20 72:4,	60 12:12	87 106:20	40:9,11 49:24	accepted 26:9
19,24,25	601 18:20	109:2	50:13 51:1,6,	access 58:7
37 60:24	20:3 29:25	88 88:21	7,10 52:21	accordingly
66:25	91:25 95:4	89 108:14	62:20 66:15,	77:1
39 71:18,24	109:15	8th 61:15	16,20 68:15	accuracy 16:4
72:8,10,14	602 18:20	9	74:20 75:5	accurate
73:16	20:3 29:25	9 31:9 107:15	77:9 78:22	15:19
3:06 137:4	91:25 95:4	108:2	79:8,9,15	accurately
3:29 123:5	109:15	90 108:22	80:24,25 83:8	17:11,21
3:30 123:5	611 17:13,15	96 67:12	84:10,11	across 29:10
3rd 99:7,19	93:21,22,23	99.9 21:21,24	86:22 87:24	action 4:2
4	95:5	58:15	89:1 92:4,7,	11:16 17:4
4 33:16 52:25	612 63:2	9th 120:2,5	10,16,21	90:11 93:2
54:14 65:1	62 12:12	A	96:24 97:8	actions 89:25
132:8	63 85:2	ability 19:18,	98:19,22,25	129:6,8
40 80:7,17	64 55:20,22	23 37:13	99:20 100:13,	activities
400-page 27:8	65 63:24		14 105:18	31:17,20,24
41 126:4			110:15,22	33:2,4 34:18
			112:20 113:4,	95:21,22
			17,20 114:7	115:2
			115:4 119:15	activity
			121:21	113:10,17
			123:23	
			129:21 135:3,	
			15,23 138:7	
			above-entitled	
			4:2	

actual 14:23 36:21,23 52:4 115:5	advertising 91:15,24 93:15	49:11 76:2 104:16 121:22 124:12 138:5	30:10,13 32:3,7 36:24, 25 37:14,24 40:12 45:23 47:17 48:21 50:18,23,25 56:13 60:5 61:10,11 62:16 63:10 64:2 65:1,10 67:3 68:18 69:3,18 70:3 75:9,22 76:4 78:14 79:18 82:14 83:7 84:10 87:8,23 88:14 89:19 97:4,21 99:17 101:15,19 102:18 103:19,21 107:6 108:8 110:10,25 124:24 125:10 126:4 128:12 129:2 130:11 132:4 134:11,12,25 136:2 137:1	also 5:21 6:15 29:12 33:20 36:12 39:25 41:11 48:11 50:22 57:19, 25 59:24 61:22 72:3 87:11 99:6 100:9 103:11 114:23 119:3, 5 121:20 124:11 129:3 139:25
actually 12:15 18:1 36:17 37:9 41:4 46:24 63:2 67:9 68:22 71:1 74:23 77:6 85:25 95:16 99:16 102:2 112:7, 23 117:16 124:16 125:2, 3 130:9 131:25 133:7 135:23	affect 90:20, 23 affected 130:16,19,25 affirmed 4:3 23:5 afraid 126:21 after 4:3 21:4 43:11 56:18 57:4 73:24 80:20 82:4 83:22,24 84:22 99:21 119:21 127:7 128:17 132:17	agree 19:14 23:14,16,17 100:21 132:14 agreed 57:24 58:17,20,21 60:2 ahead 10:13, 20 12:6,13 52:6 55:5 64:11 67:3,14 73:21,23 79:23 85:11 88:14,16 92:1 106:17 123:8 124:25 133:5 AI 131:17 algebra 121:1 algorithm 107:16 108:3 110:11,19 111:1,9 112:8 algorithms 20:1 22:19,21 aligned 64:14 71:25 116:10 all 4:7 6:13, 15,24 8:7,20 9:7 10:10,13 12:6 13:9 14:1 16:1 18:3 20:7,23 21:9 22:13 23:23 26:2,8 27:10,20,25 28:1 29:6,15	75:9,22 76:4 78:14 79:18 82:14 83:7 84:10 87:8,23 88:14 89:19 97:4,21 99:17 101:15,19 102:18 103:19,21 107:6 108:8 110:10,25 124:24 125:10 126:4 128:12 129:2 130:11 132:4 134:11,12,25 136:2 137:1	alter 77:1,4 130:5 alteration 59:11 alterations 47:8 56:2 57:18 61:14 77:17 83:22, 24 84:14,21 altered 37:2, 6,7,9 49:13 77:4,5 altering 46:25 87:14 alternative 75:18,20 alternatives 76:4,15,16,18 although 19:22 43:16 83:12 always 4:13 10:16 41:9 42:4 48:23 59:9 78:17 103:18 118:23
add 114:23 added 109:13, 18 110:12,13, 16 111:10 112:1,4 additional 7:12,16 8:14 39:11 56:9 82:10 111:9, 13,24 137:9 addresses 41:8 adjust 77:11 Admiral 33:18,20 34:1,6,22 advanced 62:15 advancement 80:3 advantages 15:13 16:22	again 18:3 29:13 35:18 43:12 48:9 55:12 60:5 74:19 83:12, 22 87:3,17,24 108:24 109:25 110:4 112:1 124:12 131:6 132:25 134:2 age 37:18 62:15 ages 69:17 agnostic 93:19 94:7 ago 11:24 13:13 14:1 20:15 23:2 26:23,24,25 30:8 37:19	AI 131:17 algebra 121:1 algorithm 107:16 108:3 110:11,19 111:1,9 112:8 algorithms 20:1 22:19,21 aligned 64:14 71:25 116:10 all 4:7 6:13, 15,24 8:7,20 9:7 10:10,13 12:6 13:9 14:1 16:1 18:3 20:7,23 21:9 22:13 23:23 26:2,8 27:10,20,25 28:1 29:6,15	allowed 86:11 136:10 almost 63:9 along 68:1,6, 23 alongside 16:18 Alpha 121:2, 3,10,11,13 already 41:19 57:9 58:25 59:2,7,15 75:2 104:12	also 5:21 6:15 29:12 33:20 36:12 39:25 41:11 48:11 50:22 57:19, 25 59:24 61:22 72:3 87:11 99:6 100:9 103:11 114:23 119:3, 5 121:20 124:11 129:3 139:25 alter 77:1,4 130:5 alteration 59:11 alterations 47:8 56:2 57:18 61:14 77:17 83:22, 24 84:14,21 altered 37:2, 6,7,9 49:13 77:4,5 altering 46:25 87:14 alternative 75:18,20 alternatives 76:4,15,16,18 although 19:22 43:16 83:12 always 4:13 10:16 41:9 42:4 48:23 59:9 78:17 103:18 118:23

131:15 Amazon 90:20,23 91:3,6,14,17, 23 amend 83:14 America 27:9 32:15,17 38:19 41:22 87:8 100:13, 14 American 59:8 81:9 92:12 139:6 Americans 27:5 80:24 amount 31:2 37:16,22 97:16 116:18 analysis 128:24 Angels 35:12 another 30:6, 9 61:19 72:18 93:5 100:9 114:24 answer 4:13, 14 8:17 17:16,17 18:21,23 19:13,16 20:4,6,17 23:4,6,21,24 24:4,6 25:5 26:5,13 27:16 28:1 29:6 30:9 40:13 63:4 70:23 74:19 76:20 80:4 81:19	84:4 92:2,5, 14 94:20 109:16 114:12 136:10 answered 41:19 any 5:16 6:2 7:15,17,25 23:5,6 37:15 39:19 44:7,13 45:2,17 46:14,17,19 47:2,4,14,16 61:10 63:6 68:7,9,20,24 69:1,20 70:2, 6 71:15 73:13 76:10 79:15, 16 80:20 81:7 82:2,4,15 83:15,24 84:1,3,14,21, 24 88:10 90:10,12 92:9 93:1,2 103:22 113:17 114:16 116:15,16,17, 18 121:25 122:2,3,16,22 123:9,14 124:5,13 126:1 127:18, 21,23 128:17 129:19 132:15 135:7, 12,24 137:6 anybody 95:6 122:7,20,21 124:4,6,8 125:25	anymore 113:22 anyone 9:17, 20 39:15 41:13 95:9 122:8 123:18 anything 7:18 9:22 10:10 19:20 25:23 44:2 47:4 63:12 74:8 79:18 90:2 97:2 115:1,3 130:14 135:15 anyway 76:25 81:9 90:7 97:5 104:8 117:18 136:24 anyways 88:11 anywhere 48:13 126:2 apologies 5:11 114:3 118:16 127:19 130:17 apologize 39:17 57:15 71:22 73:5 apparent 110:9 114:16 appear 48:13 55:18 126:6 134:18 appeared 135:16	appearing 136:1 appears 45:24 55:9 57:19 74:12 98:20 99:7 100:10 101:5 105:23 application 13:25 18:7, 10,25 19:5 24:7,9 26:9 41:10 52:2 56:7,10,18, 19,24 57:5,8 79:3,8,10,13 81:13 82:24 84:22 85:9 86:21 113:5 116:20 119:12 applications 18:13,17,19 25:21 applied 19:25 21:10,11 28:8 41:5 91:4 94:21 apply 24:14 28:9,11 91:13 applying 36:17 appreciate 102:16 approximated 112:20 approximately 113:2 April 33:18 87:4,9 96:25	97:9 100:11 101:3 area 19:5 36:15 39:16 93:10 103:11 135:3 around 33:18, 24 98:21 100:10 120:5 arrive 24:3 26:11 130:21 arrived 23:22 arriving 24:12 25:10 30:6 arrows 30:4 article 19:19 as 4:4 5:23,24 7:2,3,17 11:9, 13 12:4 13:7, 14,18,20 14:13,15 15:5 16:17 19:18, 23 25:14 26:22 27:3,6 29:12 32:6 36:3 37:9,18, 19 38:7,13 40:6,21 42:8 43:8 44:25 45:11,19 48:11,16 49:6 50:20 52:13, 19,22 54:15 55:7,15 57:16 58:9,15 59:16 60:16 61:24 62:14 63:2 64:17 65:3,21 68:8,19,20 74:2 76:11 77:13 78:8
---	--	---	---	---

79:6 82:6,17 83:14,19 87:7,10,11, 15,16,20,21 88:20,23 97:18 101:18, 23 102:2,3,4, 13 103:15,19 105:10 106:13,17,23 107:20 112:19 113:18,20 114:1,4,6 115:10 118:11 121:8 122:4,5 123:23 124:9, 13,14 126:22 128:8 130:7 132:13 133:16,17,24 136:7 138:2	121:21,22 122:23 123:12,18,19 124:11 126:19 136:24 asking 15:3 24:3 25:4 26:10 29:5,14 30:6 34:15,25 46:24 47:1 63:19 70:19, 21 77:24 90:25 91:2,4 111:17 123:13 124:6 125:14 aspects 21:12 70:22 87:7,18 97:19 assertion 123:16 associate 125:23 139:2, 10 association 17:8,10,20 122:2 assumption 16:8 astronomy 78:16 at 6:16 8:7,12, 13 9:7 10:11 11:25 12:14, 15 13:8,16 14:14 19:2,22 20:21 23:7,22 24:3,12,16, 18,24 25:10, 12,19 26:9,11	27:8,12,24 28:3,22,23 29:7,8,9,13, 15,16,19 30:6 31:17 33:20 34:4 35:2 36:3,5,10,24 37:18 38:2, 11,15 39:11, 14 40:2,17 41:7 42:10,11 43:6,14 45:7 49:21 50:22, 25 51:17,25 54:3,8,13 57:22,25 60:5,8 61:6, 15 62:3 63:3, 10,23 67:15 68:5 70:1 73:6,10 74:11,18,22, 23,24 75:22 76:11,24 78:6,12,19,21 79:4 80:25 81:21 82:25 83:2,7 85:11, 18 86:14,20 87:21 88:4, 21,25 91:1,8, 17 92:18,19 94:9 95:24 96:6,15 97:15,20 100:2 101:7 102:10 103:5, 8 104:8 105:10,24 112:3,15 113:12 116:24 117:3, 7,11 120:22 122:7 123:5	124:15 126:2, 4,20 127:12, 14,16,17 130:2,21 131:21 133:12 136:2, 21 137:4 attached 7:7 attempted 46:21 attest 24:22 August 50:13 105:19,23 106:10 107:2, 4 109:12,21 112:20,24 113:6 115:8, 21 116:12,20 119:22,23 author 5:25 6:1 7:1 38:7 43:8 44:25 64:18 65:2 85:15,16 106:24 118:11 125:15 128:8 133:16 autumn 138:1,2,12 average 95:9 award 103:14 awarding 139:13 aware 50:23 53:18 83:23 84:1,14,21,24	B back 19:22 32:24 35:17 36:8 42:13 45:10,15,23 46:19 49:20 58:23 59:9 66:21 68:9,21 69:21 71:15 72:7 73:16 78:12 92:23 94:4 108:16, 17,25 110:3, 25 112:10,17 121:23 124:9 126:13 133:12 137:21 background 30:18,21,23, 25 32:19 97:13 backwards 42:2 bad 57:5 based 82:23 98:14 baseline 106:18 basic 94:9 basically 11:8 43:14 61:12 69:25 129:11 132:2 basis 117:2 Bayesian 128:24 129:3, 25 130:3,10
--	--	---	---	---

131:18,24 because 7:11 11:6 13:9,16, 23 15:16,18 18:11 19:17 20:23 22:11 23:20 24:1,4 26:5 27:20 28:5 37:2 39:7,15 40:7 41:5 43:8,23 44:1,3,7,10 47:6 48:9 49:6,16,18,22 50:17,21,22 57:3,8,12 58:6 60:1 61:23 62:18 63:10 65:18 66:4,13 67:5 71:10,16 77:13,18,21 78:2,9 79:9, 15,21 80:2,23 81:8 82:12, 13,18 83:2 84:5 86:3,6 87:6,18 89:5 90:8 92:7,16, 22 94:1,18 97:7 98:7 104:1 113:9, 20,24 114:13 116:3 121:20 122:8 123:20 125:24 126:10,13,16 127:9 130:25 131:18 132:6 134:2 135:3, 19 138:22 becoming 33:21	before 4:9 10:5 56:17 57:2,8 63:12 67:9 74:19 98:15 105:10 113:13 119:17 137:23 beginning 87:16 99:1 102:10 begins 52:11 73:24 behavior 88:25 90:16, 19 93:10 94:10 behind 78:5 belief 23:23 believe 19:24 23:15,20 24:1 26:1,7,11,15 38:10 124:5,7 133:19 believed 23:8 24:24 26:2 below 54:15, 22 105:19 benefit 4:14 28:4 benzene 113:13 best 4:13 44:24 49:11 62:14 78:25 115:12 122:1 Beta 121:2,3, 10,11,13	better 67:25 86:2 89:20,21 107:23 between 16:9 19:12 20:21 22:15 25:1 39:6 49:23 50:2,4,12 53:9,23 75:4 81:4 84:7 98:20 99:6, 18,20 101:3, 6,12 102:24 104:24 109:12,21 111:21 112:19 113:2, 5 114:16 115:5,7,20 116:11,20 122:1 132:8,9 137:22 beyond 37:17 92:13 135:1 bibliography 27:25 big 29:10 42:12 69:16 75:6 79:25 bigger 89:13 125:3 bit 20:8 39:13, 18 40:12 44:21 67:21 69:5 95:17 97:24 132:10, 11 black 45:24 46:6 48:4 49:2,12 75:9 133:22,24	blank 64:18 125:15 blog 110:1,4,7 blogs 107:13, 25 blood 131:22 blue 42:22 44:10 45:25 46:7 75:9,10 120:13,16 122:11 133:25 Bluespace 31:18,21 32:10 33:23 34:7,19,20 35:16 38:11, 16 40:17 41:11 65:20 66:18 79:7 82:19 87:20 97:20 115:14 124:23 135:19,21 136:3 Bluespacemai lsearchfor 125:12 Bluestone 124:20 blunderbuss 132:11 book 114:12 books 27:8,22 84:11 93:12 96:8 104:2 both 24:1 43:12 45:9 52:11,17 60:4 62:2,4 68:1,6,	23 77:22 78:21 110:8 117:7 bottom 4:24, 25 10:21 28:23 29:19 54:13 64:6 76:24 108:12 bought 91:3 135:22 bowel 131:21 boxes 7:18 brain 76:13 break 4:18 20:7 40:14 51:14,17 68:11 87:25 88:4 98:20 100:6,12 115:20 122:25 123:5 137:4 breakdown 117:5 breaking 69:3,5 breaks 137:6 breathed 13:17 breathing 27:12,21 Bsmr021005_ jfpm2.doc. 60:12 burden 74:13, 16 business 115:14
--	---	---	--	---

busy 97:7 but 6:1 9:21 10:23 11:6 12:1 13:13, 16,21,22 15:4,19 16:6, 18 19:3,4,16 20:4,21,24 21:9 22:3 23:1,12,16,21 24:3,9,16,20, 24 25:4,12 26:10,23 27:11,16,19 28:1,25 29:7, 8,14 30:4,6 31:3 32:8,13, 20 34:4,12 35:5,9,14 36:6,11,12, 19,22 37:2,9, 10 38:12,25 39:8,13,19,24 40:11,24 41:20 43:15 44:6,21,25 45:2,4,17 46:9,14,17 47:5,11,12,13 48:8,17,20 49:3,5,9,11, 16 50:9,18, 22,24,25 51:2 52:23 53:18, 20 55:6 56:19 57:7,11,25 58:6,9,11,17 61:11,17 62:12,18 63:7,21 64:1, 2 66:12,17 68:7,22 69:20,23 71:8,23 73:10	74:5,9 76:2, 10,14,15 77:7,12,14, 22,24,25 78:4,8,14,17 79:20 80:2,4 81:22 82:3,8, 14,20 83:14, 16 84:3,8,11 85:20 86:22 87:4,20 88:10 89:19 90:8 91:9,16 92:6 93:5,8,16,17, 19 94:9,20 96:11 97:5,7, 12,15 98:7,23 99:2,13,14, 21,22,24 100:1,13,16, 24 101:8,12 103:1 104:19, 20 105:7,11 109:3 114:22 115:2,15 116:9 119:19 120:15,16,21 121:22 126:12,19,21 127:3,6,21,23 129:20,24,25 130:9 131:4, 12 132:1,10 133:4 134:4,5 135:2,17,22 136:8,25 137:14,19 138:9,19,20 139:13 button 76:6 buying 90:19, 22	by 4:6 6:5 14:22 16:21 17:4 19:19 20:16 23:17 24:13 27:9 30:18 36:2,14 39:16,21,22 43:2 44:3,4,9, 11 45:12 49:13 51:18 52:11 53:12 56:16 57:1 59:12 62:4,23 63:9 65:24 71:19 82:22, 23 88:5 90:17,18 92:12 93:3 100:12 101:2 105:23 106:25 111:25 115:25 118:14,18,21 119:1,4,10 120:14 122:14 123:6 125:15 128:10 129:6 130:5,16,19, 25 131:17 132:19 133:22 134:12 135:7, 21 137:5 C calculate 29:23 75:20 134:18 calculated 53:16 54:2,21	87:14 calculating 74:14 calendar 96:18,22 97:25 98:1, 12,17 calendars 96:19 call 39:7 66:17 130:13 called 15:17 33:20 34:1 47:23 61:22 66:9 79:7 80:25 103:13 110:11 118:23 calling 90:8 Cambridge 78:21 Cambridge- trained 117:9 came 48:7,19 87:1 116:5 124:12 cancer 131:8, 10,21 cannot 24:21 83:14 capabilities 92:13 capability 37:18 career 80:3 careful 36:6 case 5:3	88:11 catalyst 28:9 categories 95:23 96:12 central 50:18 86:7 95:25 98:2 105:6,9 117:8 CEO 35:6 87:20 certain 19:17 32:12 35:8 37:1,5 83:17 126:11 131:7, 9 certainly 19:3 24:10 33:24 36:5 76:8 93:8 122:22 123:18 124:13 125:22 129:24 certainty 23:5,6 44:19 58:8,15 84:5 certify 44:19 chance 17:1,4 63:9 change 21:2 36:20 40:10 54:20 57:9 69:21 72:18 95:16 105:12, 13 112:7 121:17,19 122:14 changed 36:4,19,21,23 37:1,15,16
--	---	--	--	---

38:2 105:7 108:19 changes 54:1 56:6,9,14 57:2,4 60:16 106:9,11 114:16 122:12 131:19,23 134:23 changing 39:9 53:15,21 84:13 87:12 120:25 121:2, 6,9,13 charity 96:2 chat 7:18 cheaper 15:19 check 48:6 62:16,22,23 63:1 83:7 checked 61:10 121:15 checking 54:5 62:23,24 chemist 113:13 chief 38:17 40:22 children 15:21,22 117:4 choose 76:16 Christian 96:8 Christianity 103:13	Christians 16:14 Christine 80:5 127:20 130:17 Christmas 81:1 99:11, 15,16,20 100:6,15,21 chronological 5:24 7:3 church 117:1 cite 131:6 cited 31:10 118:1 cites 32:4 clarification 17:14 39:25 47:22 52:16 64:24 86:5 89:3 90:21 95:8 106:2 118:3,21 124:22 137:16 139:4 clarify 39:4,23 56:21 59:17 79:1 81:12 120:1 clarifying 39:10 class 16:1,2 classes 14:14 15:22 clear 8:6 26:17 36:22 37:20 39:3,21 41:12 43:20 48:4 57:15	58:20 71:4 78:4 82:17 84:8 132:19 clearly 49:22 68:23 clever 24:1 37:19 close 116:24, 25 117:6,12 122:20 123:13 clue 52:22 cluster 15:17 clustering 128:22 clusters 15:20 code 40:1 135:5,7,11 coded 41:10 coder 38:10 40:22 coders 25:3 38:18 39:2 coding 14:21, 22,23 25:17 36:17 38:12, 15 40:9,16 44:16 49:24 51:7,8 74:24 87:12 135:2 cognate 12:21 13:1,5 14:8,10 15:3, 4,6,10 16:17 17:20 53:9, 12,16 54:2,20 69:16 74:14 75:20 91:14,	23 92:9 94:6 134:19 colleague 116:24 117:12 123:14,23 college 96:6, 15 101:16,17 103:23 137:12 139:2, 5,6,9,10 colleges 96:17 column 11:12 12:11,14 17:25 18:4 combine 129:11 combining 131:24 come 14:20 45:8 49:14 69:20 comes 43:17 comment 25:1 29:2,3, 10 42:7 65:11,24 66:14 67:18 68:1,5,9,23 69:7,16,23 70:5 71:4,15 76:2 83:8,12 commented 13:12 42:21 45:25 46:10 47:10 133:3 commenting 49:17 50:10	comments 6:1 13:10 24:16,23 29:4,12 38:24 39:5,8,12 42:3,9,10 43:5,18 44:21 45:8,10,13,14 46:8,10,12, 15,17,19 47:2,4,6,8,14, 16 48:10,12, 17 49:8 51:23 58:25 59:1,7, 10,15,16 61:9,20 65:18 66:13 67:10, 11 68:21 69:18 71:15 73:18 83:6,18 88:20 119:13, 25 120:7,17 123:14 124:9, 14 126:7,9, 12,17,24 127:7,16,22, 25 128:17,19 133:9 134:23 communal 88:22 89:1,23 communicate 7:19 81:16 communicate d 42:4,5 communicatio n 7:16 41:14, 25 45:18 communicatio ns 7:22 50:4 company 33:22 34:6 35:5,12 40:22
--	--	--	---	--

45:20 63:19 135:20 compare 16:25 17:3 comparing 55:1 112:8 compensated 136:5,17,19 competence 25:6 36:15 78:9 95:10 competent 39:15 complete 82:25 83:19 completely 76:13 78:22 complex 13:21 complicated 19:22 37:3 121:1 component 70:16 comprehensible 41:12 computational 74:13,16 computations 74:22 compute 13:4 computed 13:13 computer 7:17 30:24,25 31:1,3 41:17 51:11 62:24	63:11,13 75:17 94:19 114:2,4 computing 12:20 40:5 75:6 129:20 135:3 concept 39:16 concepts 27:11 41:16 52:1 114:7 133:2 conceptualize 114:18 concerned 12:25 14:8 35:8 114:2,5 124:10 132:14 conclusion 24:4 26:12 44:12,24 confirm 41:20 98:15 confirming 46:6 62:13 confused 20:16 connection 127:18,21 consider 23:18 consideration 45:4 considered 12:24 14:7 16:21 76:9	consistent 31:14 32:1,5, 8,20,22 34:2, 12 35:13 114:22 consumption 124:1 contact 33:19 34:22 81:6,8 121:20 127:23,24 133:1 134:2,6 contained 27:11 contains 57:23 61:9 content 89:25 90:3,4,10,12, 13 92:25 93:2,19 94:7, 15,24 109:13 110:8,23 111:2 119:24 context 14:25 15:14 19:25 21:1,9 25:3,9, 16 27:19 28:10 42:5,13 45:5 75:8 77:25 97:14 115:18 contexts 19:8 21:2,4 23:8 24:11 91:5 continual 50:11,14 contract 79:17,18 122:19 contribute	46:25 contributing 124:14 contributions 25:5 conversation 41:24 44:5 73:25 74:3,9 conversations 74:2 copied 43:3 62:2 74:8,10 78:2 119:23 134:24 copy 4:23 5:10 55:14 119:11 120:15 copying 58:14 60:3 copyright 84:10 core 14:18 corner 4:24, 25 10:21 11:1 64:6 correct 6:6 9:5 11:15 19:25 24:2,8, 23 28:12 30:22 33:15 36:1 38:9,14 42:20 47:3 51:24 52:3 57:20 58:19 60:13,17 61:2 64:14 73:3 74:15 80:18 96:7,13 101:1 107:25	108:18 109:14,23,24 110:23 111:24 116:1 118:14,20 119:5 123:11 125:13 128:9 133:15 134:17 correctly 71:13 correlate 90:10,16 91:17 93:1,3 correlated 91:2 correlating 53:13 89:24 correlation 90:14 91:14, 22 93:1,6 correspondence 19:21 corroborating 31:13 cost 40:8 counsel 8:15 9:17 137:7 counter 66:14 Couper 132:24 133:16,23 134:3 couple 7:12 29:9 course 7:10 26:21 38:18 39:18 40:6 55:6 63:11
--	--	---	---	--

76:13 90:8 96:15 103:12 104:6 130:1 135:2	D	decent 131:16	define 23:17	deposes 4:3
courses 104:5,9,19 105:3,4,12	Dad 116:6	decide 76:7, 19	defined 114:19	deposition 7:12,17 8:21, 23 9:3,18 10:1,3,16 11:21 102:11 113:3
court 4:14 102:16	dataset 128:20	decided 44:20 76:14,23	defining 36:6	describe 77:13 103:8 112:4 130:10
create 20:1 22:19	date 57:3 80:11 105:23 107:2 119:19 120:1	decision 76:25 77:9	definition 19:4 20:10,17 21:16,19,22, 23 22:6 39:2 52:21	desperate 79:15
created 43:1 66:2 118:18 119:1	dated 31:8 119:20 134:16	declaration 4:23 5:2,21, 23 6:8,19 9:15 10:6 30:15 31:16, 25 33:3,13 34:16,18 35:17,19 37:21,24 38:4 42:16 47:17 49:20 51:19 55:20,23 60:5 61:17 62:10 63:8 66:21 71:11,12,18 73:5 80:7,14, 17,22 81:5, 24,25 82:11, 13 84:25 85:2 86:10 95:18 105:15 112:11,16 115:11 117:14,25 118:1 127:6 132:13 134:5 136:18	definitions 23:23 24:5,12 25:10 36:12 110:12,15	detail 13:12 23:7 30:7 47:11 77:19 112:3 114:16
creative 113:10,17	dates 5:25 7:1 102:12 138:18	definitively 94:20	degree 103:25 104:18	detailed 27:16 29:4 34:22 35:14 46:12
cross 29:10	day 35:15 51:2 59:11 61:19 99:13 115:13 117:4 119:21 131:16	degrees 138:25	delivery 139:23	details 13:15 34:9 49:24 51:6,8
cross-examination 10:11 37:13	day-to-day 31:17,20,23 33:1,4 34:9, 18	department 103:18	departmental 103:18	determine 7:3 15:7 16:10 19:6 37:14
cross-examined 10:9 92:12	days 29:9 61:12 97:11 99:1 104:20	departments 126:2	dependent 79:19 115:9	determined 36:20
Crosstalk 68:12	deal 22:19,21 69:16 72:5 79:25	declarations 5:19 6:5 9:6 31:7,10	depending 24:9 76:19 91:2	determining 16:18 18:12, 16,18 25:20 29:16,19
current 135:12,14,18, 24	Debs 68:3,4, 7,9,19,21 69:12 70:15, 22 71:1,9,16	decrepitude 62:15	depends 90:17 99:22 111:25	Devan 5:5 7:6 63:20 72:22 73:7 102:15
currently 76:20	December 99:7,19 102:24	deemed 15:8	deposed 4:9	develop 13:19 25:3 52:1 130:3
custodian 106:23 125:16				developed 13:8 51:4
cut 42:17,24 43:8,17 44:14 129:16				

132:15 developing 15:1 24:19 32:10 87:6 97:19 development 24:25 25:13 38:12 85:19 86:16,21 developments 89:1 diagnosis 131:16 diagram 30:5 54:14,17,19, 21 55:10,11 diagrams 40:11 53:19 83:15 difference 19:12 22:15 23:4 121:14 132:8 differences 53:23 137:22 different 10:16 13:10 16:9 17:24 19:7,11 21:2, 9,11,12,25 22:21 23:7 24:17,21 25:7,15 27:8 30:1,13 32:3 36:9 42:1 43:21 47:9 53:19 63:6 75:12,15 78:15,22 91:5,7,18	94:11 95:14, 23 114:8 129:11 130:5 135:20 differently 114:19,20 diligence 34:23 dimensionalit y 128:20 direct 12:6,11 17:24 18:4 45:16 127:23 137:9 directions 7:13 directly 111:1,7 disadvantage 16:5 disappeared 117:3 discovered 113:13 discuss 14:3 30:20 80:20 81:23 103:5 137:6 discussed 10:10 20:14 23:11 31:24 33:2 74:16 101:11 102:10 discusses 106:9 discussing 12:20 13:4 18:9 29:22,23	43:20 47:19 51:23 52:9 57:20 74:12 80:9 88:22 89:24 98:14 107:3 126:6 134:18 137:23 discussion 139:18 discussions 20:24 31:12, 17 81:13 disease 130:14 distinction 20:21 dive 22:14 43:22 doctor 113:23 document 18:6,10,13, 17,19,25 19:10,15 20:2,8,9,11, 18,22 21:15, 17,20,22,25 22:1,6,8,9,15, 18 23:13 25:11,21 30:13 34:4 38:8 42:17,19 43:1,3,4,9,18, 21 44:21 45:11,25 46:1,7,10 47:11,13,15 48:5,14,19 49:2 51:22 52:4,8 53:1 54:4,6,10	55:2,25 56:2, 3,5 57:16,22 58:1,8,23 59:24 60:11, 16 61:22 62:19 65:13 67:3,13 72:11,12,14, 15 73:18 76:24 77:1, 11,21 79:2,10 80:9,11 81:23 83:3,4,19,24 85:4,7,16,21, 22 86:9 95:14 97:21,23 98:4,8 101:21 106:12,20 107:6 108:16 109:7,10,14, 22 111:10,11, 14 118:18,25 119:3,7,18,24 120:8,15 121:16,24 122:11 124:3 126:4,7,11 128:1,10,18 132:19 133:6, 22 134:19,23 135:17 137:9, 25 documentatio n 26:22 43:17 74:6 documents 5:16,20,23 6:7,9,18,25 7:25 13:11 22:3,4,7,10 24:17 29:1,8 31:9,13 32:4, 7 37:25 42:1,	3,7,8 45:14 46:11 47:8 48:22,25 61:14 78:13 80:20 82:4,11 106:14 110:8, 9 114:17 127:7,14 136:2,20 doing 7:11 14:19 15:21 20:19,20 23:1,2 28:4 32:11 35:11 41:11 50:20 72:3 77:14 79:16 80:2 83:11,13 87:5,19 96:10 97:5 99:23 103:22 113:19 114:15 115:10 122:10 123:24 132:5, 11 138:23,24 done 20:13 44:2,8 54:8 75:2,3 116:8 127:14 136:24 doubt 95:6,9 down 4:18 12:9 20:7 31:5 35:19 40:14 50:9 52:25 60:14, 16 68:11 69:3,5 83:4 85:13 104:6 112:24
--	--	--	--	---

115:20 125:10 128:3 129:16 downside 15:25 Dr 4:1,7 9:9, 10,12 17:16 28:20 118:23, 24 119:1,4, 10,12,16 120:5,14 122:13,14,16, 24 123:9 137:6 draft 43:9 56:6,9,14,17, 19,24 79:3 82:12,24 84:15,22 85:8 86:21 109:13, 22 116:19 119:11,15 drafted 132:19 drafting 113:5 drafts 61:3 dream 113:14 drive 63:13, 15,16 125:17 driven 115:25 driving 78:5,7 114:24 dropped 53:10 Duhem 113:15,18 duly 4:3 during 32:9,	15 51:3 61:16 87:7 95:22 98:5,23 99:16 100:3,16,25 103:5,22 104:10 105:19 113:3 115:2,13 137:6 E each 12:24 13:16 16:25 26:6 35:15 38:2 42:7,11 105:13 112:8 131:18,23 earlier 11:19 23:12 29:1 48:24 57:3,11 73:7 88:17 105:8 112:22 128:13 early 31:3 earnest 87:3, 17 easily 82:20 Easter 100:10,12 101:2 easy 29:6 77:15 81:19 edited 119:3 effect 132:15 either 40:21 58:11 91:18 106:14 122:8 electives 104:19	electronic 12:23 14:17 15:7 16:8,20 22:4,7,9,15 41:13 element 116:7 Elizabethan 58:10 else 9:18,20 13:23 21:25 41:13 69:18 70:1 112:2 113:19 122:7 123:18 124:8 125:25 126:2, 14 elsewhere 94:21 111:14, 24 email 17:12, 21 19:9 28:10 41:4,8 58:7, 14 66:16,17 90:3,5,7,18 91:1,6,17 94:13,23 emails 41:6 62:2 90:9 embodied 55:16 embodiments 18:16 employed 44:4,11 employee 45:20 50:21 136:3 employment 6:16	end 50:17 78:4 89:13,16 99:1 100:2 127:16 ending 106:10 ends 11:4,6 108:5 energy 97:12 England 99:13 101:19 English 57:5, 15 58:9 Englishes 137:22 enjoyed 138:22 enormous 37:16,22 enough 24:5 67:20 92:4,7, 16 ensure 41:12 87:10 entered 135:1 EO- 6:17 error 55:24 errors 73:13 essential 57:23 established 111:19 estimate 114:6 115:22 116:11,15 130:6,21	estimates 112:18 116:14,16,17, 18 estimation 113:9 ethics 96:14 138:1 European 78:16 Evangelical 16:14 evasive 23:10 even 23:2 63:9 65:19 79:12 81:2 92:15 98:6 100:2 114:15 116:10 117:10 125:23 128:16 135:6 138:6 evening 97:1, 2 104:5,6 events 43:14 eventually 87:11 115:19 ever 4:9,16 74:3 135:16 every 32:21 37:25 51:1,2 98:13 99:13 115:12 everybody 40:7 41:3 101:18 everything 20:14 32:2,7,
---	--	---	--	---

23 42:6 84:7, 8 112:2	EX2077 6:17	105:25	fair 29:22	feels 113:24
EX 6:15 32:3	EX2078 6:17	106:19 108:9,	30:21,23 52:8	114:21
62:16 117:19	exact 14:20	11 117:16	70:9 74:14	Fernyhough
EX20- 72:12	24:12 25:10	124:17 125:1,	104:5 134:22	38:7,10,15
EX2004 6:11	27:19 77:17	8 137:11	fairly 102:7,21	39:7 40:16
EX2007 6:12	119:19	exhibits	false 131:13	41:15,21
EX2047 6:11	138:18	101:24 102:5	familiar 13:9	59:22,25 62:5
EX2049 6:12	exactly 15:3	expert 136:7	24:18	65:7,13,25
EX2053 6:12	19:7 21:9	explain 30:7	family 79:21	66:2,5 69:7
EX2054 6:12	23:2,6,11	39:11,15	81:2	71:5 134:14
EX2055 6:12	24:21 27:13	52:14,20	famous 78:20	few 50:7
EX2056 6:14	30:3 32:18	112:23	far 5:24 7:2	59:16 71:14
42:24	35:11 36:7,20	122:17	13:7 14:13	87:4 100:4
EX2057 6:14	37:14 38:2	139:14	21:10 40:10	121:22
EX2058 6:14	57:21	explained	45:19 48:16	124:12
45:11 49:22	exaggerated	25:14	68:8,19,20	Fifteen 95:19
EX2063 6:14	39:20	explanation	82:6 97:18	figure 4:18
EX2064 6:15	examination	45:2 48:15	114:1,4,6	28:18,20,23,
57:17	4:5 9:8	extensive	124:9 126:22	24 29:22
EX2065 64:7	example	61:9	132:13	30:10 50:19
EX2066 73:2	15:16,20	extent 27:17	fast 6:13	53:3,5,24
EX2067 73:1	16:13 18:15	41:25 78:17	114:3 121:4	55:5,10,11,17
EX2069 66:25	24:23 33:10,	external	127:19	57:20 83:8
67:4	16 34:5 40:2	125:17	130:17 131:5	110:16
EX2070 6:15	45:15 65:10	extramural	father 45:21	figures 28:14
71:23 72:15	94:13 112:13,	104:17,18	116:5	78:19
EX2071 6:15	15 113:12	F	fathoming	file 20:22
71:23 72:11,	130:11,12		48:20	22:9,15 40:25
16	131:3		February	62:18 66:9
EX2072 83:19	except 99:17		138:9	83:1 125:12
EX2075 6:15,	exchanges	Facebook	feces 131:22	126:15 128:6
17	50:4	135:8	fed 131:19	133:11
EX2076 6:17	exhibit 4:24	fact 14:15	feed 52:13,18	filed 56:24
	5:6,8,12 6:19	38:23 43:1	feedback	files 22:20,22
	8:3 10:14,22	67:11 79:12	76:10 85:8	62:23 63:18
	30:16 45:24	121:15	feeding 42:13	82:8 122:1
	47:19 73:18	factor 120:25	feel 116:22	filtering 88:22
	81:21 88:7	121:9		89:23
	102:3,4,11,	failings 73:9		final 5:25
	13,14 103:3			36:13 54:4,5

55:1,2,9,14 83:19 115:6 132:16 finally 7:4 25:11 76:14 financial 34:23 find 15:23 16:6 33:16 62:11 63:3,7 67:5 78:11 117:17 134:11 finding 15:19 136:19 fine 70:7 79:23 94:1 finish 124:10 firm 71:21 first 4:3 7:15 50:9 61:13 71:23 72:5,10 78:6 81:19 95:7 102:3 106:18 116:3 123:21 124:6 127:7 firsthand 31:23 five 13:18 116:12 123:2 fixed 72:22 FJFPM6 88:20 flipper 75:25 floor 137:14, 17,18	flow 53:15 55:9,10 focus 54:12 focused 40:19 focusing 30:18 41:15 folder 22:10, 16 follow 109:17 122:5 130:12 following 60:14 follows 4:4 for 4:14 8:12, 14 9:21 10:1, 3 11:8,20 12:3,24 13:17,25 15:1,16,20 16:13 17:6 18:15,16,18 19:15 20:1 24:7,15,22 25:8,20 27:21 28:4,5,20 30:5 32:12,21 33:16 34:5,18 35:15 37:12, 20 38:11,12 39:3 40:15,25 43:9 44:25 45:14 49:1 50:7 51:13 52:1 53:13,15 54:24 55:2 56:22 57:25 59:8,20 60:18,20 63:19,20 65:10 66:22	67:20 68:11 69:25 70:4,13 71:22 72:2,21 73:11 75:2,7 77:20 79:19, 25 80:3,11 81:7 83:17 85:13,14 86:21 87:24 90:14 91:21, 23 93:1 94:6, 13,14,15,22 97:11,18 98:1 99:10,17,20 100:3,12,19 101:7,21 102:5,14,18 103:3,21,23 104:24 110:15 112:15,18 113:12,18 114:17,23,24 115:20,22 116:7,11,15, 18 123:2,7 124:1,21,23 125:11 126:24 127:3, 4,10,17 129:1,3 130:12 131:2, 3,15,25 134:4,11 135:5,7 136:5,8,17,19 138:21 139:10 force 78:5 114:24 forget 40:3 forgotten 61:23 125:22	form 20:22 51:4 94:15,23 135:20 formula 13:23 19:6 21:8,11 39:9 43:3 46:4,8,21,25 95:1 114:2 119:18 125:6 formulae 49:24 51:8 formulas 13:20 24:10 25:8 35:24 36:2,11,13, 18,19,21,23 37:4,14,25 42:18,21,25 51:10 75:16 87:2,10 114:5 formulation 36:5 forward 25:12 36:13 44:15 78:8 forwarded 63:18 forwards 42:2 found 16:16 82:10,15 121:23 four 13:17 75:12,15,18, 22 77:10 95:23 96:11 Fourier 129:1 fourth 96:8 fpm1 63:21	fpm2 88:8,15 fpms 65:1 framework 107:16 108:3 110:20 111:2 112:8 friend 116:24 117:1,12 122:4,21 123:14 fro 80:23 from 6:24 8:15 11:9 14:20 15:14 19:9 21:25 25:1 29:20 35:8,23 37:1 38:1,17,22 42:9,10,11 43:17,25 45:24 46:6 48:7,18,19,24 49:10,14 55:18 58:22, 25 59:1,14 60:1 61:9 63:6 66:14 67:10,12 68:9,21 69:7, 10 71:4 74:7 79:16 80:20 81:5 82:4 83:6,9,12 84:10 87:4,9 90:19,22 96:24 97:9 98:17 103:24, 25 104:10 106:9 107:18 109:17 110:9 113:21 120:4 121:1 122:12
--	---	---	--	--

127:8,11 129:12 132:16 138:21 front 4:22,25 5:16 6:10,20 8:1 35:18 52:7 54:10 59:9 64:1 88:12 102:12 106:15 114:1, 4 124:18 137:11 full 52:19 64:20 84:19 86:8,18 full-time 95:24 99:24 103:6 fully 10:4 36:8 53:18 114:7 fundamentally 36:18 further 59:16 76:10 82:2 84:3 121:25 122:2,3,6 139:15 future 35:10 fuzziness 129:23 fuzzy 107:20 G gain 28:5 79:16 game 127:17, 21	gave 63:18 Gefinor 34:6, 23 general 21:14,19 27:19 28:11 32:19 103:8 124:1 generally 129:22 138:19 gentlemen 113:14 German 113:12 get 16:3 17:8 25:19 27:5 36:8 41:6 65:11 70:1 71:14,15 72:2,24 79:15 83:1 84:19 86:18 87:11 88:23 119:13 121:11 123:3 131:11,16 137:14 139:21,22 getting 33:21 68:2 gigabits 40:7 give 4:13 15:22 21:23 33:9,10 45:4 54:14,17 64:4 99:13 101:22 112:13 123:14 130:11 given 19:12	20:5 22:5 23:23 27:15 30:9 global 30:2 48:13 GMT 51:17 88:4 123:5 137:4 go 4:11,17 6:14 10:13,20 12:6,12 14:2, 3 31:5 35:19 37:21 38:4 47:17 49:20 51:19 52:4,6, 15,25 55:5,20 57:14,16 58:23 60:16 62:15 63:23 64:11 65:10 66:21 67:3, 14,17 68:1,6, 23 70:4 71:18 72:7 73:16, 21,23 79:23 80:7 81:22 84:25 85:2,11 88:6,14,16 92:1,23 95:14,18 105:14 106:17 107:12 108:16,25 110:3,10,25 112:10,17,24 117:1,13,16 118:6,9,21 119:6 123:2,8 124:17,25 125:10,11 128:1,3 132:24 133:5	134:7,21 137:1 goes 50:6,9 52:21 55:23 59:16 60:22 107:18 110:15,19 128:19 129:3 going 4:11,12 6:13 7:17 10:13,20 12:6,9,11,12 15:19 16:7 17:24 18:3,4 28:13 30:15 32:24 35:17 42:2 45:23 47:11 50:14 51:13 54:25 77:16 79:12 84:12 87:24 95:16 96:25 97:21 98:23 101:9,20 103:17,20 104:10 105:18 106:17 108:8, 17 110:3 112:13 113:18 114:3, 13 116:17 121:4 126:18 127:19 130:17 131:5, 16 133:8 gone 58:5 111:21 138:8 good 4:7,20 13:14 27:3,4 63:10 73:6,7, 10 75:19	87:11 Google 21:17 gosh 27:23 got 5:3,18 6:2, 3 17:8 32:12 35:7 42:9 43:25 44:5 46:4,10 51:21 52:7 55:13,19 57:18 60:10 63:21 64:1, 15,17 65:1 66:13 68:9 69:9 71:8,13 73:8,22 83:3 85:1 88:8 89:7 103:14 105:16 108:22 117:19 118:17 120:3 121:8 125:2,4 130:16 131:8, 14,20 133:7 gotten 103:25 117:23 Gracious 12:10 grammatically 58:18 great 112:3 114:16 Greek 121:8, 10,12 group 13:1,5 14:8,10 15:13 16:10,13,22 17:8,20 53:9, 16 54:2,20 122:9 129:6
--	--	---	---	---

groups 15:4, 6,10 16:17 53:12 91:14, 23 Guardian 35:12 guess 22:13 28:9 44:25 49:11 70:10 75:19 78:25 79:21 82:14 83:23 89:19 91:18 93:5,9, 15 94:25 95:23 98:14 126:19 guesses 78:18 guidance 7:13 guy 127:11,12 128:13 guys 128:14	happens 40:6 103:18 hard 12:17 63:13,15,16 81:3 125:17 hat 113:11 having 4:3 69:17 74:2 115:4 130:13 hazy 27:17 40:12 head 132:3 headline 75:11 hear 21:4 139:8 heard 132:4 135:16 heavy 100:3, 5,16,25 101:12 103:1 held 139:18 help 75:16 79:17 116:5 helped 78:8 helpful 65:22 helping 13:18 helps 16:10 here 7:13,23 12:9,12,15 14:10 18:1 25:19 31:5 33:16 42:16 43:7 46:6,7 49:21 51:20, 23 53:3,15 54:12,17	57:15,18 58:4 59:22 67:6, 17,18 74:22 75:8,12,15 83:6,8 85:13 86:7 89:24 92:25 97:23 103:4 107:2 108:11 109:8, 25 110:13,16 112:13 117:24 120:14 123:21 128:13 132:19 133:5 136:5 137:15 Here's 85:13 Hi 4:8 highlighted 62:16 highly 58:12 66:4 himself 44:10 124:13 historian 78:12 historians 78:20 historical 22:18 historically 78:14 history 22:1 27:14 78:16, 18 103:11,14 105:11 113:11 holiday 100:6, 9,15,17,22,25	101:2,3,5 holidays 99:10 101:10 honest 22:12 92:11 113:7 hoof 92:12 hoovering 114:9 hour 51:14 87:24 136:16, 21 hours 112:20 113:2,21 114:1,14,21 115:22 116:11,12,13 hours' 112:18 113:9 house 114:10 how 13:4,12 15:5 16:18 19:7 21:1,10, 24 23:7 27:13 29:23 32:18 36:4,16,20, 23,25 40:1,10 53:15 54:2,20 61:23 71:2 75:5,6 76:19 77:15 81:3 84:5 89:12 92:7 113:4, 10,23,24 114:9,10,11, 14,17 115:10 129:22 134:18 135:1 136:9	I idea 11:7 14:14 41:1 68:4 69:13 71:16 78:6,7 86:25 91:13 116:4 125:19 132:25 134:3 135:17 ideas 92:9 94:9 129:2 130:3 identification 53:9 102:6,14 identify 53:12 if 4:16,23 7:25 10:25 11:1,12 13:10 14:15 15:3,20 16:3, 6,13,15,25 17:3,7 18:14, 23 19:16,24 20:10 21:21 23:3,12,20, 21,25 24:3 25:23 26:1,8, 10,15 27:13, 18 28:7,10 29:5,14 30:6, 8 31:5 35:2, 10 36:24 38:4 39:2,17 45:2 46:2 47:4,17 49:16 52:4,25 53:7,23 54:8, 23,24 55:20 57:5,8,14,15, 16,22 60:8,14 61:10 62:19 64:2,5,6,11 65:10,22
H hadn't 74:23 82:15 124:16 127:13 hand 37:6 Hang 67:5 happen 44:22 63:22 happened 38:21 42:23 48:21 49:10 63:14,17 87:4,15 116:6 122:5 132:17				

66:21,24 67:17 68:14, 24 69:18 71:10,12,18 77:16 78:19 80:5 81:21 82:10,14 83:2,17 85:2 86:9,11 89:14,20 90:18,25 91:1,4,8,10, 17 93:3,9,11, 14 95:6 102:15 105:18,23 107:11 108:16,25 109:5,7 110:10 111:16 112:1, 10,15,24 113:11 114:3, 7,15,21 115:5 116:4,7,16 117:13,17 118:6,9 119:6 123:10,22 124:3,17 125:21,23 126:4 129:20 130:11,12,22 131:4,21 134:4 136:24 137:14,19 138:9 IIC 52:10 IICS 53:13 illness 130:16,19,25 131:2,20 illustrate 74:1	imagine 22:5 65:6 94:16 Immanuel 27:13 immediately 119:21 impacted 27:13 implement 35:24 77:10 implementatio n 40:20 43:11 44:16 implementing 75:16 importance 12:21 29:17, 23 52:12,18, 22 129:4,7 important 15:8 39:3 41:7 66:12 84:5 139:13 impossible 113:8 114:17 impressions 85:18 86:14, 20 in 4:2,22,23 5:16,21,23 6:8,10,20 7:3 8:1,20 10:1,3, 21 11:1,4,6, 12,20 12:5 13:11,12,24 14:2,17,21 15:14,16,24, 25 16:1,4,7, 10 17:7 18:1, 6,10,12,16,18	19:14,18,25 20:13,22 21:2,7 22:1 23:8,13 24:11,16,23 25:3,6,9,13, 15,20 26:2,4, 5,8,20,21 27:9,11,21 28:11,14 29:1,9,12,13 30:2,4,7,24, 25 31:10,16, 20,24 32:2,7, 9,19 33:2,19, 21,23 34:5,7, 18,21 35:8, 10,18 36:7,9, 12,13,15 37:14,25 38:2,6,11,15, 19,23 39:4, 15,19 40:16, 22 41:2,7,10, 13,22,23,25 42:5,7,12,16, 21 43:16,22 44:15 45:5, 10,18,23,25 46:11,21 47:6,10,11, 13,14 48:4, 10,12,13,20, 21 49:2,17 50:16,17,19 51:2,3,25 52:7,8 53:21 54:5,10,12,21 55:8,10,11,16 57:12,13 58:7,9,10,21 60:15 61:17 62:9,11,14, 17,19 63:8	64:1,6 65:2, 13,19,21,22 66:2,5,9,19, 24 67:10,11, 20 68:5,7,24 69:1,20 70:12,15,22 71:11,12,23 72:14,18,21, 23,25 73:8 74:6,8,9,10, 13 75:4,10,11 76:11,13 77:24 78:2,4, 6,17 79:12,24 80:1,2,22 81:7,10,23, 24,25 82:11, 14,16,18,19, 20 84:8 85:2, 7 86:10 87:1, 3,4,13,17,18, 19 88:10,12, 23,24 90:2,16 91:4,21 92:5, 9 93:4,5,7,10, 12,13 94:11 95:7 96:9,18 97:4,9,10,11, 14,16,18,19, 24 98:9,25 99:1,13 100:13,14 101:19 102:12,25 103:14,25 104:1,4,7,19 105:3,13 106:7,9,10, 11,14 109:7 110:8,25 111:7,10 112:3,7,23 113:7 114:1,	4,8,15 115:1, 10,18,24 116:3 117:25 118:1,4 119:12 120:13 121:1, 8,11,12,15,20 122:6,9,11 123:21 124:13,18,24 125:16 126:1, 7,8,9,15,16 127:5,22 128:20 130:20 132:13,15 133:4,22 134:4,19 137:11 138:1, 3 include 41:13 57:19 122:12 131:9 included 71:16 including 27:5 34:22 127:16 128:22,24 incoming 14:17 15:7 16:8,11,15,19 inconsistenci es 46:20 incorporate 57:25 121:17 incorporated 111:14 increase 89:15
--	--	---	--	---

increases 131:14	Inman 33:18, 20 34:1,22	interested 80:1,2 93:12, 13 94:11	invest 33:23 34:7	13:7,8,14,17, 18,19 14:1,6, 12,22,24
increasing 89:11	Inman's 34:6	interests 14:16 16:7	investment 33:21,25 35:4,6,8	16:16 17:19, 23 18:8,11, 12,14,15,23, 24 19:8,17,24 21:17 22:3,9, 10 23:16,17, 20,21,25
independent 44:4 45:17 134:6	input 14:21 132:16	interface 70:8,10,13, 16,22	involve 68:24 69:1,14,19	24:20 25:16, 17,24 26:1,8, 15,18,19,24 27:6,11,12, 16,21 28:4,5, 7,8,9,11,22, 23,25 29:4,9, 10,14,16,19, 21,22 30:7, 16,23 32:2,3, 5,13,14,17, 18,23 34:12, 13,21 35:18 36:7 37:16 38:6 39:3,4, 20,23,24 40:1,6,7,9,21, 24 41:1,5,9, 12,13 42:13 43:4,7,11,12, 15,17,19 44:8,9,10,13, 14,22,23 45:3,4,7,12, 16,19 46:2,4, 12,13,16,21, 23 47:5,7,10, 11,14,16 48:7,8,15,18, 23,24 49:7,8, 13,15,16,22 50:6,9,11,14, 18 51:1,2,5, 21 52:7,8,11,
independently 23:22 24:3 26:12 34:14 42:4	inputs 15:5, 10	internal 109:7	involved 13:24 28:3 31:20 33:21 38:11,15 40:16 45:18 58:21 68:7 70:12,15,22 76:11 81:12 92:9 103:14 115:1	
indicate 30:5	install 41:1	interrupt 105:1	involvement 81:7,10 84:9 122:6	
indicated 113:1 120:8	installed 41:2 76:17	interview 9:2	involving 77:22	
indicates 43:2	instead 15:19 41:3 72:11,15 73:2	into 13:25 14:24 15:10 21:8 22:14 24:10 25:17 36:8,17 41:16 42:18 43:3,9, 18 47:15 51:4,10 52:13,19 54:4 58:1,14 65:11 70:2,6 79:13 88:21 106:18 107:15 111:14 115:19 119:24 131:19 135:1 138:7	IQ 39:17	
indicating 49:18	institution 105:12	instructed 8:17	IRC 52:9	
individual 15:23 16:12, 19	intended 14:25 24:11 41:9 122:21 123:17	intend 40:24	IRCS 52:13, 19,21 53:9	
individually 16:4	intending 57:5	intended 14:25 24:11 41:9 122:21 123:17	Isaac 78:20	
individuals 13:5 15:14,20 17:9 39:19	interchange 29:13 39:6 47:7 49:23 50:2,12,15,19 62:1 74:10 81:10 115:3 121:25 122:3 133:1	intending 57:5	issue 40:5 75:16	
inefficient 41:4	interchanges 38:20 45:6,21 84:4 97:16 115:5,9	interchange 29:13 39:6 47:7 49:23 50:2,12,15,19 62:1 74:10 81:10 115:3 121:25 122:3 133:1	issues 40:1 74:12,17 87:12	
information 6:3 43:25 131:19	interest 138:21	invent 78:7	it 4:18 5:2,24 6:2,13,25 7:9 8:25 9:22 10:23 11:1,6, 12,19,20,23, 24,25 12:1,3, 4,5,17,23	
ingenuity 93:9		inventions 26:20 31:13		
initial 66:13 87:1		inventor 26:18		
initials 66:5 69:9 71:8		inventors 11:14		
inline 126:7		inventors' 11:12		

17,21,23,24 53:17,18 54:3,4,12,14, 23 55:1,7,8,9, 12,14,15,18, 19 56:13 57:2,8,10,18, 21,22,24 58:5,10,11, 12,19,20,21, 22,23,24 59:5,6,13,14, 15,16 60:3,4, 10,22 61:17, 23,25 62:1,2, 11,18,19 63:3,4,7,16, 17,19,20,22 64:2,6,16,21, 23 65:3,12, 18,19,20,21 66:2,5,13,17, 18 67:2,5,6,7, 8,10,11,15, 21,24 68:22, 25 69:1,3,9, 15,19,22,23, 25 70:2,3,6, 15,17,18,21 71:8,10,13, 21,22 72:10, 14,22 73:6, 10,22 74:12, 19 75:2,3,5, 10 76:1,3,12, 13 77:4,5,13, 14,15,20,21, 23,24 78:1,3, 4,5,7,8,23 79:13,14,16, 17,19,21,23, 24,25 80:1 81:5 82:13 83:1,3,6,9,10,	13,21,22 84:6,8 85:1, 12,20,24,25 86:6,25 87:5, 17,21 88:13, 17,20 89:2,7, 8,12 90:6,8,9, 17,23 91:1,2, 8,10,11 92:10,11,15, 16,18,19,21, 22 93:4,11, 18,23 94:4,8, 13,14,16,18 95:7,9,13 96:22,24 97:1,2,11,17, 18,25 98:5,6, 12 99:2,3,8, 11,14,20,21, 22 100:1,3,5 101:17 102:17,21 104:3 105:9, 11,23 106:13, 19 107:4,15, 20 108:1,14, 21 109:2,7,19 110:15,19,25 111:6,21,25 112:3,7 113:18 114:10,11,15, 17,18 115:4, 15,22 116:3, 4,7,9 117:17, 18,19,23,25 118:1,2,5,15, 17 119:2,3, 13,17,18,21, 24,25 120:1, 15,16,18,22 121:2,6,8,18, 23 122:3,4,5,	7,9,10,14,20, 21,22 123:17, 24,25 124:1, 4,6,8,9,10,14, 19,23,25 125:2,4,6,14, 16,23,24,25 126:6,15,17, 18 127:6,8,9 128:16 129:5, 18,19,21,24 130:7,13 131:12,13,14, 17,19,25 132:1,12,14, 15 133:4,8,9, 18,19,24 134:8,15,20, 22,24 135:6, 16,22 136:8, 15,24 137:11, 14,15,19,25 138:4,5,7,9, 10,19,20,21, 23 it's 5:2,3,11 6:1,2,23 8:6 10:16 12:11 15:18 16:5,14 17:10 20:11, 12 22:11 23:24 26:11, 12 27:2,4 28:5 29:5 32:1,5,8 43:15,16 44:11,13 46:5,16 47:21,23 49:12 53:8 54:1 58:18 60:18,20 63:6,8,9,10 64:15,17	65:16,21 66:8,13,20 67:8 69:9,23 70:5,25 71:8 72:20 76:1,5 77:3,16 81:2 82:14 85:25 88:25 89:5 90:18 91:9 93:14 98:7 100:13,14,21 104:16 105:6, 11 106:23 107:21 113:8, 9 114:8,22 117:25 118:4, 15 120:19,24 121:8 126:10 127:5 129:20, 22 130:4,7 132:10 133:4, 9,14 136:15 137:14,17,18 139:13 iterative 61:3 its 105:7 124:19 itself 85:21 106:20 107:6 109:10 132:7 J James 125:18,21,22 126:1,14,19, 21,23 Jamesb 124:20,21,23, 24 Jamesb.doc 125:13	January 35:23 56:25 99:7,19 102:24 104:11,24 138:9,13,16 jf 65:6,13 jfpm1 62:9,17, 21 66:3,4,9 jfpm2 60:18 64:14 65:1,4 66:2 88:20 jfpm3 60:20 jfpm6 61:1,9, 21 65:19 66:25 Jon 38:7,10, 18 39:6,22 40:2,4 41:15 42:3,4,9,11, 17,21 43:7,8, 12,23,24 44:2,20,25 45:6,12,14, 16,18,25 47:8 48:7,18,19 49:13,23 50:3,4,11,19 51:23,25 58:6,13 59:7, 10,13,22,24 60:3 61:22 62:4 65:6,13, 24 66:2 69:7 70:17 71:4 73:19 74:3,7, 17 78:2 83:14 105:24 109:12,22 134:8,14,24 Jon's 46:7
---	--	--	---	--

Jones 118:19, 22	97:13 98:15 99:13 100:19 103:3 105:6 108:16 109:18,25 111:1 112:13 115:20 116:10 117:16 118:21 120:1 123:7,12 124:14 125:11 126:24 128:1 129:22 130:22 132:19 133:9 134:10 137:20 138:11 139:7, 13	51:5,23 52:1 54:4 57:12,24 58:6,14,16, 18,20 59:7, 10,22 60:2 62:4 68:21 69:22 70:18, 25 71:9 73:18,25 74:1,5,7,17 76:9,14 77:5, 12,18 78:1,4 79:20 82:25 83:11,13,17 84:25 86:25 91:9,21 92:20 97:7 105:14, 24 106:9,23, 25 109:13,22 112:10,16 113:1,21 114:21,25 115:10,25 123:12,19,20, 21,24 125:23, 25 126:13,17 127:4,8,24 132:13 133:1, 25 134:4,8, 14,24 135:19 136:24	Kant 27:13 keep 26:4 54:24 99:2 Kekule 113:12 key 30:3 51:3 kind 7:15,21 8:14 14:2,3 16:15,24 19:4 29:10 34:18 35:10 50:18, 25 69:23 77:25 87:8 92:8,23 97:25 98:7,15 103:19 113:9, 22 129:22 131:8,18 135:11 137:21 kingpin 50:16 knew 20:24 33:24,25 38:20 79:12 104:17 125:21 126:3 134:5 135:3 knock 70:4 knocked 78:1 know 4:17 6:9 7:16 8:1 9:21 10:23 12:2 13:9,22 14:13 15:4,16 16:13 18:11 19:1,3, 12,17 20:5, 10,11 21:9 22:6,10 24:4 26:1 27:18 28:3 30:1	32:9,12,14, 15,19 33:19 34:21 35:5,7, 11 36:5,16,19 37:11 40:12 41:6,14,21,23 42:23,25 44:16,18 45:6,19 48:6, 8,9,16 49:3, 11,13 50:7,8, 13 54:5 56:16 58:10 62:16, 19 63:4,9,16, 22 64:21 66:6,10 67:23 68:5,8,18,19, 20,22 69:12 70:3,4,23,25 71:2,10,14,17 73:14 74:10, 25 76:1,6,9, 12,14,20 77:4,8,15 78:19 79:7, 11,15,23 80:23 81:3 82:12 83:14, 17 84:9,10, 11,16 86:8,12 87:10,13 89:10,20 91:6,8,10,19 92:4,7,21 93:7,14,16, 18,23 94:1,8, 19 97:2,7,10 98:6 99:21,23 100:1 103:17 104:4,16,17, 23 105:8 112:2,5,7 113:24 115:7, 16 116:6,9,17
Justin 61:22				
July 31:8 34:6				
jump 106:18 108:8				
jumps 107:15 111:1,6				
June 35:23 99:1 112:19				
just 4:17 5:2 6:1,4,23,24 7:6,12 14:1,3 16:25 18:14 20:16 23:10 24:20 26:14, 17 28:20 32:24 34:15 35:7 36:22 37:2,20 39:23 40:14,24 41:20 43:20, 21 44:11,18 46:1,5,10 47:1 48:4 49:1,13 54:12,24 56:13 57:20 58:23 59:15, 18 61:15 62:13 65:4 66:20,24 68:11,14,22 69:3,23 70:5 71:4,25 72:1, 5,7,24 73:24 74:19 75:10 76:15 79:1 81:12 83:6 84:19 86:13, 18 89:4,6,14 91:11 92:23	Justin 6:5 8:20,23 11:13,25 14:21 15:1 18:23 19:2, 16,17 21:7,13 23:3,12,21, 22,25 24:7 25:1,8,25 26:12 29:3,14 31:8,16,24 33:2 34:5,15 35:21,22 38:17,21 39:1,6 40:22, 24 41:9 42:3, 5,13 43:8,23, 25 44:3,4,5,9, 11,15,23 45:6,8,14,15, 18 47:8 48:7, 18 49:14,23 50:3,5,11,16	Justin's 5:19 19:5 25:22 38:1 40:22 45:20 50:20 82:18 105:16 113:8 126:16	K	
		Kahn 9:9,10, 12,15		

117:12,18 119:19 120:15,17 121:18 123:16,17,22, 25 124:11,15 125:23 126:1, 10,14,20,21, 22 127:2,3,5 128:25 129:18,21,25 131:8,10,21, 23 132:7,17 133:8 134:25 135:6,15,19, 22 137:19 138:22	laptop 121:23 largely 115:6, 25 last 29:9 38:8 43:22 44:24 49:16 60:15 61:12 64:22 65:3 68:14 80:11,14,16, 17 81:23 82:9,21 83:4 100:4 106:22, 25 109:3 114:10 118:14 119:3 120:1 125:15 128:10 lastly 7:25 later 37:10 44:17 45:10 46:11,22 47:6,7,10 48:11 65:21 87:15 121:16 latest 127:13 law 78:11 82:14 lawyer 81:8 92:13 94:1 lawyers 81:6, 9,10,14,16 82:13 83:1,20 laying 85:18 86:14,20 leading 32:16 110:7 learn 113:14 least 29:8 41:7 42:10	lectured 103:11 lecturer 96:4, 14 103:6 lectures 99:25 lecturing 101:9 103:10, 16 left 21:12 112:1 135:19 legal 10:5 lengthy 50:11 67:12 less 15:19 39:17 132:7,8 let 4:17 6:9 8:1 17:1 18:14 33:8, 10,16 40:14 46:1,2,4 47:25 65:11 67:14,22 72:2,5,24 73:23 74:19 84:19 88:14, 16 89:16,20 94:4 98:9 107:22 108:24 117:17 118:2 124:25 125:3 let's 20:7 30:13,18 35:19 49:20 54:12 55:5 63:23 64:11 66:21 67:3 73:16,21 85:11 88:21,	22 95:14 123:2 125:10 128:3 130:13 132:24 134:7 137:1 letter 74:7,13 134:12 letters 121:8, 11 level 19:18,23 library 99:17 life 127:17 lifetime 114:12 light 69:24 lighthearted 69:24 70:5 lightly 28:19 like 23:25 25:23 50:9 75:24 78:19 91:14,23 92:9 96:25 98:12, 13 99:3,8 102:23 113:15,25 115:6 120:1 130:14 131:10 132:5 133:3 137:9 138:17 likelihood 16:23,24 17:11,21 likely 14:16 16:2,9,11,14 17:8,10,19,23 44:22 49:9,15 62:1 63:10	65:15,16 66:2 70:15,17,21 76:3 120:4 126:24 129:7 131:3 limited 78:9 122:1 line 12:12 71:23 72:21 95:16 linear 121:1 lines 17:25 18:4 link 53:8 list 5:22 6:1, 23 27:24 37:6 62:18 listed 43:8,23 44:25 49:6 53:3,5 65:2 118:11 128:8 133:16,17 listing 102:11 lists 11:13 38:7 133:19 little 10:16,20 20:7,16 51:14 67:21 69:5 95:17 107:21 132:11 lived 13:17 123:21 living 27:12, 20 50:25 load 99:24 100:3,5,16,25 101:12 103:1 loads 41:6
knowledge 31:23 33:1,4 34:16,17,20, 24 35:1,14 49:22 73:1,2 knowledgeabl e 34:8 known 84:5, 12 123:23				
L				
label 66:20 labeled 72:11, 12,15,16 85:5 Lancashire 95:25 98:2,3, 4 104:7 105:6,7,9 117:8 language 10:5 13:8 25:3 29:11 40:10 53:22				

local 29:16, 19,23 30:2 52:12,18,22 London 32:13 long 12:11 40:13 63:12 80:4 114:9, 10,11,18 138:5 longer 58:7 109:19,23 111:21 112:4 look 4:23 11:1,12 21:17 27:8,24 28:25 33:7 36:24 45:7 53:23 55:14,15 57:22,25 60:5,8 63:3, 23 64:6 66:24 67:15 70:1 78:6,19 81:21 83:2 85:11 86:9 88:21 105:19,24 109:5,7,25 112:15 113:12,25 118:2 123:12 126:4 127:17 138:4 looked 29:7, 13 32:14 34:4 36:3 55:12 61:15 91:1 120:22 126:20 looking 8:6,7 12:14,15 14:14 29:9 36:5 43:6	54:16 74:11, 22 78:12 85:20 87:21 88:25 91:17 94:9 97:15 112:2,5 127:12 131:21 133:12 looks 55:7 57:21 98:12 99:3 120:1 lot 12:2 13:8, 18 20:25 24:17 27:7 39:24 47:7 50:6 65:18 67:10 80:23 96:10 97:11, 12 115:1 lots 30:1 115:8 loved 78:9 M MA 138:6 made 10:5 11:24 24:24 29:2,4,12 34:14 38:24 44:12 45:12 46:11 47:6 49:8 53:21 56:19 57:2,4, 8,9 58:25 59:2,7,11,15 61:11 62:3 69:17 70:18 71:3 76:2 77:17,18 79:11 83:21,	24 84:6,14,21 109:22 112:22 114:19 119:10,24 121:17 122:4 124:8,14 126:12,16 127:5,15,22 134:22 135:7 mail 12:23 14:17 15:7 16:8,11,15,20 29:20 66:18 79:7 124:20, 23 main 96:11 98:24 103:11 mainstream 103:15 make 5:24 28:7 35:9 45:3,7,10 46:19 47:6 48:16 56:13 58:20 59:16 68:8 69:16, 23,24 75:8, 10,25 76:25 77:21 78:25 79:13 81:20 89:12 91:16, 22 93:4,8,9 97:11 112:21 113:9,22 114:5,21,23 116:10,14,16, 17,18 120:17, 24 121:18 122:2,3 125:3 127:6 128:17 129:19	makes 12:17 77:9 making 39:19 56:6,14,17,18 57:7 69:17 78:18 81:5 97:17 128:13 132:23 male 131:10 management 18:7,10,13, 17,19,25 19:10,15 20:2,8 23:13 25:21 28:8 Manchester 139:2,10,11 manner 68:6 many 19:7 24:17 32:18 42:7 73:8 114:14 March 31:8 100:10 101:3 marginally 87:13 mark 48:12 102:2,3 marked 4:24 5:1,2 6:18 10:22 102:5, 13,14 marking 100:1,2,7 101:23 103:21 marriage 123:21	married 32:12 78:22 Marston 4:1,7 5:3 6:5 8:20 11:13 17:16 28:20 31:8 34:5 43:25 62:4 64:17,22 85:7 102:12 106:9,25 113:1 122:24 133:19 134:14 137:6 Marston's 8:23 31:16,24 33:2 34:15 84:25 105:14 112:11,16 master's 103:25 138:24 material 13:24 36:10 44:17 111:13 115:19 math 19:14 93:17,18,19, 22 94:6 107:11,12 math's 127:11,12 128:13,14 mathematical 19:9 21:10,11 36:4 41:16 107:15 108:2 110:19 111:1 112:8 129:2 mathematics 38:13
--	--	--	--	---

matrix 74:21 87:13	92:18,20 94:4 97:5,8 98:9 101:7,22 104:3 107:22 108:24 114:11,17,18, 23 115:2 116:3,5,8 117:17 118:2 122:23 123:12,14,18, 25 124:6,7, 19,25 125:3, 14,16 126:10 127:4,18,24 128:16 129:19 130:3 134:11 136:24 137:14,19 138:20	79:5,6 80:2 82:14,17 83:23 84:5 85:21 86:8 87:3 90:17,18 93:3,11,14 98:5,6,10,22 99:22 100:7 104:13,16 105:1,11 111:25 112:1 115:16 116:4 123:19 124:3 126:11 129:13 137:20 138:17,20	meditate 98:5 meet 123:22 meeting 35:3 meetings 101:8 103:17, 19 memory 13:14 27:6 40:4 mention 72:20 90:9 128:25 mentioned 5:21 6:22 19:2 23:3 55:1 62:9 120:7 126:14 mentioning 72:18 met 33:18,25 38:18,19 39:7 41:22,23 123:19,20 127:4,23 Meta 135:8 metadata 5:25 38:7 64:11 85:13 106:22 109:3 118:9,18,25 125:10 128:3 133:12 metafile 65:2 method 15:17 131:16 methods 129:4,25 130:10	middle 38:6 mind 13:18 51:2 91:21 mine 19:5 38:1 42:25 48:17 49:9,15 75:10 82:18, 20 minus 121:2, 3,10,13 minute 51:1 112:23 122:25 minutes 88:3 123:3 misguided 48:11 misprint 61:24 71:19 missed 61:17 62:19 mistaken 52:13,19 Mm-hmm 31:6 47:18 67:19 75:1 96:16 102:20 105:22 106:21 107:8 108:10,15 110:2,14,24 137:10 mod- 36:9 model 35:23, 25 modeling 34:23 modified
me 4:17 6:9, 20 8:1 9:21 11:25 12:1,3 15:3 17:1 18:14 20:13 24:3 25:4,14 26:10 27:9,13 28:5 29:5,14 30:6,8 33:8,9, 10,12,16 35:2,3,4,7,10, 18 37:5,10 40:12,14 42:10 43:2 44:21 45:3,8, 12 46:1,2,4, 24 47:25 52:7,12,18 53:8 55:18 57:21 61:9 62:22 63:18 64:1,4 65:11, 16 66:8,14 67:10,12,14, 22 68:7,15,24 69:1,19,23 72:2,5,24 73:23 74:19 76:3 77:4,16, 20,24 79:14, 19,20,22 83:6,9 84:19 85:8 88:14, 16,17 89:16, 20 91:9	mean 6:2 11:20,22 13:7 15:16 16:1,2 19:1 22:1,18 23:1,17,19, 20,22 25:15, 16 27:4,7 31:2 32:2,3, 21,22 35:5 36:2,3 40:1 41:22 43:14 44:2,4,9,11 46:20,22 47:5 49:7 50:6,24 51:1 53:17, 19,20 56:16 58:18 59:5,12 61:11 62:4, 14,17,23,24 63:6 65:18 66:8,16 70:5 74:8 76:10 77:3,12,22	meaning 27:19 52:9 68:6 70:2,6 91:10,11 93:6 means 9:4 15:3,6,18 16:18 24:9 29:14 30:5 32:5 48:15 52:23 59:1 90:15 93:23 122:17 123:10 meant 13:12, 16 24:21 25:7 26:6 30:3,7 36:25 39:17 50:24,25 56:17 57:2,7 59:6,12 91:8 meantime 87:18 medical 130:11,15		

80:11 120:2 modifier 7:1 module 103:13 104:4 modules 104:13,15,20 moment 63:3 64:4 101:22 moms 35:8 monetary 79:16 money 138:21 month 76:2 months 13:18 59:8 138:11 more 17:8,10, 19,20,23 18:15 20:25 24:17 25:14 28:11 33:21, 25 35:4,6 36:6 46:12 54:12 65:19, 22 67:21 69:1 77:20 88:19 97:2 104:12 121:21 129:7 morning 4:7 44:20 morning's 73:24 Morton-jones 9:24 116:23, 25 118:12,14, 22,23,24 119:1,4,10, 12,16 120:5, 14 122:13,14, 16 123:9,20	125:6 most 12:25 13:5 14:7,20 27:4 105:2 131:11 moved 32:13, 14 moving 32:16 87:8 mr 4:6 5:1,5,7, 9,10,11,13, 14,15,16 7:5, 8,11 8:14,23 9:15 17:13, 15,16 18:20, 22 20:3,7 21:14 29:25 31:24 33:2 34:15 38:15 39:7 40:16 41:21 47:25 51:13,16,18 52:25 64:25 69:3 86:13 87:23 88:1,3, 5 89:8,12,16 90:22 91:22, 25 92:3 93:21,25 95:4,11 101:20,23,25 102:1,2,9,12, 15,18 106:5 107:22,23 108:19,21,24 109:15,21 113:1 118:6, 19,22 120:19, 23 122:24 123:2,6 124:25 136:12,13,14,	17 137:1,5, 17,20 139:15, 16,19,21,25 much 7:5 8:11 10:12 22:5 23:7 28:3 36:4,20,23,25 37:2 40:8 46:12 63:7 75:6 76:19 77:19 78:8 88:23 89:21 92:10 100:7 113:4,24 115:8,10 129:22 135:1 136:9 multidimensio nal 128:22 multiple 42:1 48:22 79:6 multiplication 130:20 multiplying 130:5 my 4:17 5:11, 21,23 6:16 8:16 9:19 10:5,18 12:2 13:10,14,18, 19 18:3,23 20:24 22:13 24:16 25:5,6 26:19 28:4,5, 7,11,16 29:10,13 31:14 32:1,5, 8,20,24 34:2, 12 35:13 37:17,18 39:5,12,19 40:4,5 41:7	42:3,12,17,21 43:3,7,9,23 44:6,18 45:4, 12 46:5,10 47:1,15,25 48:10,12 49:11,19 51:2 54:25 55:2, 23,24 61:17 62:14,18,19 63:11,16 66:5 68:1,5 70:8 71:20 73:8,23 76:13 78:9,10 79:22,25 80:3 83:23 84:10 86:10,13,18 87:21 88:16 89:13,16 90:13 91:1 92:13,23 95:21 97:6,7, 10 98:9 103:25 108:22 109:2 112:10 113:4, 8,11 114:3,9, 14,22 115:12 117:24,25 118:16 120:15 122:1, 10 123:7,20 125:16 126:11,15 127:5,19 132:13 133:4, 24 138:3,6,22 myself 25:1 32:21 39:6 49:23	N name 26:19 28:7 43:16 51:22 56:2 61:23 79:22 105:7,13 125:12 128:6 133:11 135:16 136:1 named 26:18 nap 113:15 natural 16:10 nature 19:20 40:11 Nazarene 96:6,15 101:15,17 103:23 137:12 139:2, 5,6,8,9,12 NBA 122:16 123:9 near 104:7 necessarily 55:10 75:22 77:23 necessary 20:12,13,18 need 39:14,24 40:3 69:21 75:7 76:25 95:1 122:24, 25 needed 39:10, 23 40:10 74:21 84:13 103:23 112:21
---	--	---	--	--

needs 29:2,11 83:11	11:7 13:23 20:11,20 24:4 28:2 29:7 30:12 31:3,22 34:10 35:2,14 36:24 37:8, 11,23 38:3 40:14 41:22 44:4 47:1 48:14 49:3 50:24 58:7 59:5,12,13 61:16 63:7 65:2 66:4,5, 17,18 67:7 68:4 69:13 70:14 71:16 80:22 81:9, 15,17,19 82:6 84:1,9 88:8, 13 89:14,18 93:25 95:12 99:20 100:18, 19 104:12,13, 23 106:16 109:17 115:23 116:17,22 122:6 124:4,6 125:19 126:1, 13 128:14 132:25 133:9 134:2,6 135:6,9,15,17 136:1,2,4 137:8 139:15	non-question 40:6	10 113:9 116:16,18 117:25 121:17 122:9 126:16 127:5, 15 131:7 133:4 134:25 135:11 139:13	13 97:12 113:11 118:15,17 121:15 133:9 138:10
negatives 131:13		nonverbal 7:21		number 5:3,4 6:7,19,25 8:3 11:8 15:24 31:16 32:17 42:10 46:20 60:15 61:3 63:18 97:15 104:2,5 110:12 115:22 116:11 118:16 119:6 127:15 128:19 129:11,16 132:7 134:23
neither 68:7, 24 121:25 122:7		nor 32:3 121:25	notation 120:11 122:12	
nervous 117:5		not 5:1,2,22 6:2 7:15 8:17, 25 9:7 10:8, 23 11:19,20 12:2 13:15,21 15:2,9 17:5 19:5,7 20:11, 12,18 22:11, 18 23:1,10 27:1,2,4 30:10,23 31:1,2,3 32:6 36:10,24 37:2,18,21 38:12,22 39:3,8,16 40:5 45:1,16 48:6,13,19 55:10 57:4, 11,15 63:2,8 67:7,21 68:20 69:1,14 72:21 73:6,9,14 74:5 77:16,17 79:12,20 80:3,6,22 81:12 82:18, 20 83:16,18, 23 84:1,11, 14,21,24 86:10 89:12 90:9 92:5,10 94:1,19 97:4 100:7,16,24 101:12 103:1 104:18 109:19 111:2,	note 24:16 29:2 35:9	
neurotic 73:8, 9			nothing 6:20 7:20 64:21 79:19 83:7 135:2,3,23 139:16	
never 21:16, 24 22:5 38:18,19 39:7 41:22,23,24 42:4 68:9,19, 20 69:13 75:3 79:9 94:18 125:21 126:22 127:4, 23 134:5 136:3			notice 71:22 73:6	
new 43:2,4,18 55:15 81:2 99:11,15,16, 21 119:24 127:11 130:21 131:18			noticed 73:10 112:22	numbered 7:2
Newton 78:20,23			November 76:1 80:12, 21,24 82:24 84:23 97:9	numbers 5:22 11:5 32:17 62:17 102:11
next 37:1 53:5 59:11 61:19 101:21 110:10			now 13:22 16:20 19:3 20:20 22:4 24:20,22 25:6 26:6,7,10,11 27:8,16 29:5, 14 30:4 35:5, 6 39:16 40:6, 12 45:14 48:25 50:23 52:13,20,23 53:8,20 54:9 55:18 56:16 59:12 76:1,3,	numerous 67:11
night 98:5				O
no 4:10 5:2 6:1,18 7:21 8:22 9:6,13, 14,16 10:4	nobody 41:5	noise 129:16, 21		object 8:15
	non- disclosure 122:17 123:10,15			objection 17:13,15 18:20 20:3 29:25 91:25 93:21,22 95:4 109:15
				obligations 122:16 123:9
				obsessive 73:8,9

obvious 43:15 44:11 93:11 122:8	11:16 12:2,7, 24 13:5,8,15 14:2,3,6,10, 12,14,18,20, 21,23,25 15:5,6,10,13, 19,21,22,24 16:2,7,11,13, 15,18,20,22, 23,24 17:20, 25 18:5,9 19:4,18,21, 22,23 20:1,5, 6,10,13,17,23 21:1,12,14, 19,21,22,23, 24 22:1,2,6,8, 19,20,21 23:22,23 24:5,8,12,17, 19,25 25:2,5, 9,10,13,16,21 26:6,12,21,25 27:7,10,14, 20,24 28:10, 13,18,20,23, 25 29:1,4,7,8, 9,10,11,17,20 30:1 31:2,7, 12,16,20,23 32:8,15,16,17 33:1,4 34:8, 15,18,20,24 35:9,10,15, 18,19 36:6,12 37:6,7,15,16, 20,22,25 38:4,6,13,17, 18,23,24 39:2,10,12, 18,24 40:1,4, 5,9,11,12,14, 20 41:3,6,7, 10,25 42:2,7,	10,12,13,17 43:4,7,16,18, 23 44:5,6,7, 10,13,15,16, 17,18,21 45:2,9,13 46:11,20 47:5,7,9 48:8, 15,20,21,22, 24 49:12,18, 21,22,23,24 50:2,6,8,12, 14,16,18,23, 25 51:2,6,8, 19,22 52:1,7, 9,21,25 54:10,13 55:6,14,20 56:2,13 57:19,22,23 60:4,15 61:3, 10,13,14,18, 19,25 62:16 63:11,13,18 64:1 65:1,18, 19 66:16 67:8,10,11,12 69:16,23 71:18,23 72:10 73:1,2, 8,14 74:12, 13,17,21 75:5,16 76:6, 13,24 77:10, 23,24,25 78:15,16,18, 19,20 79:16 80:3,7,14,17, 23 81:13 82:17,19,23 83:23 84:1, 14,21,24 85:8,16,18,19 86:9,16,20	87:1,7,8,13, 18,20 88:12, 25 89:11,15, 25 90:3,4,7, 10,12,13,15, 16 91:5,13 92:8,20,23 93:2,19 94:7, 9,15,23 95:2, 6,9,14,16,18, 25 96:2,18 97:11,15,16, 19,25 98:2,8, 15 99:1 100:2 102:10,11,12, 24 103:12,19, 21 104:2,5,9, 11,18 105:2, 6,7,9,11,13, 14 106:14,15 107:12 108:2, 22 109:7,8,13 110:4,8,12,22 111:2,7,13,22 112:3,16,19, 24 113:9,11, 16,21,22,23 114:1,4,6 115:1,7,9,11, 12,13,17,18, 22,24 116:7, 11,18,19 117:8,13 118:1,9,21 119:6,11,20, 22,23 120:8, 15 121:10,16 122:1,7,9,11 123:21 124:10,18 125:23 126:3, 4,18 127:14, 15,18 128:17, 19 129:6,11,	14,15,16,22 130:1,2,6,8, 13,19,21 131:8,16,18, 19,23,24 132:3,6,10,11 133:1,11 134:23 135:2, 11,14,18 136:2,3,21 137:6,7,11,21 138:1,16 139:2,10 off 7:19 70:4 78:1 81:3 123:2 132:2 137:1 139:18 offered 136:8 office 56:25 117:10 often 13:11 48:21 78:12 113:17 114:11,12 117:2 Okamoto 130:14 old 38:1 63:15,16 78:13 121:23 older 27:6 on 6:25 7:16, 23 10:14 13:12,18 21:17 22:2 24:9 26:18, 19,20 27:14 29:4,12 30:16,18 31:12 32:9 34:19,20,21
--	--	---	--	--

35:22 37:6 40:19 41:15 42:21 43:18 44:9 45:10, 11,13 46:3,8, 10,13,15,17 47:2,4,7,10, 16 49:8,17 50:7,9,14 52:15,21 53:5 54:12 55:13 56:5,25 59:7, 10,11,16 60:22 61:4, 12,13,15,19, 21,24 62:24 63:10,12,14 64:2 65:12 66:13 67:5 69:1,9,18,23 71:8 72:3 74:8,9,10 75:17,25 76:6,15,19 78:3,14,15 79:4,10,19,22 81:22 82:23 83:1,4,6,16 84:12,13 85:22 86:1 87:12,15,17, 18 88:10,21 89:13,16,25 91:2,3 92:11 93:12,13 96:14 97:8, 17,21 98:5, 14,23 99:22, 24 101:9 103:10,11,16, 20 107:18,20, 22 108:5,11, 22 109:2,25 110:4 111:9,	25 112:4 113:2,11,23 114:13 115:9, 11,13,16,22 116:19 117:2 118:6 119:13, 21,22 120:2, 16,18,19,24 121:9,22 122:1,3,10,22 123:13,14 124:25 125:1 128:17 129:16 133:3, 9,10 135:16 136:1 137:14, 17,18,25 once 75:23 77:9 one 4:16 6:21, 22 7:2,6 8:12, 14,16 10:17 12:11 13:23 15:5,6,10 16:15,18,20, 22 18:2,15 20:5 21:23 22:3 25:2 28:13 29:8 30:5 33:12 37:1,8,25 38:17 39:10, 12 40:1 41:7 42:10,11 43:12 44:20 46:9,16,18 47:2 48:20,24 50:9,17 51:20 54:12,25 55:15 61:12, 17 63:15,19, 24 64:4 65:4, 21 66:15,22	67:8,23 72:2, 5 74:12,17 76:15,17 79:1 81:22 82:9,21 83:9 88:8 89:16 91:3,5, 16 93:10 95:24 97:1,2 101:22 102:3 104:10,22 112:1,9,15 117:4,23 121:1,3,10,13 124:18,19,24 125:5 126:13 127:12 130:2 131:15 133:1, 17 136:1 137:9,21 138:9,10 one-page 47:15 ones 6:24 13:20 16:3 46:22 61:10, 13 67:9 82:2 only 9:6 28:9 34:12 35:13 38:20 46:16 49:7 50:17 55:23 63:12, 14 75:3 126:10,15 127:11 132:16 135:15 onto 43:3 onwards 87:5 open 73:21 99:17 opened 43:2	63:17 75:3,4 121:23 operate 75:7 operated 131:17 operation 122:6 order 5:24 7:3 26:5 119:13 130:20 ordering 139:19 ordinary 95:2, 6,11,12 organizing 96:2 orient 66:24 106:18 original 45:25 46:7 65:2 86:25 92:23 119:11 originally 45:11 48:7 69:7 originals 48:23 other 5:16 6:1,18,21 9:17 12:24 14:6,10,12,15 16:22 17:1 20:22 25:2 28:8 32:10 40:2 41:1 44:7 45:2,13 53:20 58:21 68:24 71:14 73:13 74:2	76:17 81:6 83:21 87:6,18 88:25 90:16 91:6 94:15,23 95:21,22 96:17,22 97:6,19 98:23 101:10 102:11 108:16 115:2 120:13 122:22 128:14 132:5 136:1 138:23 others 16:16 25:2 63:7 83:16 otherwise 57:10 ought 39:20 our 31:12 41:25 43:17 78:25 108:19 122:1 ourselves 66:24 out 4:18,22 6:11,24 10:20 16:6 38:2 44:10,21 48:12,16,20 68:8 69:16 70:4 71:21 75:10 78:17 84:19 85:18 86:9,14,18,20 88:6,13,19 89:19 97:12 109:8 114:2,5 117:4 123:25 132:2
--	--	---	---	--

outlier 16:23, 24 17:5 outside 7:22, 23 over 4:11,17 10:16 14:2 34:16,17 46:1 50:12 51:14 61:12,18 99:11,14,25 100:5 108:8, 16,17,25 110:3 111:22 125:11 128:1, 19 129:3 overall 86:24 101:12 overseeing 139:12 overview 110:11 111:10 own 42:12 43:5,18 78:9 122:10 owned 135:21 owner 135:14, 18 P p.m. 51:17 88:4 123:5 137:4 PADMANABH AN 5:1,7,10, 13,15 7:8 17:13,15 18:20 20:3 29:25 51:16	88:1 89:8 90:22 91:25 92:3 93:21 95:4 101:23 102:1 108:19 109:15 120:19 136:12,14 137:17 139:16,25 page 4:25 8:3 33:15,16 46:16,18 47:2 49:21 53:5 54:13 64:11 65:10 67:17 88:21 106:22 108:6 109:3, 25 110:4,15 111:13,24 112:1,4 120:25 121:10 126:4 pages 52:25 53:8 67:12 106:20 107:7 108:14,17 109:1,10,13, 18,19,23 110:8,22 111:2,21,22 pagination 111:8 paid 136:7,9 138:20 pain 113:24, 25 paper 22:2 57:23 papers 93:13	paragraph 8:3 12:15,20 31:5 33:9,17 35:19 38:4,6 39:11, 14 42:12,16 43:6 47:19 48:18 51:19 53:7 54:13 55:20,21,24 56:5 60:8,15, 18,24 66:25 71:18 72:4,8, 10,14,19,25 73:16 80:7, 14,16,17 85:2 88:21,24 89:5 95:18 105:14, 24 106:9 112:16 117:13 118:1 paragraphs 30:20 part 14:18 21:8 24:25 25:13 41:10 44:14 49:23 50:2,14 61:25 95:14 104:18 115:17 participate 104:4 particular 15:22 24:20 37:8 46:9,14, 17 47:2,13 66:15 104:4, 13 116:7 120:24 130:13,15,18 131:10,20 particularly 70:12 79:8	92:19 93:12 97:9 130:4 parts 16:15 29:4 34:15 40:14 48:21 120:8 past 16:19 90:16 94:10 paste 42:24 43:9 pasted 42:18 44:14 patent 5:3 10:24 11:2,4, 8,9,10,16 12:4,7 13:25 14:3,24 17:25 18:5,9 19:14 24:8,14 25:6, 19,22 26:3, 17,20 28:14, 18,21 30:2 31:12 36:14 39:1 40:25 41:2,10 55:3, 9,14,16 56:7, 10,18,19,25 57:4 78:11 79:2,3,8,10, 13 81:7,11 82:24 83:20 84:17,22 85:9 86:24 113:5 115:19 116:20 119:12 131:25 135:14,19,20, 22 patented 40:23 44:17 51:5 79:20	patenting 79:21 patents 84:10,11 Paul 4:1 5:2 11:13 85:7 102:12 people 14:21, 23 16:10 21:21,24 24:13 25:17 27:4 41:1 71:14 83:20 113:15 130:2 131:2,11 139:11 people's 93:10 per 93:20 percent 21:21,24 58:15 perhaps 39:13 period 32:9, 16 50:12 51:3 61:18 87:7,19 95:22 100:1,3 103:7 105:8 106:10 112:24 113:3 115:4,6,20 116:15 periods 112:19 person 8:12 19:20 38:7 42:14 49:6,16 58:21 59:5 65:3 94:19
---	--	--	---	---

95:2,12 135:11 personal 33:1,4 34:16, 17,20,24,25 49:22 73:1,2 personally 41:20 perspective 15:15 19:9 pertaining 30:11 philosophers 113:16 philosophical 27:10 philosophy 27:14 103:12 pick 137:15, 18 piece 22:2 89:25 90:3,4, 10,12 93:1 131:18 pieces 7:12 place 35:8 78:6 95:7 116:3 Plail 4:6 5:5,9, 11,14,16 7:5, 11 8:14 17:16 18:22 20:7 21:14 47:25 51:13,18 52:25 64:25 69:3 86:13 87:23 88:3,5 89:12,16 91:22 93:25	95:11 101:20, 25 102:2,9, 15,18 106:5 107:22,23 108:21,24 109:21 118:6 120:23 122:24 123:2, 6 124:25 136:13,17 137:1,5,20 139:15,19,21 plausible 45:3 please 4:12, 13 7:7 8:1 63:1 102:15 136:8 139:21 plural 58:5, 12,19 pm 61:17 65:4,7 Pm6 61:12 Poincare 113:15 point 4:16 36:10 39:11, 14,20 40:2 51:25 74:23, 24 82:5,25 83:25 114:24 118:21 128:12 pointed 48:11 71:21 88:19 points 86:7 polytechnical 105:10 portion 12:7 18:5,9 25:21 110:10	116:19 118:9 portions 122:11 positives 131:13 possibility 124:5 possible 66:8 76:5,8 91:19 93:14 possibly 138:8 practical 14:24 40:1,9 practicalities 75:5 practice 25:18 praying 9:21 precise 19:4 21:23 22:14 40:11 predict 94:10 prep 101:12 preparation 10:1 11:20 100:8,16,24 103:1,22 prepare 37:24 81:6 103:24 prepared 42:18 preparing 10:3 12:3 13:24 37:12, 20 38:12 99:25 100:2	127:10 136:18 present 35:12 37:18 92:13 preserved 42:8 presumably 11:24 14:11 22:4 63:21 79:10 90:9 126:18 135:21 presume 22:8 44:1 58:6 85:20 87:6 presuming 44:14 pretty 22:13 46:5 51:12 74:2 93:11 117:6 previous 61:10 84:9 previously 11:23 65:20 74:16 107:3 principle 94:21 principles 94:22 print 67:7,23 81:22 86:9 printed 4:22 6:24 67:6,7 88:6,13 89:19 133:7 printouts 5:18,19,20	priority 97:10 private 71:21 122:22 probabilities 130:5,20 131:23 probability 130:6,15,18, 21,24 131:14, 20 probably 35:5 37:9,17 47:12 50:8,17 54:23 58:15 65:21 71:11 77:5 91:9,11 94:9 104:22 119:21 129:13 130:8 132:3 133:7 problem 40:14 89:18 114:14 problems 48:20 procedures 84:12 process 81:8 processes 114:13 produce 98:7, 12 produced 105:25 product 115:14,15,17 products 135:7
---	---	--	---	---

program 41:17 51:11 77:15	pull 52:6 67:14 101:20 106:17	22:13,24 23:25 24:6 26:4 28:13 29:6 32:24 41:19 43:6 46:5 47:1 48:12 55:12 65:4 69:2 70:8,19,21,24 71:20 74:20 75:19 77:24 81:20 83:23 84:19 86:13, 18 90:13,15, 17,18 91:3,7, 16,18 92:15, 20,23 94:2,3, 20 98:11 111:25 112:10 113:4 123:7 136:11 137:20	46:23 47:7 50:7 61:9 62:1 67:12 69:2 89:5 92:5 93:6 97:4 117:1 135:1	74:19 78:14 85:25 86:6 89:5,8 90:6 94:4 98:6 106:13 107:20 113:7, 20,21 121:18 122:4 127:6, 9,11,13 129:5 133:24 134:25 139:17
programing 31:3	pupils 15:24 16:1,2			
programmer 31:1,4	purchases 91:17			
proofreader 73:7	purposes 37:20		R	
proofreading 73:6,10	push 44:15		range 25:5	
properly 86:7	pushing 114:25		rank 14:17	
proposed 56:6,14,17,18	put 10:13 14:24 23:12 24:10 25:11, 17 28:7 36:13 42:14 43:18 45:3 47:14 51:4 54:4 57:12 59:9 63:10,14 64:2 75:10 82:11, 16 87:2 97:4, 21 118:6 119:24 122:21 123:25 124:25 132:12		ranked 91:1	reading 36:16 42:6 43:15 52:23 76:3 89:7 134:22
proposing 57:11		questioning 9:4 95:16	rate 136:12, 13,14,21	readings 129:11
provide 102:16		questionnaire s 15:23	rather 15:23 19:21 39:20 41:4 66:15 70:5,18 76:4 86:4,6 121:1	reaffirm 26:7
provided 34:7 120:14		questions 4:12,17 8:16 25:4 105:18 121:21 139:15	ratio 129:17	real 32:24 45:23 49:20 84:25 89:16
provides 112:18		quick 32:24 45:23 49:20 51:14 80:5 84:25 87:24 89:16	react 115:3	reality 69:20
providing 85:8		quickly 60:6,9 115:1 122:4 137:2	reacted 15:6 16:19	realize 27:5
provisional 52:2 56:7,10, 11,17,19,24 79:3 82:24 84:17,22 85:9 86:21 113:5 116:20 119:12	putting 25:9 47:16 79:22 113:11 133:10		reaction 97:18 113:8	realized 38:22
public 122:22	Q		read 6:11,24 10:23 11:6, 19,20,23 12:18 13:7,10 18:8 24:20 26:19 27:17, 18,23,25 28:22 29:21 31:19 32:3 33:5 37:14,24 39:5,8,12 46:4 48:12 65:20 67:8,9 70:2,6 73:2	really 13:9 21:12 22:5 25:2,4 27:24, 25 29:15 36:7,21,24 37:13 38:21, 25 39:9,13 42:13 44:12 50:7,13,16,23 67:21 73:9 75:5,24 76:11,12,23 77:3,16 79:9 80:1 87:3 90:15 92:6, 10,14 94:18,
publish 123:25	query 24:19	quite 15:2 16:14 27:6,7, 16 28:19 37:3		
published 27:9 96:9	question 8:18 15:2 17:18 19:13,16 20:6			

19 97:5 114:14 115:7 132:2 reason 44:8 126:15 135:15 reasonable 36:15 115:4 rebuild 116:8 recalculate 74:25 recall 30:10 recap 6:4 received 120:4 recently 120:22 rechecked 82:8 recipient 29:17,20 recipients 89:1 reckon 13:22 recognize 13:20 97:23 98:4 120:21 recollection 26:25 31:14 32:1,6,8,20, 22 34:2,12 104:9 115:12 122:2 recollections 35:13 114:22 record 7:7,19, 23 8:6 28:20	35:9 40:15 43:20 44:5 49:1 59:20 63:11 68:11 72:2,3 100:19 103:3 123:2,7 125:11 126:24 137:2 139:18 recorded 74:5 records 82:23 red 48:10,16 49:5,9,15,18 65:15 69:10 120:16 126:8, 9,24 redlines 119:6 120:13 redlining 120:9 reduce 16:23, 24 refer 7:25 11:9 58:16 65:5 79:5 133:8 referred 6:7 57:16 105:5 referring 8:4 50:3 55:24 58:4 79:2 85:4 101:2 103:3 138:2 refinement 35:24 36:2,8, 11 refining 52:9 reflect 77:11	reflected 41:25 54:21 106:11 118:4 reflects 35:23 54:1,3 56:6 regard 124:13 regarding 85:8 reiterate 59:15 relate 95:23 relates 107:25 137:21 relating 6:16 70:8 92:25 128:19 relation 8:21 relationship 135:12,24 136:2 relevance 16:11,18 18:12,16,18 19:7 25:20 29:20,24 30:2,3 35:23, 24 42:18 48:13 66:18, 19 74:14,25 75:20 79:7 91:18 115:17 116:19 134:19 relevant 15:8, 9,11 16:16 17:12,22 18:6,10 20:22 85:19 93:4 94:6 133:5,6	remains 116:25 remark 69:24 remarking 68:23 remarriage 117:5 remember 11:24 12:1 13:16 14:13 15:4 19:1,2 20:14,23 21:5 23:1,3,10 24:21 26:6 27:10,18,19 28:1,25 29:5, 9,15 30:1,4,8 32:13,18 35:2 36:4,7,21,23, 25 37:3 40:12 43:14 45:17, 19 47:12 48:25 49:1,4, 14 50:24 53:17,20 54:9 66:8 68:14 71:13 76:10, 21 77:19 79:14 82:6 99:23 104:14, 15,21,23 117:11 126:22 127:9 132:3 138:5, 10,11,17 remembered 77:25 134:25 remembering 25:6 remind 108:17	remotely 7:12 renumbered 134:10 repeat 17:18 123:7 repeated 61:11 rephrase 17:1 replaced 63:11 replied 68:5 119:22 reply 66:19 replying 83:12 report 78:15 reporter 4:14 8:12 17:14 21:3 47:22 52:16 64:24 68:13,16 86:5 89:3,6 90:21 95:8 102:16 106:2 107:21 118:3 121:4,6 124:22 137:16 139:4, 7,19,24 reports 78:15 represent 17:11,21 56:15 112:25 reputation 80:1 request 8:12 require 90:3 required
---	---	--	--	---

37:16 resaved 42:9 48:22 resavings 79:6 responded 42:11 responding 48:17 50:21 65:24 response 49:19 133:25 responses 38:22 responsibilitie s 103:8 responsibility 25:22 responsible 24:7,15 25:8 restart 87:5 restarted 87:20,22 result 110:8 130:16,19 results 130:25 retrieved 38:1 reveal 122:20 review 8:23 9:2,15 43:10 68:3,25 69:19 71:2,10 82:23 reviewed 31:7,9 135:5, 7	revising 29:11 revision 29:3 revisions 100:16,24 101:11 102:25 112:21 113:2 rewrite 46:21 70:3 Rick 127:2,14, 22 128:8 132:2,13,16, 20 right 4:7,24, 25 6:13 8:20 10:13,21 12:6,21 13:6 14:1 18:1,3 20:7 22:13 26:2,18 30:10,13 34:9 45:23 46:8 47:17 49:25 54:10 55:19 56:11 60:5 61:1 62:10 64:6 65:10 67:1,3 69:3,8 71:5 80:15 81:24 85:10 87:23 88:14, 18 89:25 90:11 93:2 96:9 97:21 98:18,22 101:6,15 102:18 105:25 106:12 107:6, 9,13,19 108:6,8	109:1,3,8 110:5,8,10,25 111:3,9,15,22 120:2,21 125:10 126:4 128:6,12,20 130:11 133:20 134:12 137:1 right-hand 11:1 ring 113:13 road 4:11 8:15 role 103:5 root 129:15 132:6,7 rough 139:21, 25 rule 8:14 17:13,15 20:3 29:25 91:25 93:21,22 95:4 rules 4:11 run 96:24 97:12 98:17 S said 11:19 21:6 23:21,25 25:24 26:1 28:8 34:12 39:13,23 40:3 42:6 44:6,18 46:22 48:9,11 54:19,23 57:7 58:17 60:2 66:19 69:21 72:13,22	74:23 79:23 83:10,14 90:20,23 95:1 100:19 101:15 102:21 103:15 111:6 113:13,14,18 115:24 116:5 124:12 131:15 136:8 Salford 104:7 same 8:7 14:16 16:1,10 19:23 32:6 55:15 57:21 72:20 91:12, 13 94:9,20,22 104:8,24 105:11,12 109:19 112:2 117:1 136:21 sampled 16:4 sampling 15:17 save 47:4 63:22 84:4 saved 7:4 38:8 42:1,8 43:1,4,16 45:12 47:15 49:7,8,16 63:12 64:22, 25 65:3,18 82:2,17,19,20 83:10 84:6 106:25 118:14 119:25 125:15 126:15,17 128:10	133:18 saw 68:20 79:9 135:17 say 6:24 10:11,25 17:23 22:9 23:16 25:17 26:8 29:22 30:23 31:7 34:13 35:13, 21 37:1 38:10,24 39:22 42:16 43:22 44:19 45:23 48:23 49:21 50:2 51:6,7 52:8, 17 53:8 55:12 56:5 58:15, 19,23 64:5 65:19 68:14 69:18,25 70:17 71:11, 12,14 72:11, 15 73:7 76:24 77:15,21 79:1 81:19 83:2 91:2 92:5 109:18,19 111:16 113:8, 16 114:14,17 117:19 121:20 122:19 129:14 saying 19:7 20:17 29:12 32:1 37:5 44:13 52:11 57:4 68:18 74:22 77:7,9 124:4
--	--	---	--	---

says 5:2 11:1 12:23 14:6 18:12,15,23 19:16,24 21:17 25:20 26:15 28:22, 23 29:16,19 32:2,7,20 34:2,5 38:6 40:2 43:7 46:20 54:13, 14 57:23 58:22 64:6,16 68:2 72:10, 14,25 85:7 86:6 106:1,3 107:4 108:1 109:2,7 113:23 115:10,12 117:18 124:23 127:10 137:19,25 scale 97:19 113:23 115:6, 9 school 15:21 schools 15:24 Scibel 96:2 science 27:15 30:24,25 78:18,21 103:12,13 113:11,16 score 134:19 scratch 103:24 screen 10:14, 18 18:3 28:16 30:16 46:3	47:25 54:25 55:2,13 64:2 65:12 73:23 85:22 88:16 89:11,15 97:22 107:20 108:19,22 109:2 117:24 118:7 120:18, 19 124:25 125:1 133:10 scripts 103:21 scroll 12:9 60:14 83:4 85:13 107:11 se 93:20 seal 22:2 Search 124:21,23 sec 125:5 second 10:17 18:2 33:12,13 54:25 66:22 72:2,20,23,25 96:2 104:24 112:15 section 17:24 18:2 43:9,16 48:14 54:12 68:3 69:19 70:1 71:2 90:2 107:11, 12,13,15,25 108:2,5 110:1,4,7,11 111:9 115:11 sections 110:7 112:4 see 7:23	10:18,21 11:2,12,14 13:2 14:6 17:2 18:7,12, 14,15 19:5 21:17 28:16, 18 29:16 30:16 35:25 36:25 38:6 43:10 46:2 47:20 51:22 53:3,7,10,25 58:2 59:12 60:11,15 61:10 63:3 64:14 65:12 66:25 67:17 72:23 76:11 77:2 85:4 86:3,11 88:22 89:21 90:6 106:19 107:6, 12 108:5,11, 14,25 110:3, 10,13,17,22 111:7 112:18, 21 117:1,17 118:5,11,13, 15 119:9 126:7 127:18, 21 130:22 134:10 seeing 89:14 seeking 33:25 35:4,6 seem 30:4 44:22 93:11 97:17 120:16 129:19 133:2, 3 134:20 seems 33:22 49:9,15 53:17	76:3 81:5 134:22 seen 8:25 9:6 62:11 87:15 semester 104:10,24 105:4 138:1, 2,9,12,13 semesters 138:3,7 send 7:9 44:21 45:16 119:11,15 122:9 129:23 sender 29:17, 20 sending 57:24 58:19, 24 60:3 126:18 136:20 sense 17:7 28:7 56:13 62:3 129:19 sensible 77:20 sent 29:3 45:9,15 46:12 58:8,13 59:24 60:4 61:21,22 62:2 66:8 78:1 83:13, 19,21 115:2 119:21 122:7 124:9 125:23, 24,25 126:13, 17 127:8,24 133:25 134:23 sentence	43:22 44:24 56:16 72:10, 23,25 separate 63:14 separately 57:25 58:24, 25 59:1,5,13, 14 September 31:9 85:1 87:4 96:24 98:17,21,25 101:6,13 104:10 105:21 106:11 109:12,21 112:25 113:6 115:21 116:12,21 120:2,5 138:8,13,15, 19 serial 11:8 series 4:12 sessional 96:4,14 set 12:24 14:6,10,12 20:1 21:8 22:19,21 61:19 76:5,6 several 67:9 75:8 severe 113:23 share 12:13 18:3 47:25 73:23 88:16 117:24 133:5
---	---	---	--	---

138:23 shared 117:10 sharing 54:25 55:2 85:22 102:18 shed 41:6 sheet 6:22,23 7:6 28:22 33:23 34:7 85:14 102:10 106:22 109:3 125:10 128:4 133:12 shortening 99:2 shortly 119:17 should 13:13 29:13 51:14 52:12,18 66:18,20 71:23 72:11, 15,21 73:1 78:4 87:24 113:14 114:19 127:17 show 11:25 57:10 122:21 123:17 124:4, 6,8 showed 88:17 showing 28:24 shown 19:18 26:21 54:15, 17,22 55:18 shows	118:18,25 119:3 shut 99:16,18, 20 side 24:8,9 40:20 sign 122:19 123:15 124:3 139:17 signal 129:16, 21 signature 22:2 signed 71:22 73:5 significant 17:6 significantly 19:11 signifies 11:7 similar 12:25 13:5 14:7,15, 17 16:3,20 28:25 43:6 78:11 96:17, 22 100:15,21 101:10,16,18, 21 102:7,21 129:6 similarity 16:9 simple 22:13 79:25 137:20 simply 6:1 53:12 109:18 131:13 since 9:7 12:17 20:13	22:14 23:5 27:21 41:5 65:24 single 6:23 32:21 37:25 115:13 129:7, 12 sitting 114:1, 4 situations 94:12 six 138:11 size 19:21 74:21 89:11, 15 skill 95:2,6, 11,12 116:6 skilled 95:12 skim 86:3,6 slightly 43:21 slip 106:22 109:3 slower 6:14 slowly 52:17 small 31:2 46:20 85:25 89:5,9 98:7 107:21 social 16:2 software 40:19 43:11 Softwareimple mentationcom ment 47:21,24 solve 75:16 some 4:11 5:18,20 14:2,	21 15:2,13 16:14,15 17:4 20:22 25:1 27:17 28:25 29:1,4,7,8,11 36:6 38:23,24 39:2,4,10,11 40:2,14 42:2 43:4,18 44:21 45:4,13 46:11,22 47:5 48:8 49:8,12 52:1 56:9 67:11 73:24 74:5 76:6 78:17,19 81:2 82:17,19 83:6 85:25 86:9 87:1,13 92:8 93:4 94:15,23 97:25 100:7, 15,24 101:8, 11,12 102:25 104:22 105:10,18 112:3,18 114:18 120:7 123:3 124:14 126:6,12 127:6 129:3 130:13 131:18 138:6 somebody 36:14 135:21 Somecommen tsondocumen ts 128:6 somehow 70:3 someone 9:21 14:15 33:19 34:1	35:10 45:3 68:25 69:18 70:1 77:23 94:10 130:8, 24 134:3 someone's 16:7 something 20:11,12,18 21:25 22:11 40:25 41:2 45:7 48:9 49:10,17 58:13 65:20 75:4 79:14 80:25 87:14 88:10 89:11 91:14,23 93:15 95:2 96:25 99:8 113:19 123:10,13 129:20,23 132:6 133:3 136:15 138:17 sometimes 24:19 27:23 35:7 39:5 40:10 42:12 45:10 78:12 99:25 somewhere 67:6 125:2 131:8 132:4 133:7 135:16 son 12:2 13:19 20:24 28:4,6 69:25 78:10 97:7 116:5 123:20
---	--	--	--	--

soon 127:7	7,11	129:15 132:6	131:6,24 132:12 135:2	23 127:11 135:1
sorry 6:21 9:2,25 10:4 17:2 20:16 21:3,5 22:6 23:16,19 33:12 34:4 37:23 43:19 51:7 52:17 54:16 55:12, 24 56:12,13 57:6 62:8,20 67:23 68:13, 17 69:4 70:20 72:7,12 73:22 77:8 80:3,5, 16,19 84:18, 19,20 86:13 89:4,17 90:4, 24 92:14,19 93:25 98:9 100:19 101:17 105:1 109:6,17 111:6 112:15 114:3 118:15, 16,17 121:5 123:1 125:14 126:6 127:19 128:16 130:17 131:5 132:23 134:2 138:11	South 104:7	ST301 137:25	Sterling 64:7 135:12,23,25	subject 11:16
	space 27:21 75:6 76:19 124:24	stage 38:3 105:10	still 8:17 17:16 18:21 41:5,6 51:25 58:17 92:1 99:21 121:20	submission 81:13
	spans 53:7 54:13	stand 75:10		submit 19:20 81:11
	spare 103:25	start 30:18 87:12,16 108:2	stipulate 5:5, 8	submitted 6:5
	speak 8:12,20 9:9,13,17,23 10:2 82:14	started 87:5,9 138:7	stop 52:19 54:25 64:20	submitting 12:4
	special 20:1 22:19	starting 50:8, 13 123:12	storage 75:6	substance 137:7
	specific 12:7 17:11 28:10 39:19 93:6 130:24	stated 32:23	store 12:23	such 35:8 38:13 40:3 93:9 112:19
	specifically 8:16 10:8 115:16 129:15	statement 26:2 57:1 113:7,22 126:21	stored 75:3	suggest 68:2 132:1
	spelled 61:23	statements 34:14 113:21	straightforward 46:5	suggested 52:12,17 54:20 55:15 120:25 121:2, 6,9,12,14 122:14 125:7 129:24
	spend 12:2 113:4	States 32:15, 16	strike 20:8 72:12 82:22	suggesting 53:15 54:3 75:12,15 83:18
	spending 69:1 114:6	statistical 15:14,25 16:4 19:6,18,23 103:10,15 132:4	structure 101:18	suggestion 70:17,25 71:3 120:24 121:16,17 122:4,15 127:16
	spent 69:17 113:1 114:9, 15 116:19 136:19	statistically 17:5,23	stuck 43:17	suggestions 53:21 55:16 75:8,18 120:17 129:3 132:23
	spite 73:8	statistician 13:24 38:23 58:16 117:9 124:15 126:3	student 99:6 100:9	
	split 138:6	statisticians 122:10	students 100:12 103:22 138:23	
sort 50:16 76:6 90:12 115:7 129:14 130:7	spoke 10:5 80:5	statistics 15:17 19:22 50:22 93:6 104:20,22	studies 52:18	
Sound 4:20			studying 27:15	
sounds 39:18 98:22 129:13 130:7	spoken 9:7 10:8		stuff 48:21 53:18 63:14 74:11 81:6 87:8 97:4,16 100:2 103:19,	
source 135:5,	square			

suggests 129:15	surmising 49:10	92:4,8	136:12	testimony 137:7
summary 57:23	survey 15:21	T	ten 88:3 116:12	tests 131:7
summer 87:1 98:20 101:5 115:13	suspected 130:13	take 15:18,20, 21 24:10 44:20 51:14 67:15 87:24 113:14 114:11 122:15,25 130:15 131:3, 4,12 132:12 139:25	ten-years 35:11	text 45:24 46:6,7 48:4 49:2,5,9,12, 15 65:15 120:13 122:11 133:22,24
sunny 38:19	switch 30:13, 15 35:17 46:1 62:24	taken 44:9 51:17 87:3 88:4 123:5 137:4	tend 86:3,6 131:11	than 6:21 9:17 15:23 17:9 39:17 44:8 46:11 66:15 76:4 86:4,6 97:2 104:12 113:22 129:7 132:7 136:1
supplemental 33:13	symbols 121:11,12	taking 25:8 41:15 132:6	term 13:16 22:8 24:20 29:12 33:23 34:7 39:3 48:13 66:15 90:7 100:2 138:10	Thank 5:9 6:4 7:5 8:9,11 10:12 73:15 118:24 120:20 139:7
support 115:14,15	symptoms 131:2	talk 22:3 52:21	terminology 14:20 25:13 39:25	thanksgiving 80:25 99:12, 13,14
suppose 9:13 74:24 76:5 77:20 92:22	system 12:23 13:4 15:1,11 16:21 18:6, 10,18 19:10, 15 20:2,8 21:1,7,10,12 23:9,13,14 24:12 25:9,16 40:23 41:4,14 47:15 75:7 76:6,12,18 78:6 82:18 85:19 90:25 91:4,12,21 92:9 94:6 97:20	talking 18:5 39:18 68:15 80:24 86:22 89:1	terms 13:10, 12 14:2,21,22 16:5,7 20:13 21:10 22:1 23:23 24:5, 13,18,21 25:7,10,15 26:6 27:20 30:2,3 36:6,9, 12,20 39:10 50:24 52:9 96:18 111:7 114:19 115:24 132:4	that's 5:6,8 9:13 16:17 17:7,9 22:8 26:21 29:6 32:23 33:12 34:25 35:22 40:5 42:23 44:6 47:5 48:9 52:3 55:7,8 57:13 65:22 66:4,9, 12,16 70:7, 17,23 73:3 74:15 75:7,19 76:7,8 80:3 81:19 85:10
supposed 35:22	System-1 75:11	targeting 93:15	terrifically 127:15	
supposing 90:25	System-2 75:11	taught 104:9 130:3 137:25	test 130:15,19 131:3,4,9,12, 22	
sure 6:11 13:11,21 15:2 33:6 38:5 45:1,16 48:6, 19 51:15,20 60:7 63:2 67:22 69:2 70:1,11 74:2 77:16,17 79:12 80:8 83:5,16 84:6 88:1,2 89:12 92:5 95:15 97:4 99:5 105:16 108:4 116:10 117:15,17 123:19 130:23	System-3 75:11	teaching 95:24 98:24 99:24 104:21	testified 23:12	
surmise 42:23	System-4 75:11	team 77:9	testifies 4:4	
	systems 28:8, 11 38:1 75:13,15,19, 22 77:10 91:7	technical 20:10		
		tell 13:15 23:5 35:7 37:5,10 79:14 114:9, 10 124:19		

86:11 87:19 88:18,23 90:13 91:3,7, 18 93:14 97:13 99:2,3 101:1 103:18 105:3 107:4 108:1 109:24 110:9 115:15 116:1 117:11, 19 118:20 120:3,21 121:14 128:13 129:24 134:4, 5,8,11,17 thee 58:11 them 4:13 6:2, 11 7:2 13:22 14:3 15:22 16:16 24:10, 11,24,25 25:9 27:23 28:1 29:2 35:9 36:3,16,17,24 37:15 39:12 41:16 42:10, 24 43:3 57:8, 9 60:4 61:11 62:2,4 64:2 65:19 67:11 76:4 77:18 82:11,15,16, 19 84:4 87:11,13 105:2 114:8, 23 120:21 121:11 124:16 126:17 134:10,11 136:20	themselves 15:5 themselves 16:19 36:11 then 7:25 8:14 9:13,23 16:8 18:23 19:17, 25 23:21,24 24:1,14,24 26:1,3,9,12, 15 27:18 28:11 29:19 34:24 37:10 38:10 39:3 40:25 41:15 42:21 43:4 45:12 52:15 53:5 54:19,23 59:15 60:14, 22 61:15,18, 21 64:22 69:22 72:7,18 76:25 81:1 82:15 83:17 87:2,11 95:14 96:8 97:13 98:20 100:9 101:5 102:3,9 106:7,18 107:15,18 108:2,5 110:16,19 111:13 114:21 117:3 119:25 120:7 128:12 129:20 130:14 132:8 133:11 134:21 138:16 139:22 theological 27:11 96:6,15	101:15 104:2 137:12 theology 93:12,13 theory 15:25 92:5 103:11, 16 127:17,22 there's 4:16 20:10 31:16 46:20 47:9 50:7 53:3,5, 23 54:19 61:19 64:20, 21 65:19 67:10,17 71:19 79:6 83:8 100:9 105:19 107:13 110:12 111:13,19,24 121:9 126:13 132:8 these 5:18 6:16 7:25 14:2,20 22:19 26:6 34:17 42:8 45:6 50:6,8 53:19 54:1 56:9 61:3 63:10 65:18 69:18 75:19 77:10 83:18 87:21 89:19 101:23 110:15 112:19 113:21 thing 8:7 14:18 32:6 37:8 42:14 43:16 51:4	62:17 72:20 78:5 79:1,6 88:15 89:16 97:16 99:14 109:20 114:25 115:11 121:12 124:12 126:13 129:14 130:8 131:18 133:4 things 25:14 32:10 37:1,5, 7 38:23 40:20 45:13 59:9 64:17 69:18 75:2 82:17 87:4 93:16 97:6 98:23 115:24 131:9 139:12 think 21:16, 21,24 22:11 27:4,23,25 35:21 36:18 37:17 38:24 39:14 41:19, 20 43:20 44:2,7 45:2 46:22 48:8,10 49:5,6,7 50:8 53:20 55:15 57:1,24 58:5, 9,12,17,20 60:1 62:18 63:15 65:6, 14,16 66:4 67:6 68:2 69:15 70:2 71:12 72:20 74:20 75:8,9 77:3 78:2	80:24 82:2,8, 20 86:13 88:6,17,23 90:15 92:11, 15 99:1 100:13 113:18 117:16 119:20 124:19 125:2 126:10,12 127:1 130:8 132:14 133:1, 17,24 134:4 136:15 137:21 138:18 thinking 27:14 37:8 51:1 77:23 79:8,9 97:8, 10 113:17 114:7,13 126:18 Third 96:4 this 7:11 10:1, 3,8,21,24 11:4,9,16,21 12:7,13,15, 20,25 13:4,15 14:23 15:14 17:25 18:5,9 19:4,14 20:7 23:8 25:19,21 26:2,7,17,20 28:18,20,24 29:2,11,12,22 30:2,5 33:13, 22 35:21 36:7 37:12,21 38:25 39:14, 15,16,21 40:4,9,14,23
---	--	---	---	--

41:19 42:24 43:4,20,22,25 44:6,7,24 46:2,3,9,12, 14,18 47:2, 13,15 48:2,4, 10,21 49:2,18 50:16,19 51:6,7,10,22, 25 52:8,13, 19,25 53:7,18 54:10,13,14, 16,21 56:2 57:1,19,22,23 59:24 60:11 61:11 64:4,14 65:4,11,13,15 67:15,23 68:3 69:5,7,14,19, 21,22 70:8 71:4 72:5 73:18,24 74:1,7,11,13, 18,23 75:25 76:24 79:16 80:9,14 81:23 82:4,20 83:2, 4,8,10,11,16 85:7,12,16,18 86:8,14,18,20 87:16,20 88:20,21 89:20 90:2 91:9,13 95:14,22 97:4,23 98:1, 4 102:2,3 104:5 105:23 106:19 107:13 108:5, 11,16,17 110:22 112:22 113:2, 7,20 114:12,	24 115:20 116:6 118:18, 25 119:17 120:4 121:21, 22,23 122:10 123:13,15 124:11 125:1, 3,8,11 126:4, 12 127:10 128:1,3,10,17 132:5,25 133:6,11,22 134:2,12,16, 19,22,25 137:21 those 6:9 20:5 22:10 23:23 27:10,22 29:1 31:10 34:8 39:8 53:7 57:4 68:2,6, 23 81:4 86:9 93:16 96:11 97:6,11 99:1 103:21 104:19,20 106:11,14 111:2,22 112:21 113:9 114:21 120:7 128:25 131:23 135:4 though 55:7 98:24 130:7 138:6 thought 22:5 28:10 39:24 51:5 88:10 91:11 92:10, 16,21 94:12, 18 113:20,21 115:4 139:13	thoughts 40:4 73:24 86:1 87:21 three 5:19 6:4 79:3 99:8 100:14 104:17,22 109:13,18,19, 22 111:19,21 113:2 through 7:17 12:12 14:3 17:25 18:5 30:20 37:14, 21 38:20,21 42:2 47:11 60:14,22 62:15,23 69:17 73:11 74:18 88:20 94:18 98:17, 21 100:10 101:22 102:19,23,24, 25 104:10 105:21 106:10 107:11 110:7, 15 112:25 114:15 117:2, 5 119:6 136:20 138:8 throughout 67:12 103:7 105:8 119:7 throwing 132:2 Thursday 139:22 till 48:14 Tim 132:24	133:16,23 134:3 Timcomments 15-5-2005 133:14 time 6:16 8:13,15 11:9, 25 12:3 13:8, 17 14:14 15:2 19:3 20:21 23:7 24:16, 18,24 25:12 26:9 27:12 28:3 32:9 33:20,24 35:2,11 38:11 39:21 42:11 43:15 50:12, 23,25 51:2,25 54:3,8 61:6, 16 62:3 68:5 69:1 74:18 75:6 76:11 77:24 79:4 81:1,3,23 85:18 86:14, 20 91:8 92:18,19 95:22 97:6, 11,18,20 98:23 99:17 101:7 103:22, 25 104:8 112:19,24 113:3,4 114:6 115:2,4,6,9 116:15,19,24 117:3,7,11 122:8 123:21 124:15 127:14 131:18 136:5, 19 138:5,22	139:11 times 32:17, 18 48:22 53:21 58:10 67:9 81:4 97:15 121:3, 13 timing 115:24 title 6:25 60:15 124:20 to 4:11,12,13 6:4,7,16,24 7:2,7,9,18,25 8:4,6,12,15, 16,17,21 9:7, 13,17 10:2,5, 8,13,20 11:9, 25 12:6,7,9, 11,12,17,25 13:5,15,19 14:2,3,7,15, 16,17,22,23, 24,25 15:7,23 16:2,3,6,7,9, 10,11,16,19, 23,25 17:3,8, 12,17,22,24 18:3,4 19:6, 20 20:13,18 21:2,11,12, 16,17,23,24 22:5,9,11,12, 14,19,21 23:13,17 24:5,10,11,13 25:3,5,14,17, 19 26:4,5,6,7 27:7,17 28:7, 8,9,11,13,25 29:3,17,20, 22,23 30:5,6, 11,13,15,23
--	---	---	---	---

31:5 32:13, 14,16,24 33:22,23 34:7,13 35:10,17,19, 22,23,24 36:2,7,8,11, 12,16,17,22, 24,25 37:13, 18,20,22,24 38:4,24 39:1, 2,3,10,11,14, 20,23,24 40:1,4,10,12, 23,24 41:1,3, 10,12,13,20 42:3,11,13,23 43:2,8,21,22 44:3,8,10,15, 20,23 45:3,7, 8,9,14,15,16, 22,23,24 46:1,21,25 47:8,17 48:6 49:9,20 50:3, 9,10,20 51:19,23 52:1,4,8,12, 15,18,21,22, 25 53:8,21 54:2,4,14,20, 25 55:1,5,20, 23,24 56:2,6, 9,13,14,15,21 57:7,14,16, 19,21,25 58:4,5,6,7,13, 16,19,20,23, 24 59:5,7,8,9, 10,13,15,16, 17,18,24 60:3,4,24 61:10,18 62:22,24,25	63:6,10,14, 17,18,22 64:11 65:5, 10,16,24 66:21,24 67:3,17 68:3, 11,13,25 69:15,16,18, 19,21,23,24, 25 70:1,6,8, 23 71:1,3,4,8, 10,14,18,21 73:7,8,16,18 74:7,21 75:7, 10,13,20 76:3,16,20,25 77:10,11,13, 14,15,16,21 78:1,6,11,17 79:1,2,5,13, 17,18 80:6,7, 23 81:6,10, 12,14,19 83:1,7,12,13, 20,21,22,24 84:15,17,21, 25 85:2,4,8, 20 86:3,6,11, 18 87:2,5,8,9, 11,16 88:6, 17,20 89:4,7, 12,15 90:3,4, 5,6,15,16 91:13,14 92:1,11,18, 20,21,23,25 93:2,4,14,19 94:7,8,10,11 95:1,3,14,16, 18,23 96:17, 22,24 97:8,9, 13,17,18,21 98:2,9,15,20, 25 99:7,22	100:7,10,15, 21 101:2,5, 10,20 102:16 103:3,5,17,24 104:1,3,7,8, 11 105:1,5,7, 14,18 106:17, 18 107:12,25 108:8,16,17 109:13,25 110:3,10,19, 25 111:1,10 112:4,10,13, 21,24,25 113:7,8,14,23 114:11,17,18, 25 115:12,14, 15,18,20 116:6,8,9,10, 17,22 117:1, 13,16 118:6, 9,16 119:12, 13,15 120:1, 16 121:2,6, 13,23 122:1, 7,8,9,19,20, 21,25 123:12, 15,17,18,25 124:1,3,4,6,8, 14,17 125:10, 24,25 126:6, 13,17,19 127:8 128:1, 3,12,19 129:4,7,11, 16,18,19,20, 21 130:5,12, 20 131:3,11, 16 132:1,3,5, 17,19,24 133:2,3,8,25 134:7,11,14, 18,21,24 135:2,19	136:10 137:9, 14,19,21 138:2,4,8,13, 15,23 today 8:21 67:9 73:11 136:6 today's 9:18 together 17:3 42:15 78:3 87:2,17 97:14 told 10:9 12:3 35:2,3,4 72:22 79:20, 22 83:10 104:12 123:24 127:4 Tony 9:23 116:23,25 123:19,20 124:2 125:6 too 6:13 80:5 85:25 89:9 114:3 121:4 127:19 130:17 131:5 took 54:4 112:4 114:10, 18 top 28:22 29:16 49:21 57:22 107:12 132:3 total 79:24 Trans- 126:20 transcript 8:24 9:3 139:20,22 transfer 78:7	transferable 94:11 transforms 129:1 translate 36:16 Transmail 14:25 21:1,7 24:12 25:16 41:3,11 66:19 70:13 87:7,18 90:8,25 93:7 97:20 115:14, 15,17 119:17, 18 transmittal 25:9 traveling 104:6 trick 98:9 tricky 78:23 tried 71:14 116:9 trouble 131:4, 6,7 true 17:9 23:20,24 26:10,11,12 54:23 trust 79:24 trusted 12:4 28:6 truth 23:6 truthful 24:2 try 4:13 14:5 15:23 36:24 78:16 89:10, 15,16 98:9
---	--	--	---	---

108:24 trying 25:19 26:4 44:15 56:13 59:8 69:15 70:6,23 80:5 89:4 90:15 92:11 115:18 132:3 turkeys 81:1 Turner 127:2, 15,22 128:8 132:2,13,17, 20 turning 41:16 51:10 tweak 36:19 tweaked 94:8 95:1 Twenty-two 105:16 Twitter 135:5 two 7:1 16:25 17:9 19:13 27:8 30:3 47:9 53:7 61:12 75:4 78:20 86:7 91:4 96:8 99:8 100:14 110:22 111:2, 22 117:4 121:10 137:22 type 63:16 90:13 93:19 94:7 types 16:20 22:20 34:8 37:7	typing 114:2, 5 typographical 73:13 U U.S. 56:25 UCLAN 105:3, 5 Uh-huh 100:23 109:11 111:18 118:10 119:8 120:12 126:5 UI 70:10 UK 38:19 41:23 ultimately 42:14 Um 56:11 umpteen 40:7 under 25:22 122:16 123:9 undergraduate e 96:14 138:25 underlying 74:20 understand 4:16,22 10:4 11:4,17 20:9 22:7 38:17 39:16,22 40:21 56:21 95:6,13 130:22 132:1, 21 133:2	135:18 understandab le 39:2 understandin g 21:14 36:9 42:17 43:7,23 44:6,18 45:5 53:19 54:1 76:12 understood 14:1,22 23:7 24:13,25 25:14 36:14 38:25 46:23 50:18 73:12 undertaking 113:16 unfair 39:13 unfortunately 48:23 unhighlight 12:17 unimportant 15:8 United 32:15, 16 universities 96:17,23 101:19 138:6 university 95:24 98:2 99:15,18 103:5,9 105:6,7,9 116:25 117:8 126:2 130:2 138:3 139:3, 10,11 unkind 39:18	unless 8:16 44:22 49:8 63:21 unlike 50:23 unlikely 58:13 63:6 66:4 until 50:14 115:6 134:25 up 7:16 21:17 32:14,16 43:2 44:20 52:6 54:4,24 55:23 63:17 65:10, 11 67:14 73:21 78:14 87:3 89:24 97:21 101:20 104:6 106:17 107:11 110:7 118:6 122:5, 15 124:12 132:12 135:22 137:15,19 updating 83:8 upper 11:1 us 5:3 11:2,4 12:6,11 33:10 39:3 45:9,22 84:7 106:18 115:5 122:1,7 use 14:22,24 20:1 22:8 23:8 24:19 59:8 66:15 75:22 76:4 129:10 130:4, 9,20 131:17, 25 used 7:18	15:7 18:16,18 19:8,15 21:2 23:13,25 24:11 25:3,20 27:7 36:13 53:22 65:20 90:7 94:13, 14,22 101:16 121:1 124:16 125:6 useful 16:17 130:8 132:5 user 12:24,25 13:6 14:7,15 15:5 17:3,4,6, 12,22 70:8, 10,12,16,22 76:7,18 90:16 129:12 user's 13:1 14:8 90:11 129:7 users 12:24 14:6,10,12,16 16:25 17:20 53:13 89:25 90:16 129:6, 16 uses 55:16 using 15:13 16:22 18:6,9 55:9 91:12 128:20 129:3, 6,15 130:4 usually 15:18 45:9 99:9 V vacation 99:6
--	--	---	--	--

vague 116:10, 14,16	visual 7:22	23 13:8	we're 7:11,17	19,22 47:4,10
valid 22:8	W	14:13,14	8:7 26:17	50:21,23
values 52:12	wait 40:25	15:16 23:8,11	48:4 64:12	51:12 54:23
various 13:11	wake 44:20	30:1 35:7	71:25 72:3	55:7,18 57:1,
29:4 42:1	walk 70:4	36:3,5 38:4,	74:22 78:12	6 58:10,25
81:6 103:17	113:18	25 39:14,23,	79:21 80:24	59:16 61:24
120:17	wall 116:8	24 40:10 41:4	103:3 116:10	62:14,19
Ventures	want 14:2	42:1,6,7,9	we've 51:13	63:15 65:6
34:6,23	16:6 62:22	45:5,21 47:17	65:1 87:23	66:17 67:21
verbal 4:14	64:3 83:7	51:14,19	101:10	68:20 69:9,15
41:24	98:15 130:12	52:25 53:12	111:19,21	72:3 74:23
verify 32:2,7,	132:1 137:14,	55:20 57:14,	webpage	75:18 77:12,
21,23 34:13	19	16,20 60:5,8,	94:14,23	13 79:5 80:22
58:8	wanted 38:25	11,14,15,16	Wednesday	82:12 83:13,
version 46:14	39:1 41:3,13	61:16 64:11	139:22	14,21 85:20
57:19 127:13	43:21 45:21	65:10 66:21,	week 61:16	86:22,24,25
versions 47:9	69:19 76:7	24 67:14,17	97:1,3 99:16,	87:7 90:6,9,
121:16	87:5 99:22	68:19 72:7	20 100:14	12,13,17 93:3
very 9:23	116:7 138:22	74:16,23	114:10	98:5,6 99:11
10:12 13:9,21	wanting 24:13	77:21 78:2,25	weekly 117:2	103:10,19
16:17 27:4,16	40:23	80:7,23 81:1,	weeks 99:8	104:7,12,16
28:3,10 31:2	wants 68:25	2,21 86:24	100:4,14	105:1,10
37:2 44:22	water 123:3	87:5,9,10,11,	121:22	111:6,25
63:7,15,16	way 14:17	16,20,22,24	124:12	113:7 114:12
69:16 73:6	26:4 36:7,12	90:7,8 97:14,	weigh 129:4	115:7 116:16
91:7 98:6	37:15 39:4,	15 99:12,13,	weight 129:10	117:17,18
114:8,12	20,22 44:15	25 100:1,12,	weighted	119:17 121:8
115:8 127:7	49:18 53:21	13 102:2,10	129:10	122:19
132:7 133:2	71:19 76:17	107:2,11,12	well 9:23 11:6	123:10,22
VICTOR 4:1	77:4 87:14	108:16,25	13:7 14:13	126:10,18
view 28:12	93:4 100:12	109:18,25	15:4,5,16	129:18,22
views 78:22	124:13	110:1,10,25	16:25 20:25	131:4 132:25
virtually	131:24	112:24 115:3,	25:2 26:21,22	133:3 136:1
99:18	132:11,15	8 117:1,6,7,	27:6 29:12	138:3
visited 32:17,	ways 36:6	13,16 118:6,9	31:2 33:4	well-informed
18	38:2 75:20	119:6 124:8,	34:25 35:2,3	127:15
we 4:17 7:6,	we 4:17 7:6,	17 127:7,9	36:3 37:9	went 13:25
		129:23 130:4,	39:6,13,24	32:8 82:25
		9 131:24	42:23 44:1	84:7 88:20
		132:10,12,15,	45:2 46:16,	115:19 117:2,
		16 133:1		5 121:22
		138:3 139:16		what 6:23
		we'll 64:14		7:23 8:6 9:2

10:10 11:7 13:12,16 14:18 15:1,2, 3,13 16:6,24 18:25 19:4,12 20:5,9,13,19, 20 21:3,5,9, 14,15,17,19, 21 23:2,11, 17,18,19 24:9,21 25:6, 15,16,19 26:6,25 27:17,18 28:22,24 29:5,14 30:3, 7,10 32:5,8, 19 33:15,22 34:1,15,25 35:11,15 36:2,25 37:15 38:2 39:16 40:3 42:23 44:12 46:24 47:1,5 48:15, 20 50:20,23, 24 52:22 53:19 54:3,5 55:7,13,18,21 56:11,12 57:7,10,11,24 58:17,19 59:12 61:16 66:15,19,20 68:13,14 69:2,15 71:2 74:23,24 76:1,14 77:13,17,25 79:24 80:2 83:17 84:12, 13 87:19 90:4,12,15, 17,23 91:3,19	93:3,22,23 94:2,10 95:9 97:5,8,25 98:14,20 99:2,3,6,22, 23,24 100:10 101:5 103:18 105:3 107:4 108:1 111:7, 25 113:12,25 115:9 116:4,9 117:18,23 120:3 121:7 122:17 123:17,24 124:19 128:25 129:18,24,25 130:10 132:17 135:6 136:15 137:19 138:2 what's 35:13 57:13 65:19 80:16 98:10, 11 whatever 12:5 28:6 76:19 when 9:25 12:3 13:14 23:16 24:20 27:5,15,17 29:7 32:12, 13,14 34:5 35:15 37:5, 12,15 44:5 50:2 51:6,7 52:23 53:18, 21 56:11 57:7 62:2 63:17 71:22 73:5,10 75:3,25 76:17 77:22,24	78:15 79:1 81:2 87:9,20 90:19,22 92:12 95:1 97:12 110:25 113:7,16,18, 22 115:2,7 117:3 119:15 124:11 126:17 127:9 129:23 135:21 where 4:16 14:6 18:12 25:19,25 43:22 48:9 50:10 51:5 58:21 66:9 72:10,14 101:8 129:13 whether 12:1 15:7 19:2 39:10 48:6 54:3 56:16 68:21 70:25 71:9,15 76:9 77:18 79:19 84:3 91:16 92:6,21 94:8, 22 95:9 132:5 138:10 which 4:23 5:21,23 6:9, 22,23,24 7:2, 4,18 12:12, 14,17 13:10, 24 14:22 15:1 17:5,25 18:1 19:19 21:8 22:4 23:8 24:13 25:4 27:11 28:9 29:1,7 30:15	32:6 33:22 36:7,12 37:2, 25 38:20 39:12 41:2,6, 7,10 43:17 44:15,17 45:5,11,15,18 51:3,20 53:22 54:14,17,21 55:13,14 58:7 59:9,10 61:14,15 63:7,15,18, 19,24 66:19 69:17,25 73:22 74:5 75:2,9 76:7 77:4,10 79:10 86:10 87:2,14 88:22 91:1,5, 6,8,10,15 97:14,19 99:17 102:12 103:14,16 104:9,13,15, 20 109:19 114:16,24 115:17,18,19 118:6 119:18 120:25 124:19 131:9, 11,17 133:19, 25 137:11 while 14:1 41:11 50:7 72:3 117:4 127:4 who 9:12 12:24 13:5,23 14:23 16:1 25:17 36:15 38:8,11 39:15,16	41:13 42:13, 14 48:4,17,23 49:1 58:4 64:21 68:4,8, 18 69:12,25 71:17 78:21 116:23 117:11 125:18,21 126:3,9,19 131:2 133:18 134:3,5 135:13,17 138:23 139:14 who's 83:9 132:24 whoever 68:9 71:1,9 83:21 91:9 whole 14:18 21:1,7 42:14 45:5 48:22 51:2,4 59:8 76:17 78:5,6 79:5 87:19 88:23 105:11 114:25 124:11 why 16:17 34:24 35:16 43:7,23 44:7, 18,25 45:19 63:8 66:12 67:23 69:14 70:23 97:4 104:16 112:23 120:15 123:16 132:1 wider 115:18
---	---	--	--	--

wife 9:19 114:9 117:3 windows 7:16 winter 99:10 with 5:24,25 6:18 8:20 9:9, 23 12:3 13:9, 18 14:21 20:24 22:2, 19,21 23:5,6, 13,14,16,17 24:18 25:1 28:4,7 29:13 31:14,17 32:1,5,8,20, 22 33:19,25 34:2,12,13, 22,23 35:3, 12,13 36:15 41:24 42:4 43:4 44:19 45:12,18 47:4 50:8 51:25 56:24 57:24 58:8,18,20 60:2 68:1,6, 23 72:5 73:25 74:3,5 81:6, 10,13,16 83:1,18 84:5, 9 90:10 102:11,23 114:22 115:8 116:6 117:2, 3,10 120:8 122:3 127:21, 24 129:18,19, 20 132:14 133:1 134:6 135:2,12,13, 25 137:7 138:23 139:11	within 14:25 20:2 25:5 78:8 115:3 without 47:11,15 54:5 58:14 60:2 85:20 112:2, 5,8 124:6,24 witness 4:2 7:9 18:21 21:5 47:23 51:15 68:14, 15,17 88:2 89:4,10,14 90:24 92:1 102:7 106:3 108:22 118:4 120:20 121:5 123:1,4 136:7 137:3,18 139:5,9 won't 68:25 word 21:4 22:6 43:9 124:24 words 68:24 70:3 work 27:6 31:12,13 34:19,20 35:21 37:17, 22 38:2,15 40:16 63:17 68:7,24 69:14,20 78:17 79:16 87:3,9,16 91:23 92:8, 10,15,16 93:7,18 101:12 105:19	107:22 127:3 worked 26:20 83:1 114:15 115:13,22 116:11 working 34:21 35:15 38:11 51:25 61:4 69:17 73:11 74:18 78:3 79:4 81:3 87:12, 17,19 97:8,14 115:8,16 117:7 122:9 134:4 works 63:20 113:10 worry 12:1 write 13:22 14:23 18:11 27:24 40:24 44:13 77:14 114:11 115:18 123:13 writing 19:6 20:25 21:7 42:22 58:10 78:18 84:10 96:8 124:13 written 27:7 49:17 50:22 78:15 97:17 104:2 133:22 134:12 wrong 18:1 72:13 wrote 13:14, 21,22 19:19	21:8 25:11 26:8 27:18,22 48:4,18,24 49:1 52:24 53:18 77:23 84:8 91:9 92:22 126:9 127:7 133:24 Y yeah 4:21 5:7, 14 18:14,23 22:9,17 23:15 24:14 25:15, 23 26:16,19, 24 34:1 37:12 41:18 43:12, 13 46:4 47:21 48:3,11 50:1, 6 51:9,12,15, 21 52:5,11 53:14,17,22 54:23 55:6,7 56:4,8,13 57:1,18,21 58:25 59:3, 19,21 60:21 61:25 62:14 63:2 64:1,5, 15,17,18 65:9,14 66:1, 16 67:8,10,16 68:1,18 69:6, 9 70:10 72:1 73:3,20,22,23 74:8,11,15 75:14,18 77:3,8,12 78:14,24 79:1,5 80:8, 10,13 81:22, 25 82:14 85:1,3,6,17	86:3,15,17,19 87:21 88:2,25 89:2,21,23 90:1,24 93:8 94:2,5,12 95:21,22 96:1,3,5,13, 24 97:13 98:1,8,10,11, 16,19,22 99:8,9 102:8 103:10 105:2, 16,17,20 106:1,13,23 107:1,4,5,10, 14,24 109:6,9 110:18 112:12,22 117:17,18 118:8 120:3, 6,10,20 123:3 125:2,9 128:14,16,18, 25 129:13,14, 25 130:11,23 131:1 132:21 133:8 134:9, 10,20 136:15, 20 137:20 138:14 139:9 year 81:2 98:13,25 99:2,15,16,21 101:21 102:19,23 104:22 Year's 99:12 yearlong 105:3 years 11:24 13:13 20:15 23:2 26:23,
--	--	--	--	---

24,25 27:21 30:8 37:19 49:10 76:2 98:1 104:16 131:15 years' 77:24 Yep 64:8 108:7 125:4 128:2 yes 4:15 5:18 7:9 8:2,5,8,19 9:11 10:2 11:3,6,18,22 12:19,22 13:3,7 14:9 15:12 17:7,9, 23 18:8,22 22:23,25 23:21 24:9 26:13,21 28:1,15,17,22 29:18,21 30:17,19 31:11,15,19 33:14,19 38:18 40:18, 21 42:20 44:1 46:9,17 51:16 53:2,11 54:16,17,19 55:8 57:1 59:23 60:1,4, 19,23,25 61:2,5,7 63:1, 25 64:4,8,19 65:16 67:2 68:1,16 69:11 71:6,21 72:9, 17,23 75:21 80:19 83:10 85:25 86:22, 24 88:18 95:20 96:19,	20,21 98:3 100:18,19 101:4,7,14, 17,25 102:18, 22 103:2,7 106:5 107:20, 24 108:13 110:6,9,21 111:4,7,8,12, 20,23 116:1 117:20 118:5, 13,15,17,20 119:14 120:19,21 122:18 123:1 124:20 125:14 126:8 128:5,7,11, 16,21,23,25 129:2,5,9 133:13,15,17, 18,21 134:13, 15 136:7,8, 12,13,20,22 137:13,24 138:17 139:21 yet 127:10 youngest 19:20 yourself 11:13 50:3,5 89:7 Yui 68:2,4,6,9, 18,21 69:12 70:15,21 71:1,9,16 Z zoom 10:16, 20 65:11,22	88:21,23 97:23 98:9 zoomed 67:20	
---	---	---	--