

UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE PATENT TRIAL AND APPEAL BOARD

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NETFLIX, INC.,

Petitioner,

vs.

REALTIME ADAPTIVE STREAMING,  
LLC,

Patent Owner.

Case No.: IPR2018-01630  
Patent No. 9,769,477

Case No.: IPR2018-01187  
Patent No. 9,769,477

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DEPOSITION OF DR. JAMES ANDREW STORER

May 7, 2019

Palo Alto, California

Reported By:

Carly C. Tillotson, CSR No. 13627

Job no: 25212

Ex. 2003  
Netflix v. Realtime  
IPR2018-01187

<p style="text-align: right;">Page 2</p> <p>1 DEPOSITION OF DR. JAMES ANDREW STORER  2 Date: May 7, 2019  3 Time: 11:05 a.m.  4 Location: Sheppard, Mullin, Richter &amp; Hampton, LLP  379 Lytton Avenue  Palo Alto, California 94301</p>	<p style="text-align: right;">Page 4</p> <p>1 INDEX OF EXAMINATION  2  3 EXAMINATION PAGE  4 By Mr. Stonedale 5  5  6 ---oOo---  7  8 INDEX OF EXHIBITS  9 EXHIBIT DESCRIPTION PAGE  10 A Declaration - IPR2018-01187 10  11 B Declaration - IPR2018-01630 11  12 C Patent Application/  Certificate 17  13  14 D U.S. Patent - No. 6,507,611 17  15  16 E Translation of Imai 21  17  18 F U.S. Patent - No. 9,769,477 41  19  20  21  22  23  24  25 ---oOo---</p>
<p style="text-align: right;">Page 3</p> <p>1 APPEARANCES  2  3  4 For the Petitioner, NETFLIX, INC.  5 SHEPPARD MULLIN, RICHTER &amp; HAMPTON, LLP  6 BY: HARPER BATTS, ESQ.  JEFFREY LIANG, ESQ.  379 Lytton Avenue  Palo Alto, California 94301  Tel: (650) 815-2673  Fax: (650) 815-2601  E-mail: hbatis@sheppardmullin.com  jliang@sheppardmullin.com  10 For the Patent Owner, REALTIME ADAPTIVE STREAMING, LLC:  NOROOZI PC  11 BY: JOEL P.N. STONEDALE, ESQ.  2245 Texas Drive, Suite 300  Sugar Land, Texas 77479  Tel: (310) 975-7074  E-mail: joel@noroozipc.com  13  14 Also present:  15  16 PATRICK PACHECO  17  18  19  20  21  22  23  24  25</p>	<p style="text-align: right;">Page 5</p> <p>1 BE IT REMEMBERED that, pursuant to Notice and on  2 TUESDAY, MAY 7, 2019, commencing at the hour of  3 11:05 a.m. of said day, at Sheppard Mullin, 379 Lytton  4 Avenue, Palo Alto, California, before me,  5 CARLY C. TILLOTSON, Certified Shorthand Reporter  6 No. 13627, in and for the State of California, personally  7 appeared:  8  9 ---oOo---  10 DR. JAMES ANDREW STORER,  11 being first duly sworn by me to tell the truth,  12 was examined and testified as follows:  13 EXAMINATION BY JOEL P.N. STONEDALE, ESQ.  14 BY MR. STONEDALE:  15 Q. Hello, Dr. Storer. Thank you for coming today.  16 I just want to go over a few basic things before we  17 start -- or as we start. We have started.  18 Could you please state your name and address?  19 A. Yes. My name is James Andrew Storer,  S-T-O-R-E-R. And I live in Lincoln, Massachusetts.  20 Q. Okay. And how did you prepare for today's  21 deposition?  22 A. Well, mainly, I prepared two declarations which  23 actually are here in front of me, two fairly large  24 declarations.  25 Q. Did you meet with your team -- your legal team</p>

<p style="text-align: right;">Page 6</p> <p>1 here in the last several days to go over your materials 2 for -- in preparation for this deposition?</p> <p>3 MR. BATTS: I'll just warn you not to talk about 4 the substance of meetings, but you can certainly tell him 5 about meetings with people and time.</p> <p>6 THE WITNESS: I don't know exactly what would be 7 considered preparation for the deposition -- other 8 subject matter. I did have lunch with the attorneys 9 yesterday.</p> <p>10 BY MR. STONEDALE:</p> <p>11 Q. Have you reviewed your declaration in this case 12 in the last two weeks?</p> <p>13 A. On the plane out here, I did look at portions of 14 both declarations.</p> <p>15 Q. And did you do that with an eye to this coming 16 deposition?</p> <p>17 (Reporter asked for clarification.)</p> <p>18 A. Could you repeat the question?</p> <p>19 Q. Did you review your declaration with an eye 20 towards this coming deposition?</p> <p>21 A. Well, there are a number of depositions because 22 there are common specifications to a number of different 23 patents that real time has asserted, so I can't precisely 24 say whether the review would have general value given 25 that there may be others to come. But certainly,</p>	<p style="text-align: right;">Page 8</p> <p>1 A. At some point I did, in the past, review it, 2 yes.</p> <p>3 Q. And have you -- have you reviewed the 4 institution decision in the second petition e-mailed on 5 the -- or the second petition which you provided a 6 declaration on the 477 patent?</p> <p>7 (Reporter asked for clarification.)</p> <p>8 A. Yes. I believe so. Again, I don't have a 9 specific memory of the moment, but I recall looking at 10 the institution decisions at some point.</p> <p>11 Q. All right. And have you discussed the substance 12 of those documents and this deposition with your legal 13 team in the last two weeks?</p> <p>14 MR. BATTS: I'm going to object to the extent 15 you're requesting communications -- privileged 16 communications with counsel. Instruct the witness not to 17 answer.</p> <p>18 MR. STONEDALE: I am not requesting the 19 substance of the communication. I am wondering if 20 you-all have met and discussed in preparation for the 21 deposition.</p> <p>22 MR. BATTS: I'm going to maintain the objection 23 since you're asking about what the topics or substance of 24 communications were and instruct the witness not to 25 answer.</p>
<p style="text-align: right;">Page 7</p> <p>1 obviously, I was on the plane coming out here for this 2 one and certainly had this deposition in mind.</p> <p>3 Q. Okay. As far as all three depositions that 4 you'll be participating in regarding the Realtime patent, 5 which documents did you review in order to prepare for 6 those depositions?</p> <p>7 A. I'm not sure I understand your question. Are 8 you talking about depositions that occurred in the past, 9 may occur in the future or today?</p> <p>10 Q. The -- well, for example, today's deposition. 11 Did you review any documents in preparation for today's 12 deposition?</p> <p>13 A. Again, we -- I think you asked this before. I 14 am not exactly sure what you're encompassing in terms of 15 "in preparation for," but as I mentioned, on the plane -- 16 you asked about the two expert -- the two declarations in 17 front of me here. I did look at portions of those on the 18 plane.</p> <p>19 Q. Okay. And did you look at any other documents 20 while on the plane?</p> <p>21 A. I can't remember specifically now, but generally 22 speaking, I would have probably looked at portions of 23 some of the prior art cited in those two declarations.</p> <p>24 Q. Have you reviewed the institution decision in 25 this case?</p>	<p style="text-align: right;">Page 9</p> <p>1 BY MR. STONEDALE:</p> <p>2 Q. Are there any opinions in either of the two 3 declarations that pertain to the 477 patent that you now 4 believe are not true?</p> <p>5 A. At times in the past or on the plane when I 6 looked at the declarations, I may have noticed minor 7 typos or things which were obvious from context, but I 8 don't recall anything that was in error.</p> <p>9 Q. So you stand by the substance of all the 10 statements in your declaration; is that correct?</p> <p>11 A. What do you mean by "stand by"? I just said I 12 believe that I wrote the declarations and I stated my 13 opinions and believe them to be correct. I'm not sure 14 what else it is you're asking.</p> <p>15 Q. Well, specifically, I'm asking, you believe the 16 substance of all the opinions stated in your declarations 17 are correct; is that true?</p> <p>18 A. To the extent that -- I mean, obviously there 19 could be other things you ask me and I have additional 20 opinions to supplement the declaration if there are other 21 questions you have. But so far, as I mentioned before, I 22 have nothing that I've seen, looking back, that I 23 would -- that I would say is incorrect other than perhaps 24 minor typos that were obvious from context.</p> <p>25 Q. Okay. Thank you. In -- in ground 3 in the</p>

<p style="text-align: right;">Page 10</p> <p>1 first declaration you submitted on the '477 patent, do  2 you recall that you offered an opinion that a person of  3 ordinary skill in the art would create a combined system  4 of Imai and Pauls.  5 (Reporter asked for clarification.)  6 MR. BATTS: Imai and Pauls, P-A-U-L-S. Imai is  7 I-M-A-I.  8 THE WITNESS: So maybe you can be more specific.  9 When you say "Ground 3," specifically what are you  10 referring to?  11 BY MR. STONEDALE:  12 Q. Do you have your declaration in Case  13 Number 20181187 in front of you?  14 A. I do.  15 Q. Okay. Can we call that Exhibit A?  16 A. Sure.  17 THE COURT REPORTER: Am I marking that now?  18 MR. STONEDALE: Yes, please.  19 (Exhibit A was marked for identification.)  20 Q. Do you recall in your declaration offering an  21 opinion that a POSITA, which stands for "person of  22 ordinary skill in the art," would combine the systems of  23 Imai and Pauls?  24 A. So I'm looking at the table of contents, for  25 example, of the declaration, as you indicate</p>	<p style="text-align: right;">Page 12</p> <p>1 certain claims are obvious in view of a combination of  2 Imai and Pauls. That's on page 48 of that declaration.  3 A. Yes. I see that in the table of contents, yes.  4 Q. Now, my question is: These two combinations you  5 describe in each of the declaration that a POSITA would  6 make of Imai and Pauls, are you describing the same  7 combination?  8 (Reporter asked for clarification.)  9 A. Both declarations are referring to the same two  10 documents, Imai and Pauls.  11 Q. I'm asking you if a person of ordinary skill in  12 the art would combine them in the same way to render both  13 sets of claims obvious.  14 MR. BATTS: Objection. Form.  15 THE WITNESS: Usually, I think if you look at  16 the reports, you think of the claims, the independent  17 claims, as standing separately, and you talk about an  18 independent claim being -- being rendered obvious by the  19 art. I'm not sure about whether the phraseology in my  20 reports talks about collectively, the claims together.  21 I may summarize that in all cases, looking at  22 each of the independent claims asserted, my opinion was  23 that they were rendered obvious in light of certain prior  24 art. But I'm not quite sure about the form of your  25 question. I may misunderstand it.</p>
<p style="text-align: right;">Page 11</p> <p>1 IPR2018-01187, and the -- I think what you refer to "the  2 grounds" are listed not as 1, 2, 3, but A, B, C. And C,  3 in looking at the table of contents, says, "Claims 1, 3-6  4 and 9-14 of the '477 patent are obvious based on Imai in  5 view of Pauls."  6 Is that what you're referring to?  7 Q. Yes, it is.  8 A. Okay.  9 Q. And so do you recall that in your declaration in  10 the second case pertaining to the '477 patent, which you  11 filed the declaration, you also offered an opinion that a  12 person of ordinary skill in the art would combine Imai  13 and Pauls?  14 A. Okay. So I've just moved over to the  15 declaration -- by the way, do you want to mark this one  16 or not? It's up to you.  17 MR. STONEDALE: Yes. We can mark it B, if you  18 would like.  19 (Exhibit B was marked for identification.)  20 THE WITNESS: Okay. So now I'm looking at  21 what's been labeled "B," IPR2018-01360.  22 And could you repeat your question?  23 BY MR. STONEDALE:  24 Q. If you look at Section 8 A -- Roman  25 numeral VIII, Section A, you offer the opinion that</p>	<p style="text-align: right;">Page 13</p> <p>1 BY MR. STONEDALE:  2 Q. Yeah. So, do you offer the opinion that a -- a  3 POSITA would combine the teaching of that art, Imai and  4 Pauls, to create a particular system?  5 A. So my memory is -- and, of course, if we want to  6 go to each of the reports, we can look at what I said and  7 refresh my memory -- is that I'm describing how it would  8 be obvious of one of ordinary skill in the art to use the  9 teachings of both or to incorporate the teachings of both  10 or to use the teachings of one when viewing the other.  11 I'm not exactly sure how to parse your words.  12 Probably the best way would be to go to the sections in  13 each of the reports and look at what is there, describing  14 the motivation to combine the two references.  15 Q. At a higher level first, I want to ask, do you  16 express any opinion that a person of ordinary skill in  17 the art would create any system based on the teachings of  18 Imai and Pauls?  19 A. Well, let me go look at those sections of the  20 report to refresh my memory. Do you want to focus it on  21 one report or the other, or are you asking generally  22 about both reports?  23 Q. Well, we can start with the first one. We can  24 start with Exhibit A.  25 A. Okay. (Witness reviewed document.) I've had a</p>

<p style="text-align: right;">Page 14</p> <p>1 chance to look at that section of the declaration. If  2 you could repeat your question. Thanks.  3 MR. STONEDALE: Could the court reporter please  4 repeat the question?  5 (Record was read back as requested.)  6 THE WITNESS: So this section of the report is  7 entitled "Motivation to combine Imai and Pauls is  8 obvious." And I talk about a number of factors in a  9 sequence of paragraphs. I note that both Imai and Pauls  10 employ asymmetric coding methods. I note that both Imai  11 and Pauls take into account the type of data.  12 They also both address -- Imai says it could be  13 video signals and Pauls actually addresses you could  14 argue video signals and further depth methods that could  15 be used. They also have selection mechanisms that are  16 similar.  17 And I say, for example -- maybe to get  18 specifically to your question, if you go to  19 paragraph 211, I say, "It is my opinion that it would  20 have been obvious to combine the teachings of Imai and  21 Pauls, such as to use the video compression algorithms of  22 Pauls with the compression" --  23 THE COURT REPORTER: Hold on. Slow down a  24 little bit.  25 THE WITNESS: -- "selection mechanisms as taught</p>	<p style="text-align: right;">Page 16</p> <p>1 MR. BATTS: Same objection.  2 THE WITNESS: I think in order to answer your  3 question, it would be useful to have a copy of Imai in  4 front of me.  5 MR. BATTS: I have the U.S. patent version.  6 BY MR. STONEDALE:  7 Q. Can we instead look at Pauls? Figure 5 of  8 Pauls, I think, would be more concise.  9 A. I'm happy to do that in order to answer your  10 last question. Maybe you're changing your question. I  11 would like to have Imai in front of me as well, if that's  12 okay.  13 Q. Okay. Yeah. We'll call that Exhibit C.  14 MR. BATTS: So, Joel, to be clear, the copy of  15 Imai's that I'm handing him is the U.S. patent. I don't  16 think I have handy right now the translation of the  17 Japanese patent.  18 THE WITNESS: The figures in the U.S. patent are  19 easier to read; however, all citations in my report go to  20 the Japanese version. But I can navigate through the  21 U.S. patent and go over to the Japanese version because I  22 include a cross-reference in my report.  23 It would be nice, at some point, to have the  24 Japanese version here as well, but we can mark this at  25 the moment. How about I mark the --</p>
<p style="text-align: right;">Page 15</p> <p>1 by either Imai or Pauls. Imai and Pauls teachings are  2 presented in such a manner that generic encoders can be  3 readily swapped in and out of the configuration."  4 THE COURT REPORTER: I'm sorry. Just slow down  5 a little.  6 THE WITNESS: "For example, Imai teaches using  7 off-the-shelf encoders such as" -- and he lists three  8 acronyms: ATRAC, A-T-R-A-C; ATRAC 2 and MPEG, M-P-E-G,  9 all in caps, those acronyms -- "audio layers 1, 2 and 3.  10 These encoders can be easily modified or replaced to  11 include the compression algorithms of Pauls, and Imai's  12 teachings are structured to support such a  13 configuration."  14 BY MR. STONEDALE:  15 Q. Do you offer the opinion that a POSITA would  16 modify or replace any of those compression algorithms you  17 just mentioned with any of the algorithms mentioned in  18 Pauls?  19 MR. BATTS: Objection. Form.  20 THE WITNESS: Could you repeat the question?  21 BY MR. STONEDALE:  22 Q. Do you offer the opinion that a person of  23 ordinary skill in the art would modify or replace any of  24 the encoders mentioned in Imai with any of the encoders  25 mentioned in Pauls?</p>	<p style="text-align: right;">Page 17</p> <p>1 MR. STONEDALE: Maybe we can -- maybe we can  2 take a quick break and print out the translation, which I  3 believe would let you cite to and quote from in your  4 report, Exhibit 1005, the translation of Imai.  5 A. That would be fine. In the meantime, maybe we  6 can mark these as B and C [sic].  7 (Exhibits C and D were marked for  8 identification.)  9 MR. BATTS: So, Joel, for reference, Exhibit C  10 is a copy of the Pauls reference.  11 MR. STONEDALE: Okay.  12 MR. BATTS: And Exhibit D is a copy of the U.S.  13 version of Imai, and I've asked for --  14 MR. STONEDALE: I'm sorry. When you said the  15 U.S. version of Imai, are you talking about Exhibit 1005,  16 which is the translation of Imai?  17 MR. BATTS: No. It's the U.S. counterpart. So  18 I've asked for a printout of the translation as well, but  19 right now, he has the U.S. counterpart in front of him as  20 Exhibit D.  21 MR. STONEDALE: Okay. Thank you. And that's  22 "D" as in dog?  23 MR. BATTS: Correct. And I guess for the  24 record, it is U.S. Patent Number 6507611.  25 THE WITNESS: Do you want to go off the record</p>

<p style="text-align: right;">Page 18</p> <p>1 to get the translation -- the Japanese translation as</p> <p>2 well, or do you want to go ahead with the question you</p> <p>3 had? I'm okay either way -- for now, anyway.</p> <p>4 BY MR. STONEDALE:</p> <p>5 Q. Well, I could ask you a question about your</p> <p>6 declaration. In your declaration, do you offer any</p> <p>7 opinion that a person of ordinary skill in the art would</p> <p>8 modify or replace any of the encoders in Imai's system</p> <p>9 with any of the encoders from Pauls' system -- in your</p> <p>10 declaration?</p> <p>11 A. So I'm not sure about the way you're</p> <p>12 characterizing as "modifying." If you look at Figure 4</p> <p>13 of Imai, it shows a very general structure where any</p> <p>14 number of coding units can be used. And it gives</p> <p>15 examples of things that could be those coding units in</p> <p>16 both Figure 5 and Figure 16.</p> <p>17 And those coding units, of course, could be many</p> <p>18 different things. It gives a number of examples in</p> <p>19 Figure 5, what methods might be used, for example. And</p> <p>20 so you certainly could be plugging in other things. I</p> <p>21 think Imai, clearly one of ordinary skill reading Imai</p> <p>22 understands that.</p> <p>23 And when I say in my report -- in paragraph 211,</p> <p>24 when I say, for example, "Imai teaches using</p> <p>25 off-the-shelf encoders, well-known encoders such as</p>	<p style="text-align: right;">Page 20</p> <p>1 Q. Well, you offered the opinion, though, that a</p> <p>2 person of ordinary skill in the art would actually use</p> <p>3 one of the encoders that Pauls mentioned in the system</p> <p>4 that Imai's described.</p> <p>5 MR. BATTS: Objection. There's no question.</p> <p>6 MR. STONEDALE: I think that was a question --</p> <p>7 or maybe it didn't all come through. Sorry.</p> <p>8 Could the court reporter read the question</p> <p>9 again?</p> <p>10 (Record was read back as requested.)</p> <p>11 BY MR. STONEDALE:</p> <p>12 Q. Do you offer the opinion that a person of</p> <p>13 ordinary skill in the art would use one of the encoders</p> <p>14 that Pauls mentioned in the system that Imai described?</p> <p>15 A. So, still seems like that sentence is highly</p> <p>16 relevant to your question. Let me read it again and then</p> <p>17 elaborate. "These encoders can easily be" -- "these</p> <p>18 encoders," referring to Imai -- "can easily be modified</p> <p>19 or replaced to include the compression algorithms of</p> <p>20 Pauls, and Imai's teachings are structured to support</p> <p>21 such a configuration."</p> <p>22 So not only did I point you to the generic</p> <p>23 diagram of Figure 4 of Imai that clearly shows different</p> <p>24 encoders that can be plugged in, including -- such as</p> <p>25 Figure 5, which has different algorithms it can use.</p>
<p style="text-align: right;">Page 19</p> <p>1 ATRAC, ATRAC 2 and MPEG audio layers 1, 2 and 3. These</p> <p>2 encoders can easily be modified or replaced to include</p> <p>3 the compression algorithms of Pauls, and Imai's teachings</p> <p>4 are structured to support such a configuration."</p> <p>5 Q. Do you offer the opinion in your declaration</p> <p>6 that a person of ordinary skill in the art would use any</p> <p>7 of the algorithms from Pauls in the system of Imai?</p> <p>8 MR. BATTS: Objection. Form.</p> <p>9 THE WITNESS: I'm not sure I understand your</p> <p>10 question. Could you repeat it?</p> <p>11 MR. STONEDALE: Could the court reporter please</p> <p>12 repeat the question?</p> <p>13 (Record was read back as requested.)</p> <p>14 THE WITNESS: So I'm not sure, when you're using</p> <p>15 the word "system algorithms," what exactly you're</p> <p>16 encompassing. But certainly, I think at least partially</p> <p>17 answering your question -- maybe fully answering your</p> <p>18 question -- what I just read, where -- the paragraph that</p> <p>19 I referred to just ended, saying, "These encoders can</p> <p>20 easily be modified or replaced to include the compression</p> <p>21 algorithms of Pauls, and Imai's teachings are structured</p> <p>22 to support such a configuration."</p> <p>23 I mean, it seems as though we just discussed</p> <p>24 this issue unless I misunderstand what else you're trying</p> <p>25 to put into the question.</p>	<p style="text-align: right;">Page 21</p> <p>1 You also see in Imai, specifically saying at one</p> <p>2 point towards the end, that his system could easily --</p> <p>3 could also be applied to video.</p> <p>4 And, of course, when Pauls talks about standards</p> <p>5 of the time, standards, in fact, that have been known for</p> <p>6 a decade, in some cases before the Fallon patent to those</p> <p>7 of ordinary skill in the art, for example.</p> <p>8 So when Pauls talks about MPEG, for example, for</p> <p>9 video, and it's an asymmetric method and Pauls is</p> <p>10 selecting it based on data type and other considerations,</p> <p>11 just as Imai does, and now Imai says, "Yeah. You can do</p> <p>12 this for video as well." Of course one of ordinary skill</p> <p>13 in the art would say, Sure. I can put in a known</p> <p>14 standard as one of those plug-ins that is shown in the</p> <p>15 figures of Imai.</p> <p>16 MR. BATTS: And, Joel, I have copies of</p> <p>17 Exhibit 1005 the translation of Imai, if you want to mark</p> <p>18 that.</p> <p>19 MR. STONEDALE: Sure. What exhibit letter is</p> <p>20 that?</p> <p>21 (Exhibit E was marked for identification).</p> <p>22 (Counsel conferred with the court reporter.)</p> <p>23 MR. STONEDALE: I'm sorry. Could you repeat the</p> <p>24 last question?</p> <p>25 (Record was read back as requested.)</p>

<p style="text-align: right;">Page 22</p> <p>1 THE WITNESS: Wasn't that the one I just</p> <p>2 answered? Are we waiting for a new question, or did I</p> <p>3 misunderstand?</p> <p>4 BY MR. STONEDALE:</p> <p>5 Q. Oh, I'll ask a new question.</p> <p>6 Do you offer the opinion that it would be</p> <p>7 obvious to include MPEG to and --</p> <p>8 (Reporter asked for clarification.)</p> <p>9 Do you offer the opinion that it would be</p> <p>10 obvious to include the encoder MPEG -- that's M-P-E-G --</p> <p>11 2 in the system described by Imai?</p> <p>12 MR. BATTS: Objection. Form.</p> <p>13 THE WITNESS: Could you repeat the question?</p> <p>14 BY MR. STONEDALE:</p> <p>15 Q. Do you offer in your declaration the opinion</p> <p>16 that it would be obvious to include the encoder MPEG 2</p> <p>17 into the system described by Imai?</p> <p>18 A. So I'm not exactly sure what you're encompassing</p> <p>19 in the word "encoder," but we've just -- it seems to be,</p> <p>20 really, already answered.</p> <p>21 But, for example, when -- just looking at that</p> <p>22 one paragraph I just read, the sentence before says, "For</p> <p>23 example, Imai teaches using off-the-shelf encoders such</p> <p>24 as ATRAC, ATRAC 2 and MPEG audio encoders 1, 2 and 3.</p> <p>25 These encoders can be easily modified or replaced to</p>	<p style="text-align: right;">Page 24</p> <p>1 motion compensation, and so on.</p> <p>2 So, I mean, not only would it be completely</p> <p>3 obvious and natural to use MPEG just on reading Imai</p> <p>4 alone, certainly in combination with Pauls where Pauls</p> <p>5 specifically mentions MPEG as well. It would be obvious</p> <p>6 to employ MPEG in the system that is described by Imai.</p> <p>7 Q. Are there any other encoders that you offer the</p> <p>8 opinion that it would be obvious to include into the</p> <p>9 system described by Imai?</p> <p>10 A. So, for example -- let me take a look at my</p> <p>11 report. And also -- okay. Let me take a quick look at</p> <p>12 the report. I do recall Pauls mentioning other encoders.</p> <p>13 Give me one -- allow me a second here to refresh my</p> <p>14 memory. (Witness reviewed document.)</p> <p>15 So I had a chance to refresh my memory. Could</p> <p>16 you repeat your question?</p> <p>17 MR. STONEDALE: Could the court reporter please</p> <p>18 repeat the question?</p> <p>19 (Record was read back as requested.)</p> <p>20 THE WITNESS: So I think it would be obvious</p> <p>21 just reading Imai, to one of ordinary skill in the art at</p> <p>22 the time, to use a well-known encoding standard as to one</p> <p>23 of Imai's plug-ins or for one of Pauls' plug-ins.</p> <p>24 And in addition, Pauls specifically calls out</p> <p>25 not only MPEG 2 and MPEG -- I assume by "MPEG," generally</p>
<p style="text-align: right;">Page 23</p> <p>1 include the compression algorithms of Pauls, and Imai's</p> <p>2 teachings are structured to support such a</p> <p>3 configuration."</p> <p>4 And then in my previous answer, I pointed out</p> <p>5 that Imai specifically says his system could be used for</p> <p>6 video. I specifically pointed out in the previous answer</p> <p>7 that MPEG was a standard that had been known for a decade</p> <p>8 to those of ordinary skill in the art before the timing</p> <p>9 of the filing of the Fallon patent. You've already got</p> <p>10 Imai using MPEG -- a portion of the MPEG standard for</p> <p>11 audio.</p> <p>12 The perhaps most well-known video compression</p> <p>13 standard would be, I think, obvious just in reading Imai,</p> <p>14 let alone in reading the combination of Pauls and Imai</p> <p>15 where Pauls uses MPEG. And just so it's clear, the MPEG</p> <p>16 standard -- the MPEG 2, for example -- there's MPEG 1 and</p> <p>17 MPEG 2.</p> <p>18 And MPEG 1, again, was developed over a number</p> <p>19 of years but introduced to the public in 1992; MPEG 2,</p> <p>20 again a number of years, but introduced to the public in</p> <p>21 1994.</p> <p>22 MPEG 2 has three sections. There's a syntax</p> <p>23 section, a large document on the syntax; there's a</p> <p>24 section in audio, which is being referred to here; and</p> <p>25 there's a section on the video's compression, such as the</p>	<p style="text-align: right;">Page 25</p> <p>1 he's referring to both MPEG 1 and MPEG 2 as possible</p> <p>2 encoders.</p> <p>3 He also calls out another standard of the time,</p> <p>4 well-known H.263, another well-known used video</p> <p>5 compression standard that was introduced in the 1994 time</p> <p>6 frame as well.</p> <p>7 And so the point being that when one sees a</p> <p>8 picture -- or a figure, like Figure 4 of Imai and, of</p> <p>9 course, the related Figures 5 and 16, or one sees a</p> <p>10 figure like Figure 3 of Pauls, which shows a figure using</p> <p>11 multiple video or imaging coders in addition to speech</p> <p>12 encoders in addition to text encoders and a selection</p> <p>13 mechanism for choosing between them based on data type</p> <p>14 and other considerations, that to one of ordinary skill</p> <p>15 in the art, of course this is -- yet goes along the theme</p> <p>16 of why it would be natural to combine the two references.</p> <p>17 But also looking at either reference, it would be very</p> <p>18 natural and obvious and normal, if you will, to be</p> <p>19 putting -- to be plugging in -- to be putting in for one</p> <p>20 of these plug-ins in either, for example, Figure 3 of</p> <p>21 Pauls, or in the Imai figures, a well-known video</p> <p>22 compression standard of the time; and well-known to one</p> <p>23 of ordinary skill in the art because by the time the</p> <p>24 Fallon patent came around, these things had been around</p> <p>25 for years. These were what people were using.</p>

<p style="text-align: right;">Page 26</p> <p>1 One of ordinary skill in the art is of course</p> <p>2 aware of the standardization of algorithms for</p> <p>3 compressing common types of video, including images --</p> <p>4 including video and also including things like images as</p> <p>5 well with other standards.</p> <p>6 BY MR. STONEDALE:</p> <p>7 Q. Which encoders would it be obvious to include in</p> <p>8 Imai's system?</p> <p>9 MR. BATTS: Objection. Form.</p> <p>10 THE WITNESS: Could you repeat the question?</p> <p>11 BY MR. STONEDALE:</p> <p>12 Q. Which encoders would it be obvious to include in</p> <p>13 Imai's system?</p> <p>14 A. I'm not sure what you're encompassing in your</p> <p>15 question when you use the word "encoder" and "system."</p> <p>16 But we've already been talking about the -- what both</p> <p>17 Imai and Pauls described, a general system for selecting</p> <p>18 among multiple different encoders and different</p> <p>19 properties of speed and capabilities and choosing one,</p> <p>20 taking into account a data type and other considerations.</p> <p>21 And so it would be obvious to one of ordinary</p> <p>22 skill in the art to employ current at -- at the time</p> <p>23 current and well-known -- current and well-known --</p> <p>24 actually, current for a number of years prior as well.</p> <p>25 For example, video compression standards. Imai</p>	<p style="text-align: right;">Page 28</p> <p>1 and over is it seems like you've been asking the same</p> <p>2 question, more or less, over and over, so I've been</p> <p>3 trying my best to answer that question about the</p> <p>4 combination of Pauls and Imai.</p> <p>5 You referred in your question to algorithms. Of</p> <p>6 course, my answer also referred to standards. For</p> <p>7 example, the MPEG standard describes a system that</p> <p>8 incorporates a number of well-known algorithms, such as</p> <p>9 Huffman coding, such as the DTC quantization, motion</p> <p>10 compensation at various different levels and so on;</p> <p>11 similarly for H.263, standard; similarly for MPEG 1,</p> <p>12 standard.</p> <p>13 And I don't know -- and I think the point of my</p> <p>14 declaration is to describe how it's obvious to</p> <p>15 incorporate the teachings of the two and what is rendered</p> <p>16 obvious to one of ordinary skill in the art reading these</p> <p>17 documents, when they now go ahead and look -- when you</p> <p>18 now go ahead and compare that to a claim, what is obvious</p> <p>19 and what is known to one of ordinary skill in the art,</p> <p>20 and when you go to look at a claim in the Fallon patent,</p> <p>21 what is rendered obvious in view of that prior art.</p> <p>22 I don't -- is there a portion of my report where</p> <p>23 you are referring to me talking about building something?</p> <p>24 I don't quite understand the latter part -- the other</p> <p>25 part of the question when you talked about building, and</p>
<p style="text-align: right;">Page 27</p> <p>1 specifically says that his system, if you will, can be</p> <p>2 equally applied to video, and you also see video</p> <p>3 compression standards referred to as well in Pauls.</p> <p>4 Again, I'm not sure exactly how you're trying to</p> <p>5 frame the use of these methods when you use the term</p> <p>6 "system" and "encoder," but we certainly can go to that</p> <p>7 claim language itself and go to my analysis on a</p> <p>8 claim-by-claim basis, if that's what is the point of your</p> <p>9 question.</p> <p>10 BY MR. STONEDALE:</p> <p>11 Q. You seem to be telling me over and over again</p> <p>12 that it would be obvious for a person of ordinary skill</p> <p>13 in the art to include well-known algorithms or encoders</p> <p>14 in the system that Imai described.</p> <p>15 My question is about which ones a person of</p> <p>16 ordinary skill in the art would actually include in the</p> <p>17 system that would be motivated to build?</p> <p>18 MR. BATTS: Objection. Form.</p> <p>19 THE WITNESS: Could you repeat your question?</p> <p>20 MR. STONEDALE: If the court reporter could</p> <p>21 please repeat the question?</p> <p>22 (Record was read back as requested.)</p> <p>23 THE WITNESS: Your question has a number of</p> <p>24 parts. Let me take the different parts. First of all,</p> <p>25 the over and over -- the only reason I'm saying it over</p>	<p style="text-align: right;">Page 29</p> <p>1 you seem to be incorporating a number of claim terms in</p> <p>2 the question, so I think maybe the easiest way to answer</p> <p>3 the question would be actually asking about a particular</p> <p>4 claim in the patent and why -- why one or the other or</p> <p>5 both of these references render that claim obvious --</p> <p>6 render it invalid due to the fact of obviousness.</p> <p>7 So I'm not sure how to better answer your</p> <p>8 question when it's sort of outside the context of the</p> <p>9 analysis that I offer in the report, unless I've missed</p> <p>10 something and there's a place that you're thinking of</p> <p>11 that I talked about building in the report.</p> <p>12 BY MR. STONEDALE:</p> <p>13 Q. Well, that's my question. Do you talk about a</p> <p>14 person of ordinary skill in the art creating any</p> <p>15 particular system in combining the teachings of Imai and</p> <p>16 Pauls?</p> <p>17 MR. BATTS: Objection. Form.</p> <p>18 THE WITNESS: Could you repeat the question?</p> <p>19 MR. STONEDALE: Could the court reporter please</p> <p>20 repeat the question?</p> <p>21 (Record was read back as requested.)</p> <p>22 THE WITNESS: Well, I have a whole section on</p> <p>23 why it would be obvious to combine the two pieces of</p> <p>24 prior art and how it would be obvious to how the systems</p> <p>25 are so -- how they're so similar, the two pieces of art,</p>



<p style="text-align: right;">Page 30</p> <p>1 in so many ways, how natural it would be to combine them,  2 to combine the ideas from them, how -- and I had actually  3 pointed to that particular paragraph that described -- I  4 just lost -- I think I flipped it off here a second  5 ago -- but the paragraph that actually described how you  6 could take various compression methods of Pauls and use  7 them in Imai.  8 So I'm not quite sure what else you're asking,  9 frankly. Again, it might be easier in the context of the  10 analysis of why one or the other or both of these  11 references render a particular claim invalid due to  12 obviousness.  13 BY MR. STONEDALE:  14 Q. The distinction, I think, turns on the terms  15 "would" and "could." You've been telling me that it  16 would be obvious for a person of ordinary skill in the  17 art that he could take the encoding techniques described  18 in Pauls, implement them in Imai's system.  19 What I'm asking about is which encoding  20 techniques a person of ordinary skill in the art would --  21 would implement versus could implement?  22 MR. BATTS: Objection. Form.  23 THE WITNESS: Could you repeat the question?  24 BY MR. STONEDALE:  25 Q. I'm asking about the sorts of encoders that a</p>	<p style="text-align: right;">Page 32</p> <p>1 method to video and when a -- one of ordinary skill in  2 the art and Imai shows this general system where you can  3 plug things into it and you can have any number running  4 simultaneously, it would be completely natural --  5 completely natural -- to make use of a well-known  6 standard at the time and probably, arguably, for video  7 the most well-known standards of the time would certainly  8 include MPEG 2, MPEG 1 and H.263.  9 So it's -- so, in addition -- in addition,  10 because of the high similarities that I talked about  11 before in this section of my report and the motivation to  12 combine between the two systems and the similarity of the  13 problems that they're addressing and solving, it  14 certainly would be natural, in view of the combination,  15 to be using those same natural methods that Pauls  16 explicitly calls out, including MPEG, which includes the  17 MPEG audio layer that's specifically called out in Imai.  18 BY MR. STONEDALE:  19 Q. Would it be natural to use -- or do you offer  20 the opinion that it would be natural to use all of the  21 encoders that Pauls mentioned in the system described by  22 Imai?  23 MR. BATTS: Objection. Form.  24 THE WITNESS: Could you repeat the question?  25 Q. Do you offer the opinion that it would be</p>
<p style="text-align: right;">Page 31</p> <p>1 person of ordinary skill in the art -- well, strike that.  2 I'm asking you about which encoders a person of  3 ordinary skill in the art would take from Pauls and  4 implement into the system described by Imai, not which  5 one he could take from Pauls and implement into the  6 system of Imai.  7 MR. BATTS: Same objection.  8 THE WITNESS: It sounds like you're asking a  9 legal question about whether if it's completely obvious  10 to do it, does that render something obvious or not  11 versus did someone do it in the past or something?  12 And, secondly, my answer was broader than you  13 seem to be characterizing it. I first began by saying,  14 if you look at Imai alone or Pauls alone and you see a  15 system that allows you to plug in different methods -- in  16 fact, in Pauls, the figure shows multiple video plug-ins.  17 In Imai, it says it could just as well be video.  18 Just looking at the art by itself, without even  19 combining the two -- just looking at either one by  20 itself, so not necessarily looking at Imai, not  21 necessarily taking -- first -- we can talk about the  22 combination, but first, not necessarily taking MPEG 2 or  23 MPEG 1 or H.263 because Pauls suggests it, but anybody of  24 ordinary skill in the art when Imai says you could just  25 as well use video, you could just as well apply his</p>	<p style="text-align: right;">Page 33</p> <p>1 natural to use all of the encoders that Pauls mentioned  2 in the system described by Imai?  3 A. I'm not sure what you're encompassing in "all,"  4 but certainly, when you look at both Imai and you look at  5 Pauls, they envision the idea that you have multiple  6 encoders.  7 And, again, I'm not sure what you're  8 encompassing in "encoder" versus "algorithm" versus other  9 things -- we can look at specific claim language, and I'd  10 be happy to answer the question in that way. But  11 certainly when you look at the plug-ins, the things you  12 can use in those figures, for example -- Figure 3 of  13 Pauls, for example, or figures 4, 5 and 16 of Imai,  14 certainly the -- both of them envision you would have  15 multiple encoded -- multiple audio encoders, multiple  16 video encoders -- right? -- so you could choose between  17 them.  18 And you might even have, for example, two MPEG 2  19 encoders from different vendors -- right? -- and you  20 bought them both because one vendor is advertising super,  21 super good compression ratio, but it's expensive to run.  22 It does -- for example, when you look at MPEG and all the  23 video things, one of the most expensive steps is the  24 motion compensation.  25 I'm trying to take a block in the current frame</p>

<p style="text-align: right;">Page 34</p> <p>1 and match it to the best possible match in the previous  2 frame, sometimes to a half pixel or quarter pixel  3 resolution, which requires interpolation. And the area  4 that I search can be very narrow, just around the same  5 position in the previous one, or broader. And it also  6 can be more precise. And depending on how you limit or  7 don't limit it, it can take way more or way less time,  8 and it could also take way more way or less time  9 depending on what hardware you have available, both for  10 encoding and decoding.</p> <p>11 So you may very well purchase two versions of  12 the same standard, two versions of -- two encoders for  13 the same standard, two MPEG -- two different vendors sell  14 you an MPEG 2 encoder and you want both of them because  15 they have different properties. One of them may not get  16 quite as good quality or quite as good compression ratio,  17 but it's much faster. And the other one may do better,  18 but it requires more computational resources. It will  19 run slower, or it will require more expensive hardware or  20 software.</p> <p>21 So even within the same standard, let alone the  22 fact that you may want to have both an MPEG 2 and an  23 H.263 because they also have different properties. The  24 standards advertise -- or not advertise. But when the  25 standards were released, they were released for different</p>	<p style="text-align: right;">Page 36</p> <p>1 repeat the question?  2 (Record was read back as requested.)  3 THE WITNESS: I could be wrong, but I think you  4 asked this exact same question -- I mean the exact same  5 question -- before the break, and I gave you an answer.  6 I'm not sure if I can answer better unless I missed  7 something that you're trying to encompass in the  8 question. Unless I'm wrong, I believe those are the  9 exact words.  10 BY MR. STONEDALE:  11 Q. Is it possible to provide a concise answer to  12 that question?  13 MR. BATTS: Objection. Form.  14 THE WITNESS: I felt that I did before. An  15 accurate answer -- we also looked at that section of my  16 report. I quoted sections of my report. But, I mean,  17 literally, not only did you ask a similar questions many  18 times in a row, but I believe that's precisely the exact  19 question, so I don't know if I can answer any better.  20 BY MR. STONEDALE:  21 Q. Would you mind giving it a try?  22 A. Perhaps the court reporter could read back my  23 answer to the question.  24 (Record was read back as requested.)  25 By the way, just an objection that you said</p>
<p style="text-align: right;">Page 35</p> <p>1 targeted applications, but both compress video.  2 So I'm not sure how to better answer your  3 question. I'm not sure how to better answer your  4 question.  5 MR. STONEDALE: Would you-all mind if we took a  6 five-minute break off the record?  7 THE WITNESS: Sure.  8 MR. STONEDALE: I would like to use the  9 bathroom.  10 THE WITNESS: Good idea.  11 MR. BATTS: And beyond that, lunch planning? Is  12 there any thoughts on when we do lunch given the strange,  13 kind of, timing of the deposition today? Because I can  14 order in lunch now so that when we take the next break,  15 we can eat lunch? Does that make sense?  16 THE WITNESS: That sounds great.  17 (Recess was taken.)  18 BY MR. STONEDALE:  19 Q. Dr. Storer, do you offer the opinion that it  20 would be obvious for a person of ordinary skill in the  21 art to include any data compression encoders from Pauls  22 in the system described by Imai?  23 MR. BATTS: Objection. Form.  24 THE WITNESS: Could you repeat the question?  25 MR. STONEDALE: Could the court reporter please</p>	<p style="text-align: right;">Page 37</p> <p>1 "M.263," I said "H.263." But otherwise, thank you.  2 And if you heard her speak, the opening part, I  3 think very concisely, addressed the question, and then I  4 gave additional explanation for the longer portion of --  5 other part of the question, and I really don't know how  6 to better -- I ended it by saying, "I really don't know  7 how to better answer your question" because you had asked  8 a very, very similar question any number of times before  9 that.  10 BY MR. STONEDALE:  11 Q. It seems like part of what you objected to in my  12 question is the use of the word "encoder," and I think  13 maybe you prefer to use -- use the word "plug-in." Would  14 you call MPEG a plug-in?  15 MR. BATTS: Objection. Form.  16 THE WITNESS: No.  17 BY MR. STONEDALE:  18 Q. How would you describe MPEG as a standard?  19 A. MPEG is an international standard. It includes  20 three parts. Part one is the syntax for how you receive  21 a stream and parse it because there's very complicated  22 syntax to describe what it is you're supposed to do --  23 parameters. Anything from frame rate to all kinds of  24 things.  25 And then part two is audio. Specifying how</p>

<p style="text-align: right;">Page 38</p> <p>1 to -- how an audio stream is to be -- relating to the</p> <p>2 compression of audio stream. And part three relates to</p> <p>3 the compression of a video stream. And the reason I say</p> <p>4 "relates," of course, is that the standard is really</p> <p>5 specifying the protocol. There's lots of -- as I</p> <p>6 mentioned in that longer explanation that was part of the</p> <p>7 previous answer, there are many different ways that one</p> <p>8 could go about implementing the standard that could</p> <p>9 result in slower or faster execution at the tradeoff of</p> <p>10 needing more expensive hardware or slower, or running</p> <p>11 slower or something like that, such as the motion</p> <p>12 compensation where the search could be very narrow and</p> <p>13 give a good job, or the search could be much more complex</p> <p>14 and do a slightly better job, for example.</p> <p>15 So it's a standard -- and I would describe MPEG</p> <p>16 as a standard for video and audio compression, often,</p> <p>17 typically, video includes an audio track, but the audio</p> <p>18 portion can be used on its own, so I wouldn't call it a</p> <p>19 plug-in, but it certainly can be used as something you</p> <p>20 could plug into one of the components that is either</p> <p>21 described in the Imai patent or described in the Pauls</p> <p>22 patent.</p> <p>23 Q. Would you call MPEG a data compression</p> <p>24 algorithm?</p> <p>25 MR. BATTS: Objection. Form.</p>	<p style="text-align: right;">Page 40</p> <p>1 also see where it's used as a component in a larger</p> <p>2 system, if you will, or encoder, if you will, or maybe</p> <p>3 some people will consider the entire MPEG as an</p> <p>4 algorithm. Others might say it consists of multiple</p> <p>5 algorithms within an MPEG encoder.</p> <p>6 Again, I'm talking outside specifically the</p> <p>7 patent or the claim language. And, for example,</p> <p>8 something like Huffman coding is used also in JPEG image</p> <p>9 compression, JPEG compression, DCT, for example, and</p> <p>10 Huffman coding and run-length coding.</p> <p>11 So I think the terminology, again, if we're</p> <p>12 going to -- I don't even recall sitting here. We have to</p> <p>13 go take a look at the claims. But I think that if you're</p> <p>14 going to use words like "encoder," "algorithm," what's</p> <p>15 the difference and so on, well, let's go ahead and look</p> <p>16 at the analysis of the claims. But I think I have given</p> <p>17 you an answer to describe MPEG is composed of a lot of</p> <p>18 complex pieces which work together.</p> <p>19 (Reporter asked for clarification.)</p> <p>20 BY MR. STONEDALE:</p> <p>21 Q. For purposes of claims, would you call MPEG a</p> <p>22 data compression encoder?</p> <p>23 A. Okay. Well in that case, I guess if you're</p> <p>24 going to -- when you talk about claims now, I need, I</p> <p>25 guess, to have a copy of the patent at issue in front of</p>
<p style="text-align: right;">Page 39</p> <p>1 THE WITNESS: Could you repeat the question?</p> <p>2 BY MR. STONEDALE:</p> <p>3 Q. Would you call MPEG a data compression</p> <p>4 algorithm?</p> <p>5 A. So I'm not sure what you're encompassing in the</p> <p>6 word "algorithm." I think if you look -- and we could</p> <p>7 look specifically at claim language and describe what it</p> <p>8 is -- and look at my analysis of a particular claim, but</p> <p>9 outside the claims of the patent and outside even the</p> <p>10 patent, MPEG is a -- also like H.263, is a complex -- has</p> <p>11 a complex process to the way it compresses video.</p> <p>12 First there's motion compensation. I've</p> <p>13 described that that can be very time-consuming, and there</p> <p>14 are many different approaches to that that can take more</p> <p>15 or less time. And then after that, there is</p> <p>16 quantization.</p> <p>17 There's also -- well, there's also transform,</p> <p>18 something called the DTC, which is a complicated</p> <p>19 mathematical transform. There's quantization, and</p> <p>20 there's lossless coding, including run-length and</p> <p>21 Huffman, H-U-F-F-M-A-N, coding.</p> <p>22 So you can certainly see in the literature</p> <p>23 where, for example, Huffman coding is presented on its</p> <p>24 own as a data compression method or as a data compression</p> <p>25 algorithm or as a data compression encoder, and you can</p>	<p style="text-align: right;">Page 41</p> <p>1 me.</p> <p>2 Q. I'm curious. What are you going to look at in</p> <p>3 the patent? The claim language is in your report.</p> <p>4 A. I think if we're going to talk about the claims</p> <p>5 at issue, I should have the patent in front of me, so I</p> <p>6 would just ask for that if that's okay.</p> <p>7 Q. I'm just curious why -- what you're looking for</p> <p>8 in the patent. Why do you need the patent to answer the</p> <p>9 question?</p> <p>10 A. I guess if you're going to ask a question about</p> <p>11 the patent, I would like to have the patent in front of</p> <p>12 me.</p> <p>13 Q. Is there any reason that you need the patent?</p> <p>14 A. My understanding is today's deposition is</p> <p>15 entirely about that one patent.</p> <p>16 Q. Yeah. Go ahead and give him the patent.</p> <p>17 (Exhibit F was marked for identification.)</p> <p>18 A. (Witness reviewed document.) So I have the</p> <p>19 patent in front of me, and at the moment, I've simply</p> <p>20 looked at Claim 1 and the language in Claim 1 that</p> <p>21 incorporates some of these words that you've been using</p> <p>22 in your questions and I've been answering sort of in</p> <p>23 generalities outside of looking at Claim 1, including</p> <p>24 "system," "encoder" and "algorithm."</p> <p>25 And with that in front of me, if you would like</p>

<p style="text-align: right;">Page 42</p> <p>1 to repeat your question or have a question, that would be 2 fine.</p> <p>3 Q. Is MPEG a data compression encoder?</p> <p>4 A. Well, MPEG is a standard, and people -- vendors 5 or people would implement the standard in software or 6 hardware or a combination, and so the MPEG standard is -- 7 when you refer to MPEG, you're often referring to an 8 encoder in the sense you're referring to someone who has 9 a particular implementation that you might purchase or 10 use.</p> <p>11 MPEG itself employs many -- what one would 12 consider well-known or -- well-known algorithms, some of 13 them going back decades, such as Huffman coding, 14 run-length coding, discrete cosine transform, DCT, or 15 even motion compensation -- again, decades.</p> <p>16 And so there -- those are often viewed as 17 algorithms on their own. Computer science might also 18 consider a collection of algorithms as itself an 19 algorithm and a piece of software that implemented the 20 standard as an encoder. So what I do in my report is I 21 go through this claim one element at a time, so the best 22 way to answer questions about the use of those words in 23 the claim would be to go through my report, which goes 24 through the elements of that claim one at a time, and 25 those elements do include the words you've been referring</p>	<p style="text-align: right;">Page 44</p> <p>1 then I say, "Imai teaches 'a transmission system' for 2 compressing data" and give a citation.</p> <p>3 And say, "It is my opinion that Imai's 4 'transmission system' teaches" -- "teaches a system..."</p> <p>5 And then the claim -- the claim now begins with, 6 "A plurality of different asymmetric data compression 7 encoders" -- so there you have the word "encoder" -- 8 "wherein each asymmetric data compression encoder of the 9 plurality of different asymmetric data compression 10 encoders is configured to utilize one or more data 11 compression algorithms," so there you have the word 12 "algorithm."</p> <p>13 And then I go on to say, "I note that Imai 14 teaches 'a plurality of coding methods corresponding to 15 the encoders 51 to 53." So, for example, I cite to 16 Figure 5.</p> <p>17 And then I go on to say, "Imai's encoders 51 to 18 53 'employ different encoding methods from each other.' 19 And I'm quoting, again, from Imai when he refers to them 20 as different encoding methods.</p> <p>21 And I also note in paragraph 114 that "Imai 22 states that the coding methods employed by each encoder 23 include," and I list a number of coding methods, 24 including the MPEG standard.</p> <p>25 And then, I -- in paragraph 115, to finally get</p>
<p style="text-align: right;">Page 43</p> <p>1 to, including "system," "encoder" and "algorithm" --</p> <p>2 Q. Do you offer the opinion that MPEG is an encoder 3 in your report?</p> <p>4 A. Well, let's take a look. I guess before even 5 looking, MPEG is a standard, and when one refers to MPEG, 6 one is typically referring to the fact that you are going 7 to be using some implementation of a standard.</p> <p>8 So your question -- I'm not sure if the question 9 exactly lines up with what MPEG is, but it may line up 10 with how -- with the terminology when one refers to MPEG 11 or one talks about using MPEG.</p> <p>12 Q. So for purposes of the claim language, is MPEG 13 an encoder?</p> <p>14 A. So I'm going to take a quick look at the report. 15 It seems like you're starting to ask about claim 16 language, so let me take a look at -- to refresh my 17 memory -- for example, the analysis of Claim 1. If you 18 would give me a moment. (Witness reviewed document.)</p> <p>19 So I might just point you to -- I think in 20 parsing these words -- to just a couple very -- I haven't 21 even looked at the full analysis of Claim 1, but just the 22 nice thing is the claim begins using the terms that you 23 have been addressing in your questions.</p> <p>24 So paragraph 112 of my report says, "I note that 25 Claim 1 includes a preamble directed to a system." And</p>	<p style="text-align: right;">Page 45</p> <p>1 to the last term in your question, "I note that each of 2 these algorithms would have been well-known to a 3 POSITA" -- and that's P-O-S-I-T-A, which, as you noted, 4 is an abbreviation for "person of ordinary skill in the 5 art" -- "as audio compression" -- "are known to POSITA as 6 audio compression algorithms."</p> <p>7 And my opinion is supported by at least -- and I 8 give some other well-known -- it's well-known to one of 9 ordinary skill in the art. And I give some citations to 10 some textbooks.</p> <p>11 So then I go on to say, "Thus, although Imai 12 refers generally to 'encoders' and 'coding methods,' a 13 POSITA would have understood that Imai teaches using 14 compression encoders because coding is a term of art in 15 the industry that encompasses compression algorithms, and 16 Imai states that at least ATRAC 2 and MPEG layer 3 are 17 examples of coding methods that 'provide a high 18 compression rate' and thus compress input data." And I 19 go on to discuss this further.</p> <p>20 But I think that just that introductory section 21 to my analysis of Claim 1, just going to the first 22 element, does parse out those terms that you've asked 23 about, which were "system," "encoder" and "algorithm."</p> <p>24 Q. I'm talking right now just about the term 25 "encoder." So based on your analysis there, if you could</p>

<p style="text-align: right;">Page 46</p> <p>1 help me interpret that and let me know if MPEG is an 2 encoder, as you've defined it there.</p> <p>3 A. Well, what I say here is that coding is a term 4 of art in the industry, and it encompasses compression 5 algorithms, so an encoder encompasses algorithms.</p> <p>6 For example, we mentioned before that you might 7 purchase one or more MPEG -- encoders based on the MPEG 8 standard that might have different tradeoffs.</p> <p>9 Even with using the same standard, one encoder 10 may take much more time or more resources but do a 11 slightly better job in compression ratio or quality, 12 something like that, compared to another, so they 13 encompass algorithms.</p> <p>14 And the encoders -- there can be encoders based 15 on a number of well-known standards, including both audio 16 and video and a number of video -- for example, video 17 standards are -- sorry, audio standards are mentioned in 18 the paragraph above.</p> <p>19 Q. Is MPEG a compression algorithm for purposes of 20 the claim?</p> <p>21 MR. BATTS: Objection. Form.</p> <p>22 THE WITNESS: Could you repeat your question?</p> <p>23 BY MR. STONEDALE:</p> <p>24 Q. Is MPEG a compression algorithm for purposes of 25 the claim?</p>	<p style="text-align: right;">Page 48</p> <p>1 algorithms are each different asymmetric data compression 2 algorithms that are each used by Imai's encoders."</p> <p>3 I mean, what could be -- it seems completely 4 clear, and I don't really know how to better answer your 5 question.</p> <p>6 Q. Is it not possible to answer the question in a 7 "yes" or "no" format?</p> <p>8 MR. BATTS: Objection. Form.</p> <p>9 THE WITNESS: Could you repeat your question?</p> <p>10 BY MR. STONEDALE:</p> <p>11 Q. Is it not possible to answer the question in a 12 "yes" or "no" format?</p> <p>13 A. Which question are you referring to?</p> <p>14 Q. The question of whether or not MPEG is a data 15 compression algorithm.</p> <p>16 A. I think the way you've asked it, you've kind of 17 framed it in a funny way because I mentioned earlier -- 18 so the answer, I think, to your question is "no" the way 19 you've asked the question because you've framed it in a 20 funny way.</p> <p>21 People will talk about using MPEG, and what they 22 mean is an implementation of MPEG. MPEG itself is a 23 standard that people now can use -- people can agree upon 24 so that when someone says they've encoded, they made an 25 encoder according to the MPEG standard -- and as I</p>
<p style="text-align: right;">Page 47</p> <p>1 A. So, we've talked earlier about how MPEG is a 2 standard, and then you -- and MPEG does rely on certain 3 algorithms, and an encoder that implements the MPEG 4 standard utilizes those algorithms.</p> <p>5 And if you go to paragraph 117 in my report, for 6 example -- I talk about this a number of places -- "I 7 note that Imai's encoders comprise a plurality of 8 different asymmetric data compression encoders that 9 utilize data compression algorithms. Specifically MPEG 10 layers 1, 2 and 3, and the ATRAC and ATRAC 2 compression 11 algorithms are each different asymmetric data compression 12 algorithms that are each used by Imai's encoders."</p> <p>13 So I think your question is very well answered 14 just by looking at the report, that I believe that 15 paragraph alone addresses your question.</p> <p>16 Q. Could you help me understand the application of 17 your analysis to the specific issue of whether or not 18 MPEG is a -- is a compression algorithm?</p> <p>19 A. We've already -- I'm not sure -- isn't that what 20 you basically just asked me? How can I answer it any 21 better? Let me just say again, paragraph 117 says, "I 22 note that Imai's encoders comprise a plurality of 23 different asymmetric data compression encoders that 24 utilize data compression algorithms. Specifically, MPEG 25 layers 1, 2 and 3, and the ATRAC and ATRAC 2 compression</p>	<p style="text-align: right;">Page 49</p> <p>1 mentioned earlier, you might have multiple encoders that 2 have different properties for the same standard, multiple 3 encoders have different properties with respect to speed 4 versus other considerations such as compression ratio or 5 quality.</p> <p>6 (Reporter asked for clarification.)</p> <p>7 And so, your question -- so people will refer to 8 using MPEG. When they talk about using it, they're 9 referring to implementation based on the standard, and I 10 think that the paragraph 117 in my report that I read to 11 you clearly relates the terms "encoder" and "algorithm" 12 and pretty clearly answers your question in a way that is 13 not a yes or a no, but I think answers your question 14 clearly and is the best way to answer that question -- or 15 a good way to answer the question, anyway.</p> <p>16 Q. Does the system of Imai use encoders?</p> <p>17 A. There was kind of a -- something in the 18 transmission kind of stopped in the middle, so could you 19 repeat the question?</p> <p>20 Q. Does the system described by Imai use encoders?</p> <p>21 A. So in paragraph 117, I say, "I note that Imai's 22 encoders comprise a plurality of different asymmetric 23 data compression encoders that utilize data compression 24 algorithms."</p> <p>25 And then earlier on, we noted that -- I said at</p>

<p style="text-align: right;">Page 50</p> <p>1 the very beginning, "It is my opinion that Imai's</p> <p>2 transmission system teaches the system as recited in</p> <p>3 Claim 1."</p> <p>4 So it seems like we've already gone over this in</p> <p>5 the very beginning of my analysis of -- of Claim 1, for</p> <p>6 example. I mean, there are other places in the report</p> <p>7 where I describe Imai as well. Imai -- I describe in a</p> <p>8 number of places in the report, but certainly right</p> <p>9 there, it seems to be a very clear answer to your</p> <p>10 question.</p> <p>11 Q. In your paragraph 117, you say, MPEG layers 1, 2</p> <p>12 and 3 and the ATRAC and ATRAC 2 compression algorithms</p> <p>13 are algorithms that are used by Imai's encoders; is that</p> <p>14 right?</p> <p>15 A. What I say is specifically, "MPEG layers 1, 2</p> <p>16 and 3 and the ATRAC and ATRAC 2 compression algorithms</p> <p>17 are each different asymmetric data compression algorithms</p> <p>18 that are each used by Imai's encoders."</p> <p>19 Q. So is MPEG layer 3 a compression algorithm?</p> <p>20 MR. BATTS: Objection. Form.</p> <p>21 THE WITNESS: Could you repeat your question?</p> <p>22 BY MR. STONEDALE:</p> <p>23 Q. Is MPEG layer 3 a compression algorithm?</p> <p>24 A. So -- so MPEG -- when I refer to MPEG layers 1,</p> <p>25 2 and 3, I'm talking about, as you mentioned earlier,</p>	<p style="text-align: right;">Page 52</p> <p>1 What I say here in my report in paragraph 117</p> <p>2 is, "Specifically, MPEG layers 1, 2 and 3, and the ATRAC</p> <p>3 and ATRAC 2 compression algorithms are each different</p> <p>4 asymmetric data compression algorithms that are each used</p> <p>5 by Imai's encoders."</p> <p>6 So when Imai has an encoder that is working</p> <p>7 according to MPEG layers -- layer 3, for example, it is</p> <p>8 employing the algorithms of the standard. Although, as I</p> <p>9 mentioned earlier, there may be multiple -- you may have</p> <p>10 multiple encoders, which may have different -- may be</p> <p>11 both working according to the standard, but have</p> <p>12 different -- even in the case of audio, have different</p> <p>13 properties in terms of speed versus other considerations,</p> <p>14 such as compression ratio and quality.</p> <p>15 Q. To summarize, would it be accurate to say that</p> <p>16 MPEG layer 3 is a compression algorithm?</p> <p>17 MR. BATTS: Objection. Form.</p> <p>18 THE WITNESS: I don't think I would want to</p> <p>19 summarize my previous answer. I thought it was pretty</p> <p>20 clear, and I would rather have that be the answer than</p> <p>21 some kind of possibly incorrect summary.</p> <p>22 BY MR. STONEDALE:</p> <p>23 Q. Do you, in your declaration, name any data</p> <p>24 compression algorithms that are used by the system</p> <p>25 described in Imai?</p>
<p style="text-align: right;">Page 51</p> <p>1 that the MPEG standard, again, which was -- which was</p> <p>2 released nearly a decade prior to the Fallon patents and</p> <p>3 was known in the -- and the stuff in it was known more</p> <p>4 than a decade before, even with MPEG 2, let alone MPEG 1.</p> <p>5 Let's take MPEG 2, though. There were three</p> <p>6 sections. There are three sections to the standard. The</p> <p>7 syntax section, which is entitled -- I can't remember the</p> <p>8 title. It's not entitled "syntax," but basically a big</p> <p>9 section on the syntax. And then a section on audio,</p> <p>10 which is part 2; and then section on video, which is</p> <p>11 part 3.</p> <p>12 And it's part 2, the audio, that's being</p> <p>13 referred to here, the audio. It can be used on a</p> <p>14 standalone basis, so it embodies -- the standard</p> <p>15 describes algorithms and implementations of the standard.</p> <p>16 When one has an encoder, its implementing -- it's working</p> <p>17 according to the standard, according to the algorithms in</p> <p>18 the standard, can be used to compress video.</p> <p>19 So the standard as a whole is -- I'm sorry, to</p> <p>20 compress audio. The standard as a whole is viewed as a,</p> <p>21 quote, "video compression standard" because typically,</p> <p>22 video has an audio associated with it, and that's why --</p> <p>23 actually, the part 1 -- now I remember -- is called the</p> <p>24 "systems" part with the syntax, and that's why there are</p> <p>25 two parts, part 2 for audio and part 3 for video.</p>	<p style="text-align: right;">Page 53</p> <p>1 A. I don't think I understand your question. We've</p> <p>2 already been talking about -- lots of things used by</p> <p>3 Imai, we mentioned. We talked about this opening part of</p> <p>4 the analysis of Claim 1 that cites to many different</p> <p>5 methods. I'm not sure I understand your question.</p> <p>6 Q. Does Imai use any -- sorry. Does Imai use any</p> <p>7 data compression algorithm?</p> <p>8 A. What do you mean by "use"? In other words, we</p> <p>9 talked about how Imai teaches and describes all these</p> <p>10 different things, and then we've talked about analysis of</p> <p>11 a claim and what the claim is claiming and then looking</p> <p>12 to see how Imai renders each of those elements obvious.</p> <p>13 So I -- are you trying to talk about what Imai</p> <p>14 did as an inventor when he was possibly building a system</p> <p>15 based on his invention or -- I'm not sure what you mean</p> <p>16 by "uses" versus what it is that is disclosed and</p> <p>17 rendered obvious by Imai and what it is I am relying upon</p> <p>18 in Imai in my analysis, for example, Claim 1.</p> <p>19 Q. Does the system described by Imai use any data</p> <p>20 compression algorithm?</p> <p>21 A. I don't know how to answer your question better</p> <p>22 than I already have, so let me read paragraph 117, which</p> <p>23 I think addresses your question. "I note that Imai's</p> <p>24 encoders comprise a plurality of different asymmetric</p> <p>25 data compression encoders that utilize the data</p>

<p style="text-align: right;">Page 54</p> <p>1 compression algorithms, specifically" -- "that utilize  2 data compression algorithms" -- I didn't mean to say  3 "the." "Specifically, MPEG layers 1, 2 and 3, and the  4 ATRAC and ATRAC 2 compression algorithms are each  5 different asymmetric data compression algorithms that are  6 each used by Imai's encoders."  7 THE COURT REPORTER: Hold on. Slow down a  8 little bit.  9 THE WITNESS: I don't understand what is not  10 clear about that, and I don't understand why that doesn't  11 answer your question.  12 BY MR. STONEDALE:  13 Q. Would it be reasonable for me to conclude from  14 your opinion expressed in paragraph 117 that Imai does  15 use data compression algorithms?  16 A. I can't say what's reasonable for you to do or  17 not to do. I think paragraph 117 speaks pretty clearly.  18 Q. Do you express the opinion that Imai does use  19 data compression algorithm?  20 A. This sounds like the same question you asked  21 before, and I also asked you what you meant by "used." I  22 don't know how to better answer it. You seem to be  23 asking the same question over and over. I pointed you to  24 relevant sections in my report. I don't really  25 understand what else you're trying to ask that I haven't</p>	<p style="text-align: right;">Page 56</p> <p>1 of this sentence. Does this sentence convey that MPEG  2 layers 3 is a compression algorithm?  3 A. Well, it says "MPEG layers 1, 2 and 3 and the  4 ATRAC and ATRAC 2 compression algorithms are each  5 different asymmetric data compression algorithms that are  6 each used by Imai's encoders."  7 So I think -- I don't know whether you're trying  8 to parse words or not. I've explained earlier that these  9 are well-known standards and that you can now have  10 implementations based on those standards, encoders based  11 on those standards, that employ the algorithms from the  12 standards.  13 Again, different implementations may have  14 different complexities because the algorithms can be  15 implemented in different ways and have different  16 tradeoffs.  17 So I'm not sure what else you're asking above  18 and beyond what is said here in the paragraph, and this  19 paragraph is in the context of analyzing Claim 1 and the  20 element that is being analyzed after the preamble, which  21 simply says, "A system" -- and I note that Imai's  22 transmission system teaches a system as recited in  23 Claim 1. It's analyzing that next claim element -- "a  24 plurality of different asymmetric data compression  25 encoders wherein each asymmetric data compression encoder</p>
<p style="text-align: right;">Page 55</p> <p>1 already answered.  2 Q. Does the system described by Imai use any data  3 compression algorithms?  4 MR. BATTS: Objection. Form.  5 THE WITNESS: Okay. So both before the break  6 and after the break you asked that exact -- I mean, I  7 believe, unless my memory is wrong -- to-the-word  8 question. I don't know how to answer any better than the  9 last two times you asked it.  10 BY MR. STONEDALE:  11 Q. The last sentence of paragraph 117 says that  12 MPEG layer 3 is used by Imai's encoders; is that correct?  13 A. It says specifically -- I think you're  14 paraphrasing it, but, "Specifically, MPEG layers 1, 2 and  15 3 and the ATRAC and ATRAC 2 compression algorithms are  16 each different asymmetric data compression algorithms  17 that are each used by Imai's encoders."  18 Q. Does that mean that MPEG layer 3 is a data  19 compression algorithm?  20 MR. BATTS: Objection. Form.  21 THE WITNESS: So, again, I think that's the  22 exact same question you've already asked at least once.  23 I don't know how I can better answer it.  24 BY MR. STONEDALE:  25 Q. Well, I'm specifically asking about the meaning</p>	<p style="text-align: right;">Page 57</p> <p>1 of the plurality of different asymmetric data compression  2 encoders is configured to utilize one or more data  3 compression algorithms." That's the word you've been  4 asking about.  5 And then I go on to talk about, in a sequence of  6 paragraphs and not merely the 117 that we've been talking  7 about, about how this claim -- this portion of the claim  8 is rendered obvious by Imai, and the -- in fact, the  9 paragraph right below my, sort of, presentation of that  10 claim element, paragraph 113, says, "I note that Imai  11 teaches 'a plurality of coding methods corresponding to  12 encoders 51 to 53.'"  13 And then I go on later to talk in paragraph --  14 and by the way, in the -- in paragraph 114, I list a  15 whole bunch of things, such as MPEG and ATRAC.  16 And then 115 -- we mentioned this earlier -- I  17 say, "I note that each of these algorithms would have  18 been well-known to POSITA as audio compression  19 algorithms."  20 And I go on to say, "Thus, although Imai  21 generally" -- "Imai refers generally to 'encoders'" -- I  22 put that in quotes -- and 'coding methods'" -- I put that  23 in quotes -- "a POSITA would have understood that Imai  24 teaches using compression encoders because coding is a  25 term of art in the industry and that encompasses" -- "a</p>

<p style="text-align: right;">Page 58</p> <p>1 term in the industry that encompasses compression 2 algorithms."</p> <p>3 So I think we've talked about this before. We 4 have the notion of a system. We have the notion of an 5 encoder. We have the notion of an encoder encompassing 6 compression algorithms. And we have well-known standards 7 on which encoders are based where the standards 8 themselves describe algorithms, and those encoders 9 encompass algorithms described by the standards, those 10 encoders that are based on the standard. And again, it 11 could be -- you might have multiple encoders based on the 12 same standard with any given system.</p> <p>13 Q. Can you give an example of an encoder that Imai 14 teaches?</p> <p>15 A. Haven't I already done that multiple times?</p> <p>16 Q. It's unclear to me. But maybe you could do it 17 now and that would make it more clear.</p> <p>18 A. So -- well, first of all, let's go back to 19 paragraph 114 that I skipped over there. 114 says, "I 20 also note that Imai states that the coding methods 21 employed by each encoder" -- each encoder -- "include: 22 Linear PCM (Pulse Code Modulation), ADPCM (Adaptive 23 Differential PCM)" --</p> <p>24 THE COURT REPORTER: I'm sorry. Hold on. This 25 is technical, so can you --</p>	<p style="text-align: right;">Page 60</p> <p>1 So I think that the report itself in just this 2 initial analysis of just the first claim element where we 3 now have the beginning of the claim with the word 4 "system" -- the preamble with the word "system" and the 5 first claim element having the words both "encoder" and 6 "algorithm" in the first claim element, I think the 7 answers to your questions about those terms are very 8 clearly laid out in just these first opening paragraph -- 9 opening paragraphs in the sense that they're addressing 10 this first claim element of Claim 1, for example. There 11 are other places in the report where I also describe Imai 12 and address Imai, but certainly here.</p> <p>13 Q. Which compression algorithms does Imai teach?</p> <p>14 A. I don't understand. Didn't I just answer that 15 question? I don't know how to answer it better. I just 16 don't understand what else you're trying to ask for here. 17 It's the same question.</p> <p>18 Q. I was asking before if you could tell me whether 19 or not Imai teaches any compression algorithms. Now I'm 20 asking you if you can name any that it does teach.</p> <p>21 MR. BATTS: Objection. Form.</p> <p>22 THE WITNESS: I don't quite understand your 23 question. Are you asking whether Imai teaches how the 24 methods work? That is computationally some of the things 25 that one of ordinary skill in the art, for example, would</p>
<p style="text-align: right;">Page 59</p> <p>1 THE WITNESS: This is well-known. 2 THE COURT REPORTER: Not to me.</p> <p>3 THE WITNESS: -- "layers 1, 2, 3 of MPEG (Moving 4 Picture Experts Group), ATRAC (Adaptive Transform 5 Acoustic Coding), ATRAC 2 and HVXC (Harmonic Vector 6 "Excit" -- "Excit" -- "Exc" -- "Excit" -- Excitation 7 Coding). Stated otherwise, in the embodiment, the 8 encoders 51 to 53 are prepared by using encoders which 9 perform encoding of the audio signal with various coding 10 methods."</p> <p>11 And remember that later on -- we already talked 12 about this -- I say, "Thus, although Imai refers 13 generally to 'encoders' and 'coding methods,' a POSITA 14 would have understood that Imai teaches using compression 15 encoders because coding is a term of art in the industry 16 that encompasses compression algorithms."</p> <p>17 And furthermore, we also have talked about the 18 fact that at the -- that Imai also notes that his system 19 could equally be applied to video, and anyone of ordinary 20 skill in the art -- anyone of ordinary skill in the art 21 at that time with the knowledge of these well-known 22 standards that have been out for years for video 23 compression would also understand that things like 24 MPEG 2, video, H.263 video, MPEG 1 video, for example, 25 would be things that clearly also could be used.</p>	<p style="text-align: right;">Page 61</p> <p>1 have known for years; that the -- for example, a 2 particular compression algorithm uses the DCT and Huffman 3 coding or something like that.</p> <p>4 Or are you asking about what Imai teaches could 5 be used as one of the -- what I referred to earlier as 6 "plug-ins" and, for example, Figure 5? And I'm not sure 7 I really understand the terminology that you use in your 8 questions. It seems as though you're still kind of -- 9 kind of going back to something you asked a number of 10 times already and I've answered a number of times 11 already.</p> <p>12 BY MR. STONEDALE:</p> <p>13 Q. In the --</p> <p>14 A. I'm sorry. The video -- the feed hiccupped 15 there. Can you start again?</p> <p>16 Q. In the portion of your declaration where you -- 17 well, let me just go to it, then. So you offer the 18 opinion that "Imai renders obvious the limitation wherein 19 a first asymmetric data compression encoder of the 20 plurality of different asymmetric data compression 21 encoders is configured to compress data blocks containing 22 video or image data at a higher data compression rate 23 than a second asymmetric data compression encoder" --</p> <p>24 THE COURT REPORTER: Hold on. Can you slow down 25 a little bit?</p>



<p style="text-align: right;">Page 62</p> <p>1 MR. STONEDALE: Oh, I'm sorry. I'll just read  2 the whole thing over again.  3 "Wherein a first asymmetric data compression  4 encoder of the plurality of different asymmetric data  5 compression encoders is configured to compress data  6 blocks containing video or image data at a higher data  7 compression rate than a second asymmetric data  8 compression encoder of the plurality of different  9 asymmetric data encoders."  10 A. I'm sorry. I didn't hear a question. Or it was  11 so long that we're repeating that -- I guess, could you  12 say what the question is?  13 BY MR. STONEDALE:  14 Q. Yes. Do you see the limitation that -- in the  15 patent, in Claim 1, do you see the limitation that  16 mentions a first asymmetric data compression encoder?  17 A. Yes. I see that in Claim 1.  18 Q. And it's your opinion that that limitation is  19 rendered obvious by Imai; is that correct?  20 A. That limitation is rendered obvious by Imai,  21 yes.  22 Q. How does Imai disclose a first asymmetric data  23 compression encoder?  24 A. So, Imai actually describes an end-to-end system  25 where you can have real time transmission that goes</p>	<p style="text-align: right;">Page 64</p> <p>1 compression code?  2 A. So as I was saying partway through that answer,  3 was that it has to take into account both the speed and  4 the compression ratio. Optimizing the speed alone may  5 not solve the problem that the data can't go over the  6 channel, and optimizing the compression ratio alone won't  7 necessarily solve the problem if you're doing it too  8 slowly.  9 Q. Can I cut you off again? I think you're  10 misunderstanding the question.  11 A. Are you withdrawing the question, then, again?  12 Q. I'll withdraw the question.  13 A. Okay.  14 Q. Do you point to any aspect of Imai as a first  15 asymmetric data compression encoder?  16 A. So, as I was trying to answer your question and  17 trying to describe how Imai works where it has to base  18 its decision on which encoder to use, in order to achieve  19 throughput that it gives end to end -- end to end -- and  20 one of ordinary skill in the art well understands the  21 considerations you have and sees familiar discussion when  22 they read Imai, if you want to go end to end and really  23 have throughput that goes all the way through without any  24 difficulties, you need to encode in such a way that you  25 both have speed that's appropriate and a compression</p>
<p style="text-align: right;">Page 63</p> <p>1 through the encoding, across the channel, through the  2 decoder and to, let's say, the listener or viewer at the  3 other end.  4 Imai has to take into consideration both speed  5 and compression ratio and other factors in order to  6 actually ensure a real time system.  7 And so Imai actually shows and describes having  8 multiple encoders and choosing an encoder in order to  9 achieve this goal of throughput. The key goal is  10 throughput, right? It's, Can we now have a seamless  11 system end to end?  12 So what affects throughput is both the speed of  13 the encoder and the compression ratio. If you just -- if  14 you don't -- if you just have a really fast encoder but  15 the data is not small enough so that it can go over the  16 channel, it really doesn't matter how fast it is. And  17 similarly --  18 Q. So I'm going to ask more precisely --  19 A. Sorry. You've interrupted me --  20 Q. I've --  21 A. Sorry. You've interrupted me. You've  22 interrupted me. Are you withdrawing your question? It's  23 fine if you are. Otherwise, I wasn't finished.  24 Q. Oh, yeah. I'll withdraw the question.  25 How does Imai teach a first asymmetric data</p>	<p style="text-align: right;">Page 65</p> <p>1 ratio that is appropriate.  2 Really fast doesn't help you if the compression  3 ratio is not enough because it won't go over the channel,  4 and really good compression doesn't help you if you don't  5 do it fast enough.  6 So Imai has multiple encoder -- it has the idea  7 of multiple encoders that have different properties in  8 terms of speed and compression ratio and, of course, data  9 type.  10 Imai talks specifically how a different encoder  11 may do a better job with one data type than the other.  12 So when you talk about a first and second, Imai talks  13 about the idea that you can have a tradeoff where one  14 encoder may be -- may do a better job for that throughput  15 than another encoder; for example, for a particular type  16 of data where you know a different compressor is more  17 appropriate and will achieve, for example, higher speed  18 or the speed necessary in order to assure this end-to-end  19 throughput.  20 And so the end-to-end is a very important aspect  21 of Imai. It's actually taking into account several --  22 several considerations, including both speed and  23 compression ratio, because they're related.  24 Well, optimizing only one will not necessarily  25 give you that end-to-end that you need -- in fact, Imai</p>

<p style="text-align: right;">Page 66</p> <p>1 even goes further to talk about measuring the speed of</p> <p>2 the decoder because that's also necessary as part of the</p> <p>3 chain in order to guarantee the end-to-end throughput.</p> <p>4 MR. BATTS: So we've been going for about an</p> <p>5 hour again and I just wanted to see if, at some point, we</p> <p>6 could take the break for lunch?</p> <p>7 MR. STONEDALE: Yeah. I think very soon. I</p> <p>8 just want to finish this line of questioning.</p> <p>9 BY MR. STONEDALE:</p> <p>10 Q. So you've described what you see as the purpose</p> <p>11 of Imai. And I'm curious if there's any encoder in</p> <p>12 particular that Imai -- or sorry. I'll start over.</p> <p>13 I'm curious if there's any encoder that you</p> <p>14 suggest is the first asymmetric data compression encoder</p> <p>15 that Imai teaches?</p> <p>16 A. Sure. So Imai actually includes a number of</p> <p>17 different approaches, but certainly one, such as in</p> <p>18 Figure 5, where on the fly, Imai is going to now</p> <p>19 determine what encoder will ensure this throughput,</p> <p>20 right? What encoder will do the best job.</p> <p>21 So, for example, it even talks about making an</p> <p>22 encoding schedule in adapting on the fly. So, for</p> <p>23 example, if right now an encoder is not fast enough, it's</p> <p>24 not doing the job that's necessary in order to guarantee</p> <p>25 that throughput, or it could also be that it's not</p>	<p style="text-align: right;">Page 68</p> <p>1 attempt to paraphrase it. That was the answer.</p> <p>2 BY MR. STONEDALE:</p> <p>3 Q. Well, I'm not sure I understood it. So I was</p> <p>4 wondering if you could -- maybe you could state it</p> <p>5 differently so I understand better.</p> <p>6 A. State what?</p> <p>7 Q. The answer I was attempting to paraphrase. You</p> <p>8 weren't happy with my paraphrasing of the answer, so I</p> <p>9 was wondering if you could either paraphrase it or</p> <p>10 restate it so I have a better understanding.</p> <p>11 A. Well, then could you repeat the question.</p> <p>12 Q. I'm asking you how -- what form -- what teaching</p> <p>13 of Imai corresponds to the first asymmetric data</p> <p>14 compression code?</p> <p>15 MR. BATTS: Objection. Form.</p> <p>16 THE WITNESS: I think what I'm talking about in</p> <p>17 this section of the patent is how Imai renders this claim</p> <p>18 element obvious. Okay? And so the opening paragraph</p> <p>19 here that starts out right below where I -- where I show</p> <p>20 the claim element, says, "The '477 patent uses the term</p> <p>21 'data compression rate' to refer to the execution or</p> <p>22 algorithmic speed of a compression encoder. Or, in other</p> <p>23 words, throughput is a measure of the amount of input the</p> <p>24 data compressor can compress and make available per unit</p> <p>25 of time at the given compression ratio."</p>
<p style="text-align: right;">Page 67</p> <p>1 getting enough compression ratio. Okay?</p> <p>2 But if that encoder, for example, is not fast</p> <p>3 enough -- okay? -- because the data type is changed; Imai</p> <p>4 mentions different kinds of data types that could be</p> <p>5 coming through, then that will change to a different</p> <p>6 encoder. And that encoder that is faster, for example,</p> <p>7 would correspond to a first encoder, and the one that is</p> <p>8 slower, that is being replaced -- for example, in that</p> <p>9 example, would correspond to a second encoder.</p> <p>10 Q. So it's your opinion that the first encoder</p> <p>11 could be any encoder so long as it's faster?</p> <p>12 A. I don't think -- if you're trying to summarize</p> <p>13 my answer to the last question, that's not a summary of</p> <p>14 the answer.</p> <p>15 Q. What is incorrect about that summary?</p> <p>16 A. It's not a summary of my answer. I don't know</p> <p>17 how to better answer that question. You're not</p> <p>18 summarizing my answer. My answer is what it was.</p> <p>19 Q. Would it be correct to paraphrase your answer as</p> <p>20 saying that the first asymmetric data compression encoder</p> <p>21 is the faster of the two data compression encoders?</p> <p>22 MR. BATTS: Objection. Form.</p> <p>23 THE WITNESS: I wouldn't want to paraphrase my</p> <p>24 answer. My answer to that question is my answer. If you</p> <p>25 want to ask another question, fine. But I'm not going to</p>	<p style="text-align: right;">Page 69</p> <p>1 And I go on to talk about this more. So -- and</p> <p>2 we know that throughput is an important -- is an</p> <p>3 important word here. And I've talked about that in the</p> <p>4 context of Imai where Imai is trying to ensure</p> <p>5 throughput. And, in fact, Imai is actually not just</p> <p>6 ensuring, you know, throughput to a disk drive or</p> <p>7 something like that, which was what a lot of Fallon's</p> <p>8 specifications are addressed to.</p> <p>9 He's really looking at a full real time system</p> <p>10 from start to finish in guaranteeing throughput and has</p> <p>11 multiple methods that Imai can choose from in order to --</p> <p>12 based on other considerations, such as the data type.</p> <p>13 And some methods have faster execution. Some</p> <p>14 methods have higher compression ratio, et cetera, and</p> <p>15 Imai is able to now, based on making decisions,</p> <p>16 adaptively, on a block-by-block basis, decide on which</p> <p>17 method to use.</p> <p>18 BY MR. STONEDALE:</p> <p>19 Q. So which data compression encoder in Imai would</p> <p>20 be the first asymmetric data compression code?</p> <p>21 MR. BATTS: Objection. Form.</p> <p>22 THE WITNESS: Could you repeat your question?</p> <p>23 BY MR. STONEDALE:</p> <p>24 Q. Which asymmetric data compression encoder taught</p> <p>25 in Imai would be the first asymmetric data compression</p>

<p style="text-align: right;">Page 70</p> <p>1 encoder?</p> <p>2 A. So, first of all, let's recall the wording --</p> <p>3 the claim that we're addressing here, "Wherein a first</p> <p>4 asymmetric data compression encoder of the plurality of</p> <p>5 different asymmetric data compression encoders" -- so we</p> <p>6 have already talked about how Imai describes a plurality</p> <p>7 of asymmetric data compression encoders -- "is configured</p> <p>8 to compress data blocks containing video or image data at</p> <p>9 a higher compression rate" -- let's stop there -- "video</p> <p>10 or image data" -- and again, this is discussed in this</p> <p>11 section -- but, "video or image data. Imai describes in</p> <p>12 detail audio, but also says it could apply equally to</p> <p>13 video at a higher data compression rate than a second</p> <p>14 asymmetric data compression encoder of the plurality of</p> <p>15 different asymmetric data compression encoders."</p> <p>16 So when Imai needs to employ a -- an encoder</p> <p>17 that is faster than another one, say, one currently being</p> <p>18 used in the example I gave before, that would correspond</p> <p>19 to the first one, and the second one that was replaced</p> <p>20 might correspond to the second one in that example.</p> <p>21 Imai has a plurality and is using various</p> <p>22 criteria to choose between them. One important criteria</p> <p>23 is speed. Another important criteria is compression</p> <p>24 ratio. And based on data type, you may be -- you may</p> <p>25 need to improve throughput based on one of those factors</p>	<p style="text-align: right;">Page 72</p> <p>1 later in this claim as well -- of the system to ensure</p> <p>2 that it actually works, that you get to the data to the</p> <p>3 user who wants to view it or listen to it.</p> <p>4 Q. What is a data compression algorithm that a</p> <p>5 first asymmetric data compression encoder of Imai might</p> <p>6 use?</p> <p>7 A. So I think I just -- I think that's just another</p> <p>8 way of asking the same question, which I just answered, I</p> <p>9 think, pretty thoroughly. I'm not sure how to better</p> <p>10 answer it.</p> <p>11 Q. Do you offer the opinion that the first</p> <p>12 asymmetric data compression encoder that Imai teaches</p> <p>13 would use a data -- or sorry -- would use a data</p> <p>14 compression algorithm?</p> <p>15 A. Could you repeat the question?</p> <p>16 Q. Do you offer the opinion that the first</p> <p>17 asymmetric data compression encoder taught by Imai</p> <p>18 would -- would use a data compression algorithm?</p> <p>19 A. The opinion that I'm offering here for Claim</p> <p>20 Element 1 -- what I call 1[b], the one we've been talking</p> <p>21 about, this sequence of questions, is that Imai renders</p> <p>22 this claim element obvious.</p> <p>23 So I'm not quite sure exactly the way you've</p> <p>24 worded your question, but I think I've answered pretty</p> <p>25 thoroughly in the previous two answers why Imai renders</p>
<p style="text-align: right;">Page 71</p> <p>1 because Imai is trying to -- it is describing a system</p> <p>2 that gives throughput all the way through from start to</p> <p>3 finish.</p> <p>4 It goes through the encoder. It goes across the</p> <p>5 communication line. It goes through the decoder and</p> <p>6 viewed by -- let's say viewed or listened to by the</p> <p>7 person or entity at the other end, and that throughput to</p> <p>8 ensure that -- it's well-known in the art and it's well</p> <p>9 described and taught in Imai that you need to take into</p> <p>10 account both speed of the -- execution speed of the</p> <p>11 encoding algorithm, but also, directly related to that,</p> <p>12 the compression ratio because those two together are what</p> <p>13 allow you to actually successfully, at the encoding end,</p> <p>14 get the data through the transmission line.</p> <p>15 And then of course at the other end, Imai goes</p> <p>16 further because Imai is concerned with time. Imai</p> <p>17 actually describes a number of methods to measure the</p> <p>18 decoding capabilities of the decoder at the other end to</p> <p>19 ensure this flow-through.</p> <p>20 Imai has the knowledge of its own encoders,</p> <p>21 obviously, when it's choosing between them, but it may be</p> <p>22 that there's a user out there that Imai has to first</p> <p>23 figure out what its capabilities are because that could</p> <p>24 also affect the real time or the real time performance,</p> <p>25 the throughput -- and throughput is a word that's used</p>	<p style="text-align: right;">Page 73</p> <p>1 this claim element obvious.</p> <p>2 And furthermore, we haven't even gotten to some</p> <p>3 of the other discussion. This section actually goes on</p> <p>4 quite a while, just the discussion in my report of this</p> <p>5 claim element. It goes on, I believe -- just so I can be</p> <p>6 safe -- and I haven't had a chance to review them, those</p> <p>7 sections, yet. But it goes on through -- through</p> <p>8 paragraph 147, so paragraphs 124 to 147. So there's a</p> <p>9 lot of other discussion here about this claim element.</p> <p>10 But the discussion is all geared towards why Imai renders</p> <p>11 obvious this claim element.</p> <p>12 MR. STONEDALE: We can break for lunch now and</p> <p>13 I'll -- how long do you-all think you need for lunch?</p> <p>14 MR. BATTS: Let's go off the record.</p> <p>15 (Lunch recess taken.)</p> <p>16 ---oOo---</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>

<p style="text-align: right;">Page 74</p> <p>1 Afternoon Session 2:04 p.m.  2 ---oOo---  3 Q. When we left off, we were talking about the  4 first data compression encoder -- sorry, the first  5 asymmetric data compression encoder. And I was  6 wondering, can you point me to any specific example in  7 your declaration of an encoder that you think would  8 constitute the first asymmetric data compression encoder  9 of Claim 1 in either Imai or Pauls?  10 MR. BATTS: Objection. Form.  11 THE WITNESS: Can you repeat the question?  12 BY MR. STONEDALE:  13 Q. Can you point me to any part of your declaration  14 that states an opinion alleging that any encoder from  15 Imai or Pauls would constitute a first asymmetric data  16 compression encoder of Claim 1?  17 A. What do you mean when you use the word  18 "constitute" in reference? Remember, Imai is prior art  19 to the Fallon patent. It came first. I'm not sure what  20 you mean by the word "constitute."  21 Q. Could serve as or would serve as. I'll  22 rephrase.  23 Can you point me to any opinions in your  24 declaration that point to any encoder from Imai or Pauls  25 that would serve as a first asymmetric data compression</p>	<p style="text-align: right;">Page 76</p> <p>1 Q. Do you have any opinion expressed in your report  2 that --  3 (Reporter asked for clarification.)  4 BY MR. STONEDALE:  5 Q. Do you have any opinion expressed in your report  6 that any encoder from Imai or Pauls would be the first  7 asymmetric compression encoder of Claim 1?  8 A. Let me take a quick look at the text in this  9 section relating to what is referred to as Claim  10 Element 1[b] and see if that helps refresh my memory to  11 fully answer your question. (Witness reviewed document.)  12 So I've had a chance to briefly review the  13 passages that -- just as exemplary, which relate to what  14 I call Claim Element 1[b], the one you're referring to.  15 Obviously, there are other places in the report that also  16 discuss Imai, overview Imai, discuss how Imai, for  17 example, is an end-to-end system guaranteeing a  18 throughput all the way through and takes into account  19 both compression rate, speed of encoding and compression  20 ratio, and one clearly understands that those two things  21 are both taught by Imai.  22 And my analysis of even just the analysis of the  23 Claim 1 here certainly supports that, that both of those  24 things are taught. The analysis really applies to both  25 those factors and others. And so I've had a chance to</p>
<p style="text-align: right;">Page 75</p> <p>1 encoder of Claim 1?  2 A. Again, I -- I'm still having a little trouble  3 with the way you worded the question. This section of my  4 report, which we haven't really reviewed yet, but we've  5 begun looking at it, the -- what is referred to as  6 Claim 1[b] here that has this terminology in it, "Wherein  7 a first asymmetric data compression encoder," et cetera,  8 et cetera -- this section of the report is describing how  9 this claim element is rendered obvious in view of Imai.  10 Your question is sort of framing it in a  11 different way. Are you referring to language that I use  12 in this portion of the report to describe why, when  13 looking at Imai from the point of view of a person of  14 ordinary skill in the art at the time of Imai would --  15 why this would be -- why this claim element would be  16 rendered obvious?  17 Q. I'm asking if there's -- if you have any  18 specific allegations regarding what would be a first  19 asymmetric data compression encoder for purposes of  20 Claim 1 in either Imai or Pauls?  21 A. By "allegation," are you talking about my  22 opinions that are expressed in this part of the report?  23 Q. Yes, sir.  24 A. Okay. So maybe could you rephrase the question  25 that way, I guess.</p>	<p style="text-align: right;">Page 77</p> <p>1 look at this, and if maybe you could repeat the question  2 so I can precisely have that in mind?  3 MR. STONEDALE: Could the court reporter please  4 repeat the question.  5 (Record was read back as requested.)  6 THE WITNESS: So as I mentioned earlier, my  7 opinions here, of course, are that this claim element is  8 rendered obvious by Imai. And in support of that,  9 there's quite a few paragraphs here that I mentioned  10 following -- starting with paragraph 124 and going on to  11 paragraph 140 -- I can't remember exactly the number.  12 And, for example, in the -- one of the  13 paragraphs actually quotes a section from Imai,  14 paragraph 67 of the -- of the Japanese translation, where  15 it says, "The encoders 51 to 53N (N is two or more) are  16 constructed to encode the audio signal with different  17 coding methods from each other (for example, linear PCM  18 (Pulse Code Modulation), ADPCM (Adaptive Differential  19 PCM), layers 1, 2, 3 of MPEG (Moving Experts Picture  20 [sic] Group), ATRAC (Adaptive Transform Acoustic Coding),  21 ATRAC 2, and HVXC (Harmonic Vector Excitation Coding))."  22 And then it goes on to say, "Stated otherwise,  23 in the embodiment, the encoders 51 to 53 are prepared by  24 using encoders which perform encoding of the audio signal  25 with various coding methods, including a linear [sic]</p>

<p style="text-align: right;">Page 78</p> <p>1 method which provides a relatively large (high) bit rate  2 of the resulting coded data, but can reproduce audio  3 signal with relatively good reproducibility, a method  4 which can provide a relatively small (low) bit rate of  5 the resulting coded data but reproduces an audio signal  6 with relatively poor reproducibility" --  7 THE COURT REPORTER: Slow down, please.  8 THE WITNESS: -- "a method which requires a  9 larger amount of computation for coding, a method which  10 requires a not-so-large amount of computation for  11 decoding, and a method particularly suitable for coding a  12 voice."  13 So here, you have an example -- and I mentioned  14 earlier that when you go further into the Imai patent, he  15 actually -- he or she, I don't remember whether Imai is a  16 man or woman -- but Imai actually goes into details of  17 how once the -- that the -- the input is broken up into  18 blocks, possibly, and that as time goes on, there's an  19 encoding schedule, Imai may switch encoders based on  20 things such as the type of the data.  21 And so here, you see Imai talking about -- if  22 you really understand what's being said here, about both  23 time encoding -- the time to perform the encoding and the  24 compression ratio because Imai -- and also, Imai actually  25 talking about the decoder as well because Imai is</p>	<p style="text-align: right;">Page 80</p> <p>1 There are ones that are faster in some respects and  2 slower in other respects. They have better compression,  3 but they're slower; or they have less compression, but  4 they're faster. And I'm going to make a choice.  5 And in terms of rendering this claim element  6 obvious, clearly, when Imai chooses one over another one  7 because it's faster in execution time, then that would be  8 rendering obvious this claim element that there's a  9 configuration of a faster one and a slower one.  10 BY MR. STONEDALE:  11 Q. And which encoder would be the first asymmetric  12 data compression encoder of Claim 1?  13 MR. BATTS: Objection. Form.  14 THE WITNESS: So remember that Imai predates  15 Fallon. It's prior art. Imai is not -- you're sort of  16 talking about Imai -- what I'm talking about is Imai  17 rendering Claim 1[b] obvious. And why is that? Because  18 Imai repeatedly -- okay? -- repeatedly does what is --  19 describes what is described in Element 1[b].  20 In fact, on a block-by-block basis, Imai makes  21 this evaluation of what method I should use and chooses  22 between methods that have different properties in terms  23 of both speed of execution or compression rate and  24 compression ratio in order to most effectively handle  25 throughput.</p>
<p style="text-align: right;">Page 79</p> <p>1 interested in throughput, where the system -- where it  2 goes all the way through from the input to the viewer or  3 listener at the other end.  4 And so Imai -- it talks here about Imai  5 selecting one method which is, for example, faster than  6 another method for the purposes of ensuring this  7 throughput and those parameters. Speed of execution and  8 compression ratio and other factors are what  9 differentiate different methods that Imai has available  10 to use, and Imai chooses the method which is going to  11 most effectively handle the situation at hand on a  12 block-by-block basis and sometimes finer than that,  13 according to an encoding schedule that's later in the  14 patent.  15 So, for example, when we look at this claim  16 element, where it says -- where the claim element says,  17 "Wherein the first asymmetric data compression encoder of  18 the plurality of different asymmetric data compression  19 encoders is configured to compress data blocks containing  20 video or image data at a higher data compression rate  21 than a second asymmetric data compression encoder."  22 You see that -- in Imai -- in the description  23 I've quoted here and in many other places in Imai where  24 he's saying, yes, in the case where I need to switch,  25 there is -- I have these things configured in such a way.</p>	<p style="text-align: right;">Page 81</p> <p>1 Of course, throughput is a term later in this  2 claim as well, and throughput is a term throughout the --  3 throughout both the Fallon patent and the Imai patent and  4 so -- repeatedly as the system operates dynamically, as  5 it's compressing, it's making decisions based on data  6 type, based on other considerations, whether it needs to  7 go to a faster encoder, that's what the problem is; or  8 whether it needs to go with one with more compression  9 ratio.  10 As I mentioned earlier, these terms are related.  11 If you simply increase the speed, it's not going to help  12 if the compression ratio is not enough, if you can't  13 physically put it down the channel. And if you make a  14 great compression ratio, it's not going to help if you  15 compute it too slowly because Imai is concerned with  16 throughput, overall throughput. It has to have a steady  17 flow from the data coming in at the encoding end to the  18 data being, let's say, viewed or listened to at the  19 decoding end.  20 BY MR. STONEDALE:  21 Q. So I noticed in that answer, you didn't name any  22 specific encoders. Is that because you don't offer the  23 opinion that any specific encoder in Imai or Pauls are  24 examples of the first asymmetric data compression encoder  25 of Claim 1?</p>

<p style="text-align: right;">Page 82</p> <p>1 MR. BATTS: Objection. Form.</p> <p>2 THE WITNESS: So could you repeat your question?</p> <p>3 MR. STONEDALE: Could the court reporter please</p> <p>4 repeat the question?</p> <p>5 (Record was read back as requested.)</p> <p>6 THE WITNESS: So let me take the two parts of</p> <p>7 your question separately. First part is, of course, I</p> <p>8 named a whole bunch of encoders, and I won't reread the</p> <p>9 passage, but it included encoders like ADPCN, MPEG, ATRAC</p> <p>10 and so on and a whole bunch of encoders.</p> <p>11 And as far as the second part of your question</p> <p>12 goes, I described how, in fact, yes, Imai renders</p> <p>13 Claim 1[b] obvious because those encoders -- because, in</p> <p>14 fact, they have different properties in terms of speed of</p> <p>15 execution and compression ratio -- and by the way, this</p> <p>16 is also an important point here. We've talked about it</p> <p>17 before.</p> <p>18 They -- Imai and also Pauls clearly envision --</p> <p>19 you might have several encoders that are based on the</p> <p>20 same standard. Imai, in fact, even talks about that, and</p> <p>21 I quote that in another paragraph in this section where I</p> <p>22 talk about how, even within the ATRAC standard, Imai says</p> <p>23 you could have three versions. Okay?</p> <p>24 Because with many standards, the time, the</p> <p>25 tradeoff between time and compression ratio, whenever you</p>	<p style="text-align: right;">Page 84</p> <p>1 better compression ratio, and there are tradeoffs between</p> <p>2 the different methods available to -- available to Imai.</p> <p>3 And, in fact, Imai describes that. Imai talks about how</p> <p>4 these methods have different tradeoffs, even within the</p> <p>5 context of one's standard.</p> <p>6 BY MR. STONEDALE:</p> <p>7 Q. The encoders you named, you read the</p> <p>8 paragraph 67 of Imai, and you named all the encoders that</p> <p>9 are named in that paragraph, as you said. Could any of</p> <p>10 those encoders be a first asymmetric data compression</p> <p>11 encoder of Claim 1?</p> <p>12 A. So, again, I think that -- I'm not sure about</p> <p>13 your terminology. You seem to be talking about Imai</p> <p>14 using Fallon terminology or something. What I'm saying</p> <p>15 is that Claim 1[b], which begins, "Wherein a first</p> <p>16 asymmetric data compression encoder of the plurality,"</p> <p>17 blah, blah, blah, that claim element that we've been</p> <p>18 talking about, I'm saying if that element is rendered</p> <p>19 obvious by Imai, that one of ordinary skill in the art at</p> <p>20 the time of the filing of Imai, reading Imai, would find</p> <p>21 that claim element obvious in light of Imai.</p> <p>22 And I describe how Imai -- how Imai has a</p> <p>23 selection of coders, and it's going to depend on the</p> <p>24 data. Imai now actually teaches not just some kind of</p> <p>25 fixed -- that would also be useful, perhaps, but it</p>
<p style="text-align: right;">Page 83</p> <p>1 talk about throughput, of course you need to take both</p> <p>2 into account. Certainly, Imai teaches to take both into</p> <p>3 account, and one of ordinary skill in the art appreciates</p> <p>4 that even before reading Imai.</p> <p>5 So even -- even within the same overall</p> <p>6 standard, let's say MPEG, to encoders -- you may have two</p> <p>7 different encoders, one of which is much slower but does</p> <p>8 a better job, either in terms of quality or compression</p> <p>9 ratio, and one is much faster, but they're both MPEG</p> <p>10 coders.</p> <p>11 So what is rendered obvious, the reason this</p> <p>12 claim is rendered obvious, is, first of all, yes, I did</p> <p>13 name many different encoders in my last answer; and, yes,</p> <p>14 what Imai does is repeatedly, as data is flowing through,</p> <p>15 as the blocks are going through, it's assessing data</p> <p>16 type, it's assessing other considerations and it's</p> <p>17 choosing between a selection of first and second.</p> <p>18 So this claim is rendered obvious clearly</p> <p>19 because at any point in time, Imai will be choosing a</p> <p>20 first one over, perhaps, a second one that was, say,</p> <p>21 being used in the previous block because now what's</p> <p>22 needed, we've gone from text to music or from a certain</p> <p>23 kind of music to another kind of audio, and now, what's</p> <p>24 appropriate in order to maintain that throughput is we</p> <p>25 need to have a method that is either faster or has a</p>	<p style="text-align: right;">Page 85</p> <p>1 teaches something much richer. It teaches an adaptive</p> <p>2 system, which, on a block-by-block basis, can examine</p> <p>3 data type and decide, you know, at this point in time,</p> <p>4 we've got some text. We better use a text compression</p> <p>5 method because otherwise we're running really slow here;</p> <p>6 the video method is just not compressing this text at</p> <p>7 all. It's taking way too long. Whatever. It's spending</p> <p>8 all this time to compute this stuff that is unnecessary</p> <p>9 to compute. It's way too slow, or it's bad compression</p> <p>10 ratio -- I'm going to switch methods, and I'm going to</p> <p>11 use a method that is going to keep guaranteeing</p> <p>12 throughput.</p> <p>13 And that's the whole thing. In order to</p> <p>14 guarantee throughput, which is, of course, also what is</p> <p>15 discussed in the Fallon patent, you need to take into</p> <p>16 consideration -- and two considerations, among others,</p> <p>17 that are definitely taken into account. And as I state</p> <p>18 in paragraph 124, I describe how they're related.</p> <p>19 When you talk about rate, when you talk about</p> <p>20 compression rate, you're -- clearly, also, it's related</p> <p>21 to compression ratio because the two work together. You</p> <p>22 can't -- you can be as fast as you want. If you're not</p> <p>23 getting enough ratio, it's not going to flow through that</p> <p>24 communication line. You can be compressing as much as</p> <p>25 you want, but if you're not going fast enough, you're</p>

<p style="text-align: right;">Page 86</p> <p>1 also going to lose your throughput.</p> <p>2 So that's why Imai teaches a selection of</p> <p>3 encoders with different properties and teaches also --</p> <p>4 and I did mention in another paragraph, for example,</p> <p>5 paragraph 69, it can also be that even a given standard</p> <p>6 has multiple implementations with different tradeoffs in</p> <p>7 terms of time and/or compression ratio.</p> <p>8 So, yes, this -- Imai renders this claim element</p> <p>9 obvious because Imai is repeatedly going ahead and making</p> <p>10 this decision, oh, I've got this configuration. Some</p> <p>11 encoders are configured to be faster than others for</p> <p>12 certain kinds of data or better compression ratios than</p> <p>13 other kinds of data. And based on the data type, Imai is</p> <p>14 repeatedly going ahead and rendering -- if you will, if</p> <p>15 you envision the Imai system running, it's repeatedly</p> <p>16 rendering this claim obvious because Imai describes this</p> <p>17 process of choosing one over another because, for</p> <p>18 example, it's faster or it gets better compression. It</p> <p>19 depends on the situation.</p> <p>20 They're related variables, and either one can be</p> <p>21 the limiting factor when you're trying to guarantee a</p> <p>22 throughput, especially in a system like Imai which is</p> <p>23 guaranteeing throughput all the way from the input to the</p> <p>24 encoder through the output to the decoder, a flow that,</p> <p>25 in order to guarantee that, it teaches to take into</p>	<p style="text-align: right;">Page 88</p> <p>1 to actually search and interpolate a half-pixel</p> <p>2 resolution. This is included in the MPEG standard.</p> <p>3 So maybe there's a red ball moving right now,</p> <p>4 and you can find a good match to the same position in the</p> <p>5 previous frame, a little off of it, where there's the</p> <p>6 same kind of red ball, but maybe there's a second ball at</p> <p>7 another place in the frame which would be a better match.</p> <p>8 And they're really slower, but a more sophisticated</p> <p>9 encoder would find the better match, and the simpler</p> <p>10 encoder would simply take the match that's close by.</p> <p>11 So there's a tradeoff because within the same</p> <p>12 standard -- and this point is made in Imai when he's</p> <p>13 talking about ATRAC -- you could have two different</p> <p>14 implementations where one is much faster than the other,</p> <p>15 but one maybe gets better compression ratio, better</p> <p>16 quality. And you may have purchased them even from</p> <p>17 different vendors and may be running two, what you would</p> <p>18 call MPEG encoders, but they are part of your suite, if</p> <p>19 you will, of different methods that have different</p> <p>20 tradeoffs in both time and compression ratio and other</p> <p>21 factors, possibly, as well -- quality.</p> <p>22 Q. Is it -- to achieve a particular compression</p> <p>23 ratio with a particular set of audio data, would it</p> <p>24 usually be faster to compress with MPEG layer 3 or</p> <p>25 ATRAC 2?</p>
<p style="text-align: right;">Page 87</p> <p>1 account these factors.</p> <p>2 Q. Would it be faster to compress data with MPEG 3</p> <p>3 or ATRAC 2?</p> <p>4 MR. BATTS: Objection. Form.</p> <p>5 THE WITNESS: Could you repeat the question?</p> <p>6 BY MR. STONEDALE:</p> <p>7 Q. Would it be faster to compress data with MPEG</p> <p>8 layer 3 or ATRAC 2?</p> <p>9 A. So, no disrespect to your question, but the way</p> <p>10 you phrased it doesn't actually match up with the</p> <p>11 technology. We mentioned earlier that both MPEG and</p> <p>12 ATRAC are standards, and those standards can be</p> <p>13 implemented to run faster or slower and also in a</p> <p>14 tradeoff to achieve more or less compression.</p> <p>15 I gave the example before of MPEG where a really</p> <p>16 time-consuming step, or a big part of the time used by</p> <p>17 MPEG is the motion compensation. I've got a block in</p> <p>18 this frame, and I'm trying to find the best matching</p> <p>19 block in a previous frame. And I can look at a very</p> <p>20 small region around the corresponding position of the</p> <p>21 previous frame and may be only looking at integer</p> <p>22 coordinates and get a very fast encoder, or I can</p> <p>23 actually look at a very large region or perhaps through</p> <p>24 the entire previous frame to get the best possible match</p> <p>25 and possibly at the half-pixel resolution where you have</p>	<p style="text-align: right;">Page 89</p> <p>1 MR. BATTS: Objection. Form.</p> <p>2 THE WITNESS: Could you repeat the question?</p> <p>3 MR. STONEDALE: Could the court reporter please</p> <p>4 read the question?</p> <p>5 (Record was read back as requested.)</p> <p>6 THE WITNESS: So, again, it seems like pretty</p> <p>7 much the same question you asked before, and the answer</p> <p>8 would begin the same way, that the question is almost</p> <p>9 phrased the wrong way. And this would apply not just to</p> <p>10 audio, but would apply to audio standards, but certainly</p> <p>11 also would apply to video standards and the example I</p> <p>12 gave with motion compensation. It would apply to audio</p> <p>13 standards, for example, in the example that -- that --</p> <p>14 that Imai gives in paragraph 1 -- 690, even with respect</p> <p>15 to a given standard that these issues depend on the</p> <p>16 implementation.</p> <p>17 The standards -- the standards allow the</p> <p>18 possibility of you working more quickly but possibly</p> <p>19 getting worse compression or worse quality; or working</p> <p>20 more slowly and possibly getting better compression or</p> <p>21 better quality or the -- or working in a way that</p> <p>22 requires more computational resources, which is another</p> <p>23 thing that Imai takes into account. It may have many,</p> <p>24 many users, many processes going.</p> <p>25 And it also has to worry about its time. The</p>

<p style="text-align: right;">Page 90</p> <p>1 time for encoding is also a problem for Imai when it's</p> <p>2 having to parcel its recomputation of resources among</p> <p>3 many users.</p> <p>4 So that's why Imai teaches a suite of methods</p> <p>5 that have different properties in terms of time,</p> <p>6 compression ratio and other things. But particularly,</p> <p>7 time and compression ratio, which are intimately related.</p> <p>8 When we analyze Claim 1 here, for example, where it talks</p> <p>9 about compression rate, our analysis is also -- also</p> <p>10 analyzing compression ratio because at the same time,</p> <p>11 Imai teaches you have to take both into account because</p> <p>12 Imai is not in the abstract doing some abstract</p> <p>13 throughput. It's describing a real throughput from data</p> <p>14 coming in at the encoder, going through the encoder,</p> <p>15 going through the encoding channel, going through the</p> <p>16 decoder, coming out to be viewed or listened to at the</p> <p>17 other end.</p> <p>18 And that whole system can only work if you have</p> <p>19 the time and the compression ratio properly set so that</p> <p>20 the encoder compresses it fast enough and small enough so</p> <p>21 it can fit through the communication channel.</p> <p>22 BY MR. STONEDALE:</p> <p>23 Q. So is it generally not possible to say whether</p> <p>24 one standard will be faster at encoding a given piece of</p> <p>25 data to a given compression ratio relative --</p>	<p style="text-align: right;">Page 92</p> <p>1 element is rendered obvious by -- by Imai.</p> <p>2 Imai doesn't have to worry about the problem of,</p> <p>3 hypothetically, how could you implement the standard?</p> <p>4 Or, is the standard inherently faster, or are most</p> <p>5 implementations of this standard faster than most</p> <p>6 implementations of that standard?</p> <p>7 Imai has available to it a suite of encoders</p> <p>8 which it knows the properties of. It's not a matter of</p> <p>9 hypothetically what is possible or what isn't possible.</p> <p>10 It's got a suite of encoders, and Imai teaches those</p> <p>11 encoders have different properties.</p> <p>12 Imai also teaches that it's important to</p> <p>13 understand those properties. Obviously, Imai understands</p> <p>14 the properties of the encoders at the encoding end.</p> <p>15 Imai goes one step further. It describes a lot</p> <p>16 of technology to measure the communication line and</p> <p>17 measure that encoding capability at the other end.</p> <p>18 So it not only takes into account speed of</p> <p>19 compression at its end and compression ratio at its end,</p> <p>20 which are intimately related, but also properties of the</p> <p>21 other end so it can ensure this flow of -- this</p> <p>22 throughput all the way through, beginning to end.</p> <p>23 So Imai is not asking this hypothetical question</p> <p>24 of which standard is better than another, and that's not</p> <p>25 the question we're asking in order to talk about this</p>
<p style="text-align: right;">Page 91</p> <p>1 (Reporter asked for clarification.)</p> <p>2 BY MR. STONEDALE:</p> <p>3 Q. Is it generally not possible for -- is it</p> <p>4 generally not possible to say whether one standard will</p> <p>5 be faster at compressing a given data source to a given</p> <p>6 compression ratio than another standard without knowing</p> <p>7 more about how that standard is implemented?</p> <p>8 MR. BATTS: Objection. Form.</p> <p>9 THE WITNESS: Could you repeat the question?</p> <p>10 MR. STONEDALE: Could the court reporter please</p> <p>11 repeat the question?</p> <p>12 (Record was read back as requested.)</p> <p>13 THE WITNESS: So let me take the different parts</p> <p>14 of your question separately. First of all, you talked</p> <p>15 about a standard compressing something. As we described</p> <p>16 earlier, the standard -- it's a standard that describes a</p> <p>17 particular method for compressing data, and now what you</p> <p>18 would have in practice is an implementation of that</p> <p>19 standard. For example, you might have purchased two</p> <p>20 different MPEG encoders. Okay? So you have an</p> <p>21 implementation of that standard.</p> <p>22 The second part of your question seems to be</p> <p>23 asking the wrong question in the sense that what I'm</p> <p>24 arguing about here or what I describe here and give</p> <p>25 opinions about here on Claim Element 1[b] is whether this</p>	<p style="text-align: right;">Page 93</p> <p>1 claim being rendered obvious. This claim is rendered</p> <p>2 obvious because Imai teaches a suite of methods.</p> <p>3 It says, I have all these methods, and it</p> <p>4 teaches that you have to take into account both</p> <p>5 compression rate and compression ratio. Whenever we talk</p> <p>6 about rate here in this analysis, if we read all the</p> <p>7 paragraphs they have, they also talk about compression</p> <p>8 ratio because the two are related, and all the analysis</p> <p>9 here shows that Imai -- Imai takes into account both</p> <p>10 compression rate and compression ratio by choosing among</p> <p>11 this suite.</p> <p>12 It doesn't -- it's not addressing some</p> <p>13 hypothetical question about which standards are better or</p> <p>14 which might have better implementations. It's saying,</p> <p>15 "I've got a bunch." And it's well-known in the art that</p> <p>16 there are many different implementations and numerous</p> <p>17 standards that could be used, and Imai is saying, you</p> <p>18 know -- describing how to make use of them.</p> <p>19 BY MR. STONEDALE:</p> <p>20 Q. Yeah. I'm asking that question, though. I'm</p> <p>21 asking you: Is it possible to say whether MPEG layer 3</p> <p>22 is faster than ATRAC 2 without knowing the details of how</p> <p>23 it's implemented?</p> <p>24 MR. BATTS: Objection. Form.</p> <p>25 THE WITNESS: Could you repeat the question?</p>



<p style="text-align: right;">Page 94</p> <p>1 Q. I'm asking: Is it possible to know the -- to</p> <p>2 know whether MPEG layer 3 is faster at compressing data</p> <p>3 than ATRAC 2 without knowing the implementation details?</p> <p>4 A. So, first of all, I guess a lot of my answer</p> <p>5 would be the same as the previous question. You're</p> <p>6 asking about some hypothetical assessment of some</p> <p>7 hypothetical encoders that are available. And it doesn't</p> <p>8 seem to be addressing -- the issue at hand here is</p> <p>9 whether Claim 1[b], for example, is rendered obvious by</p> <p>10 Imai.</p> <p>11 And so I guess I would have to understand more</p> <p>12 about your hypothetical. You seem to be asking what is</p> <p>13 possible. Are you talking about, for example, at the</p> <p>14 time of ordinary skill in the art, at that time? At now</p> <p>15 [sic]? At the time the standards were being designed?</p> <p>16 What particular encoders are you envisioning? What</p> <p>17 machines would they be operated on?</p> <p>18 You seem to be asking a very academic question</p> <p>19 about standards, and that's really not the issue that's</p> <p>20 being addressed in my report here. My report is</p> <p>21 addressing the fact that Claim 1[b] and what we've been</p> <p>22 talking about here in this case, that Claim 1[b] is</p> <p>23 rendered obvious by Imai.</p> <p>24 Q. Yeah. I am asking an academic question, but</p> <p>25 that's okay. You're an academic. I just want to know --</p>	<p style="text-align: right;">Page 96</p> <p>1 which seems to be outside of my report.</p> <p>2 My report is trying to state something not in</p> <p>3 the negative but in the positive. This is what Imai</p> <p>4 teaches, and this is why it renders the claims -- in this</p> <p>5 case, Claim 1[b] obvious.</p> <p>6 Q. Does your report offer the opinion that H.263 is</p> <p>7 faster than MPEG at encoding video data?</p> <p>8 MR. BATTS: Objection. Form.</p> <p>9 THE WITNESS: Would you repeat the question?</p> <p>10 BY MR. STONEDALE:</p> <p>11 Q. Does your report offer the opinion that H.263 is</p> <p>12 faster than MPEG at encoding video data?</p> <p>13 A. So, first of all, again, you framed the question</p> <p>14 in terms of the standard doing something rather than</p> <p>15 implementation of the standard doing something. And</p> <p>16 those standards, both -- you've mentioned two that are</p> <p>17 well-known standards, but they often have, different</p> <p>18 applications in mind that they're intended for.</p> <p>19 But again, they both, being video compression</p> <p>20 standards, have a huge range in what the encoder can</p> <p>21 choose or not choose to do in terms of time. And so --</p> <p>22 and so depending on the implementation, the encoder could</p> <p>23 be much faster or much slower so that you could very well</p> <p>24 have a faster -- an H.263 coder that was faster than --</p> <p>25 they worked faster on the same data as an MPEG coder and</p>
<p style="text-align: right;">Page 95</p> <p>1 it would help me understand your other answers if you</p> <p>2 would tell me whether or not it's -- whether or not it's</p> <p>3 possible to say whether or not an encoder using one</p> <p>4 standard is going to compress data more quickly than an</p> <p>5 encoder using another standard without knowing details of</p> <p>6 the implementation rate about how those -- how those</p> <p>7 encoders are implemented?</p> <p>8 A. So I think what my report is doing is talking</p> <p>9 about what is possible. It's talking about that, yes,</p> <p>10 it's well-known that there are numerous standards. At</p> <p>11 the time of the filing of the Imai patent, numerous</p> <p>12 standards for both audio and video were known. It was</p> <p>13 well-known there were multiple implementations of those</p> <p>14 standards that could be faster or slower for the same</p> <p>15 standard, let alone between two different standards, and</p> <p>16 that the idea of selecting between various options based</p> <p>17 on speed and/or compression ratio. And again, my</p> <p>18 analysis of compression rate here of course includes an</p> <p>19 analysis of compression ratio because they're related, as</p> <p>20 I started to describe in paragraph 124.</p> <p>21 So I described what is possible. Your academic</p> <p>22 question of what would not be possible without having</p> <p>23 other information and the information kind of vague --</p> <p>24 what kind of hardware, what kind of software, you know, I</p> <p>25 would have to think about that hypothetical question,</p>	<p style="text-align: right;">Page 97</p> <p>1 vice versa -- okay? -- depending on the particular --</p> <p>2 when I say "an H.263 encoder," I mean an implementation</p> <p>3 of -- an encoder which is implementing the H.263</p> <p>4 standard; or when I say "an MPEG encoder," an encoder</p> <p>5 which is implementing the MPEG standard.</p> <p>6 And so the point -- the point of the -- of</p> <p>7 the -- of my analysis here, talking about obviousness is,</p> <p>8 it's not a matter of trying to compare standards or make</p> <p>9 some kind of hypothetical decision about which one you</p> <p>10 like better or in general or something.</p> <p>11 What Imai teaches is when you actually have some</p> <p>12 encoders which have these tradeoffs between, let's say,</p> <p>13 time and compression ratio and other factors, possibly</p> <p>14 quality, that you now are going to choose between them</p> <p>15 and on a block-by-block basis, in fact, even according to</p> <p>16 an encoding schedule because different methods may have</p> <p>17 different performance characteristics for different kinds</p> <p>18 of data.</p> <p>19 And it might be for a particular block of</p> <p>20 data -- video data, the H.263 was running faster and</p> <p>21 giving an acceptable compression ratio but for another</p> <p>22 block of data it was running slower and you choose a</p> <p>23 different H.263 encoder or you chose an MPEG encoder,</p> <p>24 something like that.</p> <p>25 So the point is, the encoders have different</p>

<p style="text-align: right;">Page 98</p> <p>1 properties. Imai teaches that, and Imai takes into  2 consideration both compression rate and compression  3 ratio. And, in fact, my analysis does that. My analysis  4 really -- if you look through this section, all the  5 sections are addressing both compression rate and  6 compression ratio. The analysis is analyzing both  7 because Imai teaches to take into consideration both.  8 And you -- really, as one of ordinary skill in  9 the art knows at that time and as is described in Imai,  10 they're related. You need to take into account both, or  11 you could have a system that didn't work. You could be  12 compressing it really fast, but it's not small enough, so  13 it's going to go over that communication line; or you  14 could be compressing it really well, but if you don't do  15 it fast enough, the system will also break.  16 The viewer at the other end needs to be able to  17 view or listen to that video that is coming through in a  18 smooth throughput all the way from the input to the  19 encoder through the output -- through the output of the  20 encoder across the communication line into the decoder  21 through the output of the decoder to the listener or  22 viewer.  23 Q. Is it possible to derive the compression rate of  24 an encoder from the compression ratio?  25 MR. BATTS: Objection. Form.</p>	<p style="text-align: right;">Page 100</p> <p>1 Claim 1 talks about throughput, and I analyze -- my  2 analysis shows that Imai teaches both.  3 But directly inferring that from the ratio, I  4 mean, that's an idea of something -- Imai teaches  5 something very straightforward. Imai teaches that you  6 actually know about the properties of these encoders.  7 And furthermore, Imai is measuring these things as time  8 goes on. Imai is measuring whether, gee, at this point  9 in time, the data type is changed, and in order to  10 guarantee throughput, I should change to a different  11 method, one that is faster for this kind of data or one  12 that gets more compression for this kind of data.  13 So technically speaking, from a number, do you  14 deduce properties of the algorithm? I'm not sure if that  15 quite makes sense, but it is true that it's well-known  16 and that there can very well be a tradeoff between the  17 compression ratio and the time.  18 But that is not necessarily the thing you --  19 that is, the encoding of Imai is able to choose between a  20 suite of methods that have different properties for  21 different data types. It's not so much taking a number  22 in the way you phrase the question.  23 Q. When -- in paragraph 69 of Imai, it states that  24 "The data rates of coded data outputted from the encoders  25 are 64 Kbps, 32 Kbps and 24 Kbps respectively."</p>
<p style="text-align: right;">Page 99</p> <p>1 THE WITNESS: Well, you're kind of working a  2 little backwards just from a number. Technically  3 speaking, it depends on how you -- in fact, you know  4 what? Based on what I'm going to say right now, it  5 actually, because it's technical -- go ahead and repeat  6 the question. I'll continue what I'm saying, but I want  7 to be sure I have the whole question in mind.  8 Could you repeat the question?  9 BY MR. STONEDALE:  10 Q. Is it possible to derive the compression rate of  11 an encoder from the compression ratio of the data that is  12 encoded by the encoder?  13 A. So your question is a little bit -- it doesn't  14 quite match up to the technology. We already talked  15 about the fact how there are tradeoffs where one encoder  16 may work very quickly but not compress as well or not get  17 as good quality; and another coder, according to the same  18 standards -- let's say a video -- may work much more  19 slowly or require much more expensive hardware but do a  20 better job, get a better compression or quality.  21 So the -- the -- it is true that the compression  22 ratio and the speed -- or let's say the rate of  23 compression and the compression ratio are intimately  24 related in terms of trying to guarantee a throughput, and  25 that analysis is what is done in my analysis of Claim 1.</p>	<p style="text-align: right;">Page 101</p> <p>1 Do you see that?  2 A. Just a second. I'll go to that paragraph. Give  3 me one sec.  4 Q. Page 33.  5 A. (Witness reviewed document.)  6 Q. Have you found page 33 of Imai?  7 A. I have found it. Could you repeat your  8 question?  9 Q. You see in paragraph 69, "The data rates of  10 coded data outputted from the encoders are 64 Kbps,  11 32 Kbps and 24 Kbps respectively."  12 Do you see that?  13 A. Yes.  14 Q. Now, the Kbps there, that refers to kilobytes  15 per second, right?  16 A. Yes. 64 Kbps, for example, refers to roughly  17 64,000 bits per second.  18 Q. Okay. That 64 Kbps is a measurement of the data  19 outputted from the encoders; is that right?  20 A. So as it says here -- it says, "Therefore, here,  21 for example, all the encoders, 51 to 53, perform encoding  22 with ATRAC 2, while data rates of coded data outputted  23 from the encoders are" -- and then it lists a number of  24 rates starting with 64 Kbps.  25 Q. Yes. I'm asking: Are those measurements, Kbps,</p>

<p style="text-align: right;">Page 102</p> <p>1 are those referring to the rate of the outputted data 2 that's been encoded?</p> <p>3 A. They're talking, in this case, about -- because 4 they're kind of referring to -- there's a lot of -- 5 there's sort of standard ways people talk about 6 standards. I guess you might say that.</p> <p>7 In this case, it's saying for one second of 8 input, you would expect -- different methods, but the 9 first one would be, you would expect 64,000 bits of 10 output.</p> <p>11 Q. Okay. So, those are measurements of the output 12 bit rate, then?</p> <p>13 A. They're -- I don't know -- I wouldn't summarize 14 my answer. It's pretty precise. The answer says what 15 64 Kbps means here. In this context, in the way that 16 Imai is talking about a standard, it means for one second 17 of input, there will be 64,000 bits of output from the 18 encoder.</p> <p>19 Q. Is the compression rate of the encoder 20 64 kilobytes per second?</p> <p>21 MR. BATTS: Objection. Form.</p> <p>22 THE WITNESS: Could you repeat the question?</p> <p>23 BY MR. STONEDALE:</p> <p>24 Q. Is 64 kilobytes per second, is that measuring 25 the compression rate of any encoder?</p>	<p style="text-align: right;">Page 104</p> <p>1 decoding and reproducing the coded data in real time, 2 transmission of the coded data can be avoided from 3 becoming too late." Right?</p> <p>4 Imai is very concerned with both. If the 5 transmission is too late for any reason, whether it's 6 because the encoding is slow -- maybe you picked a 7 64 Kb- -- maybe you picked a 32 Kbps coder because you 8 needed that for the compression ratio. 64 was too big. 9 But if that was a slow one, you might rather pick a 10 different implementation that maybe had a little less 11 quality but was fast enough, for example.</p> <p>12 So, ultimately, Imai -- this paragraph is one 13 paragraph in the context of a number, including the two 14 before it, where Imai is concerned about this notion of 15 not becoming too late. You don't want to have the system 16 break. You have to have a throughput end to end from 17 data coming in through the encoder through the 18 communication line through the decoder to the -- to the 19 viewing.</p> <p>20 Imai has knowledge of the suite of encoders 21 available to Imai at the encoding end; that is, the 22 system that's being described, and also gives technology 23 to measure and determine for an unknown user what their 24 capabilities are and take that into account as well.</p> <p>25 Q. Is the reference to 64, 32 and 24 Kbps,</p>
<p style="text-align: right;">Page 103</p> <p>1 A. So, here, the 64 kilobytes per -- the 2 compression rate, of course, the Fallon patent relates 3 the two, and you have to take both into account. And 4 Imai does and my analysis does. Here, 64 Kbps you can 5 view as the -- as the compression ratio achieved that 6 number of bits, and it did it in a certain amount of 7 time, the compression rate.</p> <p>8 And the earlier paragraphs preceding this talk 9 about the relationship between rate, speed, and 10 compression ratio. So here, for example, Imai is giving 11 an example that even within one given standard, the 12 same -- that is, implementations of the same standard, he 13 considers different methods. And in this example, they 14 can give different compression ratios. And also, earlier 15 on, he talks about different amounts of time.</p> <p>16 So Imai is concerned with different amounts of 17 time in terms of how long it takes to perform the 18 encoding where his ultimate goal is, of course, 19 throughput -- having a throughput all the way from 20 beginning to end, through the encoder -- not just through 21 the encoder, but also across the communication line 22 through the decoder and to the viewer at the other end.</p> <p>23 In fact, when you see Imai summarize his system, 24 for example, at paragraph 180, at the very end, he 25 summarizes, "Accordingly, for example, in the case of</p>	<p style="text-align: right;">Page 105</p> <p>1 describing the compression rate, measuring it in bits per 2 second?</p> <p>3 A. Could you repeat the question?</p> <p>4 Q. In paragraph 69, is the reference to 64, 32 or 5 24 Kbps, are those measurements of the compression rate 6 in kilobytes per second?</p> <p>7 MR. BATTS: Objection. Form.</p> <p>8 THE WITNESS: So, first of all, these aren't 9 measurements. This paragraph is talking about a way in 10 which you refer to different implementations of the 11 standard, which he specifically says are -- he views as 12 different coding methods.</p> <p>13 So they're not measurements. It's kind of like 14 a specification: I'm going to use one of these coders. 15 Okay? And in terms of compression rate, paragraph 124 of 16 my -- of my declaration begins by addressing that term 17 that you've put -- that you've placed in your question.</p> <p>18 It says, "The '477 patent uses the term 'data 19 compression rate' to refer to the execution or 20 algorithmic speed of a compression encoder or, in other 21 words, throughput as a measure of the amount of input 22 data a compressor can compress and make available per 23 unit of time at a given compression ratio."</p> <p>24 So the -- using the term "compression rate" in 25 the context of the Fallon patent, as I've already</p>

<p style="text-align: right;">Page 106</p> <p>1 described, the -- Imai teaches that you take both  2 compression ratio and rate into account. In fact, even  3 the Fallon specifications relate compression ratio to  4 compression rate in the specifications.  5 And so, here, when you said "measurements" --  6 it's not a measurement. It's a reference to a particular  7 method. That method has the property that one second --  8 let's say -- take the 64 Kbs example. One second of  9 input will produce 64 kilobytes of output, so that  10 particular number would certainly directly address  11 compression ratio as opposed to how the term "compression  12 rate" is used without taking into account compression  13 ratio, but compression rate does take it into account.  14 You really -- you look at the -- you certainly  15 look at the Fallon patent. It relates the two. So when  16 you look at a standard, you care about both its time to  17 encode and the compression ratio in order -- for example,  18 as Imai says, you don't want to be too late. You don't  19 want the system to break.  20 So here, 64 Kbs is a measurement of the  21 compression ratio, but it's not -- it's an amount of  22 compression. It's not a measurement, actually, is what  23 I'm saying. It's a reference to a method, and that  24 method has an associated compression rate or time and a  25 related compression ratio. So it's not a measurement.</p>	<p style="text-align: right;">Page 108</p> <p>1 algorithmic speed of a compression encoder or, in other  2 words, throughput as the measure of the amount of input  3 data a compressor can compress and make available per  4 unit of time at a given compression ratio."  5 So when Imai selects one of these encoders to be  6 used, it's selecting it in such a way that it will run  7 fast enough or it wouldn't select it. That's what Imai  8 is teaching Imai. Imai is teaching that I'm going to --  9 Imai has to select one that runs fast enough or the  10 system will break. And Imai has to select one that has a  11 sufficient compression ratio or the system will break,  12 break in the sense that it's trying to guarantee a  13 throughput. And "throughput" is a term, of course, used  14 later in this claim.  15 So 64 Kbs is the name of a method. Imai says  16 these are different methods, and that method will have to  17 run sufficiently fast and get a sufficient compression  18 ratio. So, for example, Imai would only use a 64 Kbs  19 version of ATRAC if, A, that was -- the channel could  20 handle 64 Kbs; that is, compression ratio is adequate;  21 and, B, it can run fast enough because if it doesn't run  22 fast enough, as Imai summarizes in that final paragraph I  23 mentioned -- not final paragraph, but close to the end.  24 As Imai summarizes, he's concerned with time. That  25 summary that I read says, "Transmission of coded data can</p>
<p style="text-align: right;">Page 107</p> <p>1 It's a ref -- it's almost like a name. But in the  2 name -- in that name is a compression ratio, which is  3 related to a compression rate.  4 BY MR. STONEDALE:  5 Q. Does this paragraph disclose that the  6 compression rate of any encoder in Imai is 64 Kbps?  7 A. Sorry. Could you repeat the question?  8 Q. Does this paragraph disclose that the encoder --  9 sorry. I'll start over. Does this paragraph disclose  10 that the compression rate of any encoder in Imai is 64  11 Kbps?  12 MR. BATTS: Objection. Form.  13 THE WITNESS: I'm sorry. Could you repeat it  14 again?  15 BY MR. STONEDALE:  16 Q. Does paragraph 69 disclose that the compression  17 rate of any encoder is 64 Kbps?  18 A. So you're using the term "compression rate," and  19 that's a claim term. And at the paragraph 124, I  20 discussed that term. So, the 64 Kbs is like a name. He  21 says these are three different methods. It's the name of  22 that method, and the name is referring to a compression  23 ratio.  24 The term "compression rate," which I say, "The  25 data compression rate refers to the execution or</p>	<p style="text-align: right;">Page 109</p> <p>1 be avoided from becoming too late." Right? You have to  2 take -- Imai takes into account both, and it does it by  3 implementing methods that run sufficiently fast and get a  4 sufficient compression ratio to guarantee throughput  5 through the encoder.  6 And, in fact, Imai takes into account the  7 transmission line and the decoder to make sure the  8 throughput goes all the way through.  9 MR. BATTS: Is now a good time for another  10 break? We've been going over an hour again?  11 THE WITNESS: Yeah. We can take a quick one.  12 Does five minutes sound good to you all?  13 MR. BATTS: Fine here.  14 MR. STONEDALE: Let's go off the record.  15 (Recess was taken.)  16 BY MR. STONEDALE:  17 Q. You mentioned before that there's a relationship  18 between the compression rate and the compression ratio.  19 How would you characterize that relationship -- or let me  20 be a little more specific here.  21 Is it true, generally, to say that the higher  22 the compression ratio, the higher the compression rate?  23 MR. BATTS: Objection. Form.  24 THE WITNESS: So, I'm not sure if that's how you  25 meant to ask the question. But in any case, the one way</p>

<p style="text-align: right;">Page 110</p> <p>1 to answer the question in general would be that there  2 very often is an inverse relationship where a high  3 compression ratio may mean slower execution time because  4 the encoder is working harder to -- in some sense, to  5 achieve that ratio.  6 For example, we talked about how MPEG or H.263  7 or something, when it's doing a search for -- when it's  8 doing motion compensation and searching for a match,  9 let's say of a block in the current frame to a block in  10 the previous frame, it can look fairly quickly at just  11 the corresponding position in the previous frame and a  12 close area around there and operate quite quickly to get  13 pretty good motion compensation, or it can spend a lot of  14 time searching much more thoroughly in a much bigger  15 area, possibly the whole previous frame and possibly at  16 half pixel resolution and so forth so that it's quite --  17 it's a common scenario to have a -- a method that does  18 more higher compression to take more time and one that  19 has a lower compression ratio to take less time.  20 So in other words, more data per second can flow  21 through the encoder when it's operating faster and doing  22 a lower compression ratio than when it's operating slower  23 and doing a higher compression ratio. So that would be a  24 scenario that is well understood by one of ordinary skill  25 in the art reading the Imai patent, well described in the</p>	<p style="text-align: right;">Page 112</p> <p>1 language. So when I say "compression rate" in that  2 sense, I want to be clear that I'm referring to the  3 compression rate in the claim.  4 A. Maybe you could repeat your question then.  5 Q. Could a person of ordinary skill in the art  6 reliably know that an encoder that achieves a high  7 compretio (phonetic) -- blah. I'll have to start over.  8 Can a person of ordinary skill in the art  9 reliably know that an encoder that achieves a high  10 compression ratio on a given piece of data would have a  11 lower compression rate than an encoder that achieves a  12 lower compression ratio on that same data?  13 MR. BATTS: Objection. Form.  14 THE WITNESS: Could you repeat the question?  15 MR. STONEDALE: Could the court reporter please  16 repeat the question?  17 (Record was read back as requested.)  18 THE WITNESS: So, first of all, you said -- you  19 prefaced your question before asking it -- and thank you  20 for repeating it -- that you were specifically using  21 "compression rate" as its -- the term that's used in the  22 Fallon patent. By the way, when I've said "Fallon  23 patent" throughout this whole deposition, I assume we're  24 all talking about the Fallon '477 patent. I've just said  25 "Fallon patent."</p>
<p style="text-align: right;">Page 111</p> <p>1 Imai patent and it's also -- not that it's novel, but  2 it's described in the Fallon patent as well.  3 BY MR. STONEDALE:  4 Q. And in that relationship where a higher  5 compression ratio is achieved by the lower compression  6 rate, is that something you could reliably apply across  7 encoders?  8 A. Maybe you could say the whole full question  9 again. You got broken up in the middle of the question.  10 Q. Is the relationship where a high compression  11 ratio tends to imply a -- or I should say it differently.  12 Could a person of ordinary skill in the art  13 reliably say that a compression encoder that achieves a  14 high compression ratio will tend to achieve a lower  15 compression rate than another encoder that achieves a  16 lower compression ratio?  17 MR. BATTS: Objection. Form.  18 THE WITNESS: Well, the term "compression rate"  19 may be used differently by different people in the art,  20 but I'll take your -- maybe take your question a little  21 outside the claim language and just talk about the  22 tradeoff between how fast an encoder is able to  23 compress --  24 BY MR. STONEDALE:  25 Q. Well, I would like to keep it within the claim</p>	<p style="text-align: right;">Page 113</p> <p>1 So returning to my -- for example, my paragraph  2 124 that comes -- that is now addressing this claim  3 element that uses the term "compression rate," and it  4 says, "The '477 patent uses the term 'data compression  5 rate' to refer to the execution or algorithmic speed of a  6 compression encoder or, in other words, throughput as a  7 measure of the amount of input data a compressor can  8 compress and make available per unit of time at a given  9 compression ratio."  10 So, for example, let's take the world of -- it's  11 almost simpler to think about lossless compression,  12 methods like, you know, PKzip or gzip or other things  13 like that. If I had two methods and one of them ran  14 faster and typically produced smaller output, I mean,  15 obviously you would just always use the second method,  16 right?  17 So, generally, it's sort of common sense that  18 the reason I may be looking at more than two methods is  19 because there's this tradeoff. Some of them will run  20 slower but typically give smaller output, and some of  21 them will run faster but may not give quite as small  22 output.  23 BY MR. STONEDALE:  24 Q. Okay. Thank you. Can we look at Imai in  25 paragraph 68? And in the middle of that paragraph, it</p>

<p style="text-align: right;">Page 114</p> <p>1 refers to a relatively less bit rate of the resulting  2 coded data which provides" -- where it says "relatively  3 less bit rate of the resulting code data; i.e., which  4 provides a high compression rate."  5 So it seems to be equating the low bit rate of  6 the resulted coded data with a high compression rate.  7 And I'm wondering why that is so, given what you just  8 said, that typically, the higher compression rate would  9 be accompanied by lower -- sorry, higher compression rate  10 would be accompanied by higher compression ratio.  11 MR. BATTS: Objection. Form.  12 THE WITNESS: Could you repeat the question?  13 BY MR. STONEDALE:  14 Q. In paragraph 68 in Imai -- that's on page 33 --  15 it refers to relatively less bit rate of the resulting  16 coded data and equates that with a high compression rate.  17 And I'm wondering why the encoder with the lower bit rate  18 of the resulting coded data would have the high  19 compression rate.  20 A. Let me take a look at the paragraph. (Witness  21 reviewed document.) I've had a chance to look at the  22 paragraph. Could you repeat the question?  23 MR. STONEDALE: Could the court reporter repeat  24 the question, please?  25 (Record was read back as requested.)</p>	<p style="text-align: right;">Page 116</p> <p>1 throughput.  2 BY MR. STONEDALE:  3 Q. So, the -- with respect to "compression rate" as  4 the term is used in the Fallon patent, that value is not  5 being set to be high here. It's the compression ratio  6 that is high in paragraph 68; is that correct?  7 MR. BATTS: Objection. Form.  8 THE WITNESS: Well, that's not really the point  9 of the paragraph. I mean, just like the Fallon patent --  10 right? -- where Fallon patent also, if you read the  11 specifications, relates compression rate and compression  12 ratio. He's concerned with both and he's concerned in --  13 in this case, the assumption is you are actually doing it  14 fast enough in order to have that result. He's using  15 that terminology in that way here.  16 But, for example, even in the paragraph before,  17 he talks about time, about -- not only about decoding  18 time but also encoding time, and we've also referred to  19 other passages as well. So in the context of ensuring  20 throughput and ensuring a working system, whenever he  21 talks about one, he's also taking into account the other  22 because he is concerned with actually achieving  23 throughput, and it doesn't help to make something really  24 fast if it isn't small enough to go down the channel. It  25 doesn't help to make it really small if it's not fast</p>
<p style="text-align: right;">Page 115</p> <p>1 THE WITNESS: So the paragraph also -- it should  2 be read in context of the one preceding it. But to  3 answer your question, the term "data compression rate" is  4 not standard in the art. It's used in different ways.  5 And here, of course in Imai, Imai is concerned with both  6 time to compress and compression ratio. That's the whole  7 thing we talked about before where at the end, he talks  8 about being concerned with time, "The transmission of the  9 coded data can be avoided from becoming too late."  10 So here, when he's talking about compression  11 rate -- making something smaller, compression ratio, he  12 uses that terminology, but of course he's addressing both  13 time and compression rate -- compression ratio, as, of  14 course, I do in my analysis of Claim 1.  15 My analysis of Claim 1 really analyzes the fact  16 that whether you take it as compression ratio or  17 compression rate, it's rendered obvious by -- the Claim 1  18 is rendered obvious by Imai. So there's really no  19 inconsistency or something that seemed to be implied in  20 your question. He's using terminology -- he's using  21 terminology of his own. This comes before the Fallon  22 patent. But he's using it in the context of taking into  23 account both time and compression rate because this is  24 concerned -- this paragraph and the one before it and  25 this whole area is actually concerned with that total</p>	<p style="text-align: right;">Page 117</p> <p>1 enough to work.  2 So the paragraph here is really addressing both  3 but maybe using terminology in a slightly different way,  4 which you'll also see in the Fallon specifications as  5 well, that it relates the term. Compression rate  6 certainly is intimately related to compression ratio.  7 And going back to my paragraph 124, I make that  8 point when I say, "The '477 patent uses the term 'data  9 compression rate' to refer to the execution or  10 algorithmic speed of a compression encoder" -- that's the  11 speed -- but, "in other words, throughput." And  12 "throughput" is an important word here because that is,  13 again, part of this claim later on as a measure of the  14 amount of input data a compressor can compress and make  15 available per unit of time at a given compression ratio.  16 So, yeah, there's some terminology that's a  17 little different depending where you -- in this  18 particular case versus talking strictly about speed, but  19 again, Imai is really addressing both when he's talking  20 about a working system that achieves the throughput.  21 BY MR. STONEDALE:  22 Q. So, I understand that the compression -- a  23 reference to a compression ratio is a reference to a  24 compression rate and vice versa. But my specific  25 question here is, Imai is saying that one of them is</p>

<p style="text-align: right;">Page 118</p> <p>1 high, high value, high compression rate. Is the  2 compression rate as value the term "high," or is it the  3 compression ratio that's high?  4 A. Well, first of all, Fallon does -- although  5 Fallon using the term "compression rate" as I have  6 described it in 124, it later points -- and this, of  7 course, I do point to a particular place in Fallon. In  8 fact, I should go -- let me just mention that right now  9 when I have a chance.  10 If you look at -- I guess it would be the bottom  11 of Column 1, Fallon says, "Accordingly, a system and  12 method that would provide dynamic modification of  13 compression system parameters so as to provide an optimal  14 balance between execution speed of the algorithm,  15 (compression rate) and a resulting compression ratio is  16 highly desirable."  17 So they're -- you know, he equates in some  18 sense -- it's parentheses -- but sort of equates  19 compression rate with execution speed. Of course, if you  20 read further in Fallon, he also kind of intimately  21 relates the term "compression rate" to "compression  22 ratio" as well. But in this paragraph 68, which also  23 follows 67 that talks about time, he is actually talking  24 about how the data gets -- the data gets smaller, so when  25 it says, "Furthermore, example of the coding method,</p>	<p style="text-align: right;">Page 120</p> <p>1 Q. Yes, sir.  2 And at the very bottom of that paragraph, you  3 say -- well, you can read it. You say that, "The  4 compression rate is the number of bits per second of data  5 that is processed and compressed by the encoder and  6 produced by the decoder by decompression. And that's  7 assuming that the client heard or device receiving the  8 compressed data can operate sufficiently fast so the  9 decompression can keep up with the incoming compressed  10 data."  11 And my question is, what if that is not true,  12 that that assuming clause is not true? What if the  13 client or device receiving the compressed data can't  14 operate fast enough to decompress it at the speed the  15 data is coming in? How would that affect the compression  16 rate?  17 MR. BATTS: Objection. Form.  18 THE WITNESS: Could you repeat the question?  19 BY MR. STONEDALE:  20 Q. Yes. If the decompressor cannot keep up with  21 the incoming compressed data, how would that affect the  22 compression rate?  23 A. Well, let me take a look at the paragraph you're  24 referring to. (Witness reviewed document.) Okay. I've  25 read the paragraph. If you could repeat the question</p>
<p style="text-align: right;">Page 119</p> <p>1 which provides a relatively less bit rate of the  2 resulting coded data (i.e., which provides a high  3 compression rate), are MPEG layer 3 and ATRAC 2."  4 And it goes on to discuss there in that  5 particular case, the word "compression rate" is being  6 used in the context of the data becoming smaller, but  7 it's also being used in the context of the preceding  8 paragraph and so of the thing -- of the method actually  9 running fast enough to make it smaller.  10 In other words, he doesn't choose a method that  11 makes it smaller but it's too slow and, therefore, the  12 system won't work. Again, going back to his conclusion  13 towards the end, he's concerned about the transmission of  14 the coded data can be avoided from becoming too late.  15 He's real -- he does -- he has to have throughput and be  16 able to have the data -- he's describing an end-to-end  17 system where he takes into account a lot of things, and  18 whenever he takes into account achieving a certain amount  19 of reduction in size, compression ratio, he is doing the  20 context of picking a method that can do it fast enough.  21 Q. You mentioned the way that compression rate is  22 used in the -- in the Claim 1 of the patent. And I  23 wanted to clarify a statement you made in paragraph 128  24 of your declaration in the -- in the first petition.  25 A. The first petition in paragraph 128. Okay.</p>	<p style="text-align: right;">Page 121</p> <p>1 again. Thank you.  2 MR. STONEDALE: Could the court reporter please  3 repeat the question?  4 (Record was read back as requested.)  5 THE WITNESS: So, the question is sort of --  6 this paragraph is trying to explain the compression rate.  7 I mean, it doesn't necessarily -- the rate doesn't depend  8 on the decoder. There is a rate that takes place, but  9 the whole point of having a particular rate is to keep up  10 with a certain throughput.  11 So, of course the Fallon patent mainly talks  12 about storage devices, the specifications and  13 marginally -- in addition, a little bit it also talks  14 about communications. But you're trying to send the  15 compressed data to a target and communications to a  16 decoder, so you presumably have a system where it's  17 working. And in that context, it's describing what the  18 rate is.  19 But the rate isn't really -- I mean, the rate  20 will be what it is, whatever the decoder is doing. I'm  21 not quite sure how to understand your question.  22 BY MR. STONEDALE:  23 Q. So the decompression rate in Claim 1, then,  24 doesn't depend on the speed of the decoder?  25 MR. BATTS: I'm sorry. Did you say</p>

<p style="text-align: right;">Page 122</p> <p>1 "decompression rate" or "compression rate"?</p> <p>2 MR. STONEDALE: Compression rate.</p> <p>3 MR. BATTS: Could we have the question back</p> <p>4 again? It looks like it was transcribed incorrectly.</p> <p>5 MR. STONEDALE: I'm sorry. I couldn't hear</p> <p>6 that.</p> <p>7 MR. BATTS: Could you just repeat the question?</p> <p>8 It doesn't look like it got transcribed correctly.</p> <p>9 MR. STONEDALE: Oh, yeah.</p> <p>10 BY MR. STONEDALE:</p> <p>11 Q. The compression rate doesn't depend on the rate</p> <p>12 of the decoder -- or the speed of the decoder?</p> <p>13 MR. BATTS: Objection. Form.</p> <p>14 THE WITNESS: Since there was a little bit of</p> <p>15 confusion there, could you repeat the question one more</p> <p>16 time?</p> <p>17 BY MR. STONEDALE:</p> <p>18 Q. Is it true that the compression rate does not</p> <p>19 depend on the speed of the decoder?</p> <p>20 A. Well -- so your question is a little bit --</p> <p>21 doesn't really match up to the claim. You mentioned</p> <p>22 Claim 1, for example. There -- there's sort of two</p> <p>23 issues going on. There's the encoders themselves, first</p> <p>24 one, second one, you know, faster one, slower one --</p> <p>25 whatever. There are various encoders available. We</p>	<p style="text-align: right;">Page 124</p> <p>1 to, for example, satisfy some constraints on throughput</p> <p>2 is perhaps a different issue than literally, okay. Here</p> <p>3 is an encoder, and it has a certain -- it, let's say,</p> <p>4 achieves a certain compression ratio or typically chooses</p> <p>5 a certain compression ratio and has a certain speed that</p> <p>6 it runs at, that data compression rate -- okay? -- is a</p> <p>7 property of the encoder, not a property of the decoder.</p> <p>8 Q. Okay. In paragraph 67 of Imai, does the</p> <p>9 different coding with different bit rates of the</p> <p>10 resulting coded data?</p> <p>11 THE COURT REPORTER: I'm sorry. Can you repeat</p> <p>12 that?</p> <p>13 Q. Imai discusses different encoders with different</p> <p>14 bit rates -- that's B-I-T, R-A-T-E-S -- of the resulting</p> <p>15 coded data. Now, the bit rate of the resulting code</p> <p>16 data, does that refer directly to the compression rate,</p> <p>17 or does that refer to the compression rate because it</p> <p>18 correlates with the compression rate?</p> <p>19 MR. BATTS: Objection. Form.</p> <p>20 THE WITNESS: Could you repeat the question?</p> <p>21 BY MR. STONEDALE:</p> <p>22 Q. The reference in paragraph 67 to a relatively</p> <p>23 large (high) bit rate of the resulting coded data, does</p> <p>24 that refer to the compression rate of the data directly,</p> <p>25 or is that a reference to the compression ratio which</p>
<p style="text-align: right;">Page 123</p> <p>1 talked about Imai having a suite of encoders with</p> <p>2 different properties. And the compression rate would be</p> <p>3 a property of the encoder, not the decoder.</p> <p>4 On the other hand, selection -- selection of</p> <p>5 which encoder you're going to use, which compression rate</p> <p>6 you're going to use, the claim says, "Determine one or</p> <p>7 more data parameters, at least of one of determined one</p> <p>8 or more data parameters relating to a throughput of a</p> <p>9 communication channel measured in bits per second."</p> <p>10 So if the communication channel has something at</p> <p>11 the receiving end and suddenly it's pausing the channel</p> <p>12 or not letting the data come through or not able to</p> <p>13 accept it, that could be something that was a problem</p> <p>14 with the throughput of the channel, or it could be a</p> <p>15 parameter that, among others, was taken into</p> <p>16 consideration.</p> <p>17 Imai, of course, teaches taking lots of things</p> <p>18 into consideration. One learns from Imai that you can</p> <p>19 take into consideration encoding time, compression ratio,</p> <p>20 characteristics of the channel, decoding time, decoder</p> <p>21 compatibility, data type -- all kinds of things. You can</p> <p>22 take into account all kinds of parameters. And all those</p> <p>23 are taught in Imai, and Imai clearly renders this claim</p> <p>24 obvious.</p> <p>25 So the issue of how you choose a method in order</p>	<p style="text-align: right;">Page 125</p> <p>1 correlates with the compression rate?</p> <p>2 A. Let me take a look at the paragraph. (Witness</p> <p>3 reviewed document.) So, if you look at this paragraph,</p> <p>4 actually it says quite a bit about both compression ratio</p> <p>5 and time. So it reads, "The encoders 51 to 53 and" --</p> <p>6 "53 N" -- sorry -- "(N is two or more) are construed" --</p> <p>7 "are constructed to encode the audio signal with</p> <p>8 different coding methods from each other (for</p> <p>9 example" -- and it lists some coding methods -- "linear</p> <p>10 PCM, which is pulse code modulation; ADPCM, MPEG layers</p> <p>11 1, 2 and 3; ATRAC, ATRAC 2 and so on.</p> <p>12 And then it goes on to say, "Stated otherwise,</p> <p>13 in the embodiment, the encoders 51 to 53 N are prepared</p> <p>14 by using encoders which perform encoding of the audio</p> <p>15 signal with various coding methods, including a method</p> <p>16 which provides a relatively large (high) bit rate of the</p> <p>17 resulting coded data, but can reproduce audio signal with</p> <p>18 relatively good reproducibility, a method which can</p> <p>19 provide a relatively small (low) bit rate of the</p> <p>20 resulting coded data but reproduces an audio signal with</p> <p>21 relatively poor reproducibility, a method which requires</p> <p>22 a larger amount of computation for decoding." And then</p> <p>23 it says in parentheses, "Such a method usually also</p> <p>24 requires a larger amount of computation for encoding."</p> <p>25 So you can have an asymmetric method. Yeah,</p>



<p style="text-align: right;">Page 126</p> <p>1 it's asymmetric, but the encoder also requires a large  2 amount of computation. Maybe not as large as the  3 encoding, but a large amount of computation. "And the  4 encoder, large amount of computation, a method which  5 requires a not so large amount of computation for  6 decoding and a method particularly suitable for coding a  7 human voice."  8 So here, it's talking not only about a -- a high  9 amount of bits coming out -- a large amount of bits  10 coming out versus a smaller amount of bits coming out,  11 but also about how the encoding may take more time when  12 you have to output a higher quality or a higher amount of  13 compression.  14 So it's addressing both time and compression  15 ratio. So when you talk about a -- I can't remember the  16 term you used, but a relationship between them, it does  17 address a relationship between them but also explicitly  18 addresses both parameters, time and how small an output  19 you have had that is equivalent to a compression ratio.  20 I think I'll finish my answer -- I finished it  21 wrong. It addresses both a smaller number of bits  22 compression ratio and also time, how fast you encode it.  23 If -- that's what I meant to say at the end, if I said  24 that.  25 Q. Thank you. Let's look at paragraph 145 of Imai.</p>	<p style="text-align: right;">Page 128</p> <p>1 network transmission rate is a bottleneck in the system?  2 MR. BATTS: Objection. Form.  3 THE WITNESS: Can you repeat your question?  4 BY MR. STONEDALE:  5 Q. Is paragraph 145 describing a situation in which  6 the transmission rate of the network is the bottleneck in  7 the system?  8 A. No.  9 Q. Is it describing a situation where the  10 transmission rate of the network is preventing the data  11 from being reproduced in real time?  12 A. So, this paragraph in isolation is simply  13 telling you what happens. So it's not really a  14 bottleneck -- if you're sending less, you know -- less  15 stuff than you could be sending over the communication  16 network, then so be it.  17 However, remember that Imai is actually -- in  18 many ways actually doing -- actually teaching more than  19 you need for -- for rendering the claims that the Fallon  20 patent; teaching lots of considerations.  21 Imai is concerned with an end-to-end system  22 where you can have throughput through the encoder with  23 sufficient encoding speed and sufficient compression  24 ratio so as the data can be sent across the communication  25 line.</p>
<p style="text-align: right;">Page 127</p> <p>1 A. Okay. I'm there at paragraph 145.  2 Q. Okay. Now, if the transmission rate of the  3 network is smaller than the data rate of the coded data,  4 then the coded data becomes so late that the audio  5 signals cannot be reproduced in real time. In that  6 situation, is the decoder of the system operating as the  7 bottleneck?  8 MR. BATTS: Objection. Form.  9 THE WITNESS: Could you repeat the question?  10 BY MR. STONEDALE:  11 Q. In the situation described in paragraph 145  12 where the transmission rate of the network is reduced  13 smaller than the data rate of the coded data, in that  14 situation, is it describing the decoder being the  15 bottleneck of the system?  16 A. Let me take a look at the paragraph. (Witness  17 reviewed document.) I've read the paragraph. Can you  18 repeat your question again, please? Thank you.  19 Q. Is paragraph 145 describing the situation in  20 which the decoder is the bottleneck in the system?  21 A. No.  22 Q. Is it describing a situation where the encoder  23 is the bottleneck of the system?  24 A. No.  25 Q. Is it describing the situation in which the</p>	<p style="text-align: right;">Page 129</p> <p>1 And, in addition, you could -- you could  2 optionally add in Imai's technology to actually measure  3 the decoding speed in case, for whatever reason, it  4 happened to be a very weak decoder, you would find that  5 out; or the receiver happened to have -- happened to not  6 have a decoder for one of the methods you would like to  7 use.  8 So in that context, if your concern was, in  9 fact, real time viewing at the other end, then you would  10 want to -- as it says here, you would want to address  11 this issue because you wouldn't want the data to arrive  12 too late. And I mentioned earlier on, this kind of goes  13 along with what we discussed a little while ago.  14 If you go back to where -- go towards the end  15 where Imai is kind of summarizing aspects of the  16 invention, in paragraph 1 e, it ends by saying,  17 "Transmission of the coded data can be avoided from  18 becoming too late."  19 So this is a similar -- this is kind of what is  20 going on here. You certainly can send less data over the  21 communication line than it can accommodate. But on the  22 other hand, if you send too little, it will get there too  23 late and now you won't have real time viewing at the  24 other end. That's another thing, an additional thing  25 that's taught by Imai. Imai teaches a lot of things, and</p>

<p style="text-align: right;">Page 130</p> <p>1 that's also taught.</p> <p>2 Q. I understand that. But what I'm asking about in</p> <p>3 this paragraph, is it -- which part of the system is</p> <p>4 holding up the audio data and preventing it from being</p> <p>5 produced in real time? Is it the decoder?</p> <p>6 A. So if you read the paragraph -- if I understand</p> <p>7 your question correctly, if you read the paragraph that</p> <p>8 ends by saying, "Accordingly, the transmission rate of</p> <p>9 network 2 is reduced down smaller than the data rate of</p> <p>10 the coded data, transmission of the coded data becomes so</p> <p>11 late that the audio signals cannot be reproduced in real</p> <p>12 time."</p> <p>13 So, it's not a limitation of the decoder. It's</p> <p>14 just there -- your throughput is not adequate at the</p> <p>15 encoding end. And the decoder is ready to decode it, but</p> <p>16 it's not getting the data sufficiently quickly.</p> <p>17 So we've talked about this a lot, that Imai</p> <p>18 teaches a system that chooses among encoders with</p> <p>19 different capabilities. Some -- and, of course, based on</p> <p>20 data type. So for a given data type, a certain encoder</p> <p>21 may be -- run faster for an acceptable compression ratio.</p> <p>22 But for another data type, it may not run fast enough for</p> <p>23 an acceptable compression ratio, "acceptable" meaning one</p> <p>24 that will satisfy the constraints; therefore, you pick a</p> <p>25 different encoder with a different property, a different</p>	<p style="text-align: right;">Page 132</p> <p>1 situation where the network -- the network is too slow to</p> <p>2 transmit the data at the bit rate that it's being output</p> <p>3 from the encoder; is that accurate?</p> <p>4 A. No.</p> <p>5 Q. Why not?</p> <p>6 A. What it says here at the end is, "Accordingly,</p> <p>7 if the transmission rate of the network is reduced down</p> <p>8 smaller than the data rate of the encoded data,</p> <p>9 transmission of the encoded data becomes so late that</p> <p>10 audio signals cannot be reproduced in real time."</p> <p>11 Q. And so what --</p> <p>12 A. That's what it says. You tried to characterize</p> <p>13 what it said. It didn't really sound like what it said.</p> <p>14 I may have misunderstood your question.</p> <p>15 Q. Oh. Well, I'm asking if it's describing a</p> <p>16 situation in which the rate of the network is lower than</p> <p>17 the rate of the data output from the encoder.</p> <p>18 MR. BATTS: Objection. Form.</p> <p>19 THE WITNESS: Could you repeat your question?</p> <p>20 BY MR. STONEDALE:</p> <p>21 Q. Is it describing the situation in which the</p> <p>22 transmission rate of the network is lower than the rate</p> <p>23 of the data output from the encoder?</p> <p>24 A. That sounds like a different question than the</p> <p>25 one you asked before. Just to be clear, could you make</p>
<p style="text-align: right;">Page 131</p> <p>1 encoding speed so that it runs fast enough to achieve an</p> <p>2 acceptable compression ratio.</p> <p>3 Q. So the purpose of manipulating the speed of the</p> <p>4 encoder is to affect the compression ratio in this</p> <p>5 situation?</p> <p>6 MR. BATTS: Objection. Form.</p> <p>7 THE WITNESS: I don't understand. Where are you</p> <p>8 reading "manipulating the speed" from? What do you mean</p> <p>9 by that?</p> <p>10 BY MR. STONEDALE:</p> <p>11 Q. In a situation in which --</p> <p>12 (Reporter asked for clarification.)</p> <p>13 A. I didn't get it. Maybe you should start fresh</p> <p>14 because there was a glitch in the system.</p> <p>15 Q. In a situation in which the --</p> <p>16 A. I'm sorry. It happened again. Start slowly</p> <p>17 again. It's coming through garbled when you start the</p> <p>18 question.</p> <p>19 MR. BATTS: It's the throughput.</p> <p>20 BY MR. STONEDALE:</p> <p>21 Q. Oh, okay. Can you all hear me better now?</p> <p>22 A. Yes.</p> <p>23 Q. In the situation where the network -- well,</p> <p>24 look. So first of all, let me ask, do you agree that the</p> <p>25 situation being described here in paragraph 145 is a</p>	<p style="text-align: right;">Page 133</p> <p>1 it clear which question you're actually asking?</p> <p>2 Q. The most recent one.</p> <p>3 A. So could you repeat that?</p> <p>4 MR. STONEDALE: Could the court reporter please</p> <p>5 repeat the most recent question?</p> <p>6 (Record read back as requested.)</p> <p>7 THE WITNESS: It is describing a situation</p> <p>8 where, yes, the bits that are flowing out of the encoder,</p> <p>9 there's more than can be accommodated in -- at the same</p> <p>10 rate by the communication channel.</p> <p>11 BY MR. STONEDALE:</p> <p>12 Q. And why does that prevent the audio from being</p> <p>13 reproduced in real time?</p> <p>14 A. So, imagine now that someone is at the --</p> <p>15 there's a user out there that is viewing a video or</p> <p>16 listening to an audio. Let's say it's a video. So</p> <p>17 they're watching a video and it's some show they like to</p> <p>18 watch and it's being -- it's coming in to an encoder that</p> <p>19 Imai has chosen for the particular data type and it's</p> <p>20 being encoded.</p> <p>21 And it may be encoded fast enough so that the</p> <p>22 data coming in is, in fact, being accepted in real time</p> <p>23 by the encoder, the video coming in. But it's -- the</p> <p>24 resulting compression ratio is big enough so that there</p> <p>25 are many more bits per second to be sent over the</p>

<p style="text-align: right;">Page 134</p> <p>1 communication line than the communication line can 2 accommodate. 3 So this is that tradeoff we've been talking 4 about, how Imai takes into account both things because 5 Imai is concerned with throughput. And, of course, we've 6 seen that "throughput" is a term in this claim. Imai is 7 concerned with throughput, the data actually flowing 8 through the encoder across the communication line. 9 And in the case where you want to view it at the 10 other end, if the data doesn't get to you, obviously you 11 can't view it. So the decoder may, in fact, be plenty 12 fast enough to decode in real time if the data was simply 13 provided to it, but if a certain -- if there's a certain 14 number of bits per second of data it needs to decode and 15 you're getting fewer than that, it can't, obviously, 16 decode it in real time. It has to wait. 17 And you often see that sort of phenomena when 18 there's a problem on a network when you're viewing a 19 video and you get pauses or jerks and things. That is 20 what is being avoided here. Imai is teaching the 21 tradeoff in the case of encoding of picking a time that 22 is fast enough to -- picking an encoding method that is 23 fast enough to achieve an acceptable compression ratio, 24 those two things being -- taking into account and 25 relating.</p>	<p style="text-align: right;">Page 136</p> <p>1 doesn't want it to arrive too late to the communication 2 line or doesn't want it to arrive too late at the other 3 end, to the decoder, either. So Imai describes 4 additional features by taking into account an unknown 5 decoder, additional features described by Imai as well. 6 Q. What would happen if you decreased the 7 compression rate but used an encoder with the same 8 compression ratio? 9 MR. BATTS: Objection. Form. 10 THE WITNESS: Could you repeat the question? 11 BY MR. STONEDALE: 12 Q. What would happen if you used an encoder with a 13 lower compression rate but the same compression ratio? 14 A. It seems like you're asking a hypothetical where 15 I have two encoders, presumably that I purchased them or 16 something or took the trouble to install them in my 17 system, and you're hypothesizing a situation where 18 there's a defined compression ratio. They both have the 19 same compression ratio, but one of them runs faster. 20 Why would you -- why would you have purchased 21 the two encoders, then, if they achieve the same ratio 22 and one is faster? Why not just always use the faster 23 one? What possible harm -- advantage would it be to use 24 the slower one? 25 Your hypothetical -- I mean, I don't know all</p>
<p style="text-align: right;">Page 135</p> <p>1 Q. What would happen if you used an encoder with a 2 higher compression ratio to encode the data? Would that 3 help the situation? 4 MR. BATTS: Objection. Form. 5 THE WITNESS: Could you repeat the question? 6 BY MR. STONEDALE: 7 Q. Would using an encoder with a higher compression 8 ratio help this situation? 9 A. By "this situation," I think you mean that 10 currently the encoder being used has an insufficient 11 compression ratio, so I think you almost answered your 12 own question. If it's insufficient, one with a higher 13 compression ratio would help. 14 Of course, Imai chooses encoders in such a way 15 that they also run fast enough, right? Again, Imai is 16 making an encoder that guarantees a throughput and can 17 accept that input in real time and encode it. 18 So when Imai chooses, Imai is looking for an 19 encoder that both achieves the acceptable compression 20 ratio together with being fast enough to actually perform 21 the compression because, again, as we discussed, going 22 back to that summary at the end, "For example, 23 transmission of the coded data can be avoided from 24 becoming too late." 25 Imai does not want it to arrive too late,</p>	<p style="text-align: right;">Page 137</p> <p>1 the parameters in your hypothetical, and I'm not exactly 2 sure how you're measuring speed, whether it's -- and so 3 on and so forth, but it doesn't seem to quite make sense 4 but maybe because I misunderstand the hypothetical. 5 Q. Is it your opinion that a person of ordinary 6 skill would never include two encoders that achieve the 7 same compression ratio on a given piece of data but have 8 different compression rates? 9 MR. BATTS: Objection. Form. 10 THE WITNESS: Could you repeat your question? 11 BY MR. STONEDALE: 12 Q. Is it your opinion that a person of ordinary 13 skill would never include two encoders that have -- that 14 achieve the same compression ratio on a given piece of 15 data but have different compression rates? 16 A. So, you're talking about some kind of particular 17 data in your hypothetical that two encoders got exactly 18 the same compression ratio. And then you're saying that 19 they -- but in your hypothetical, they took a different 20 amount of time to get that compression ratio? 21 Q. That's right. 22 A. And then the question is what? That the user 23 would never or would or would want to -- again, the 24 hypothetical does not quite make sense, but maybe you can 25 restate it again. I'm trying to see what this...</p>

<p style="text-align: right;">Page 138</p> <p>1 Q. Would a person of ordinary skill in the art  2 never include two encoders that achieve the same  3 compression ratio on a given piece of data even though  4 they have different compression rates?  5 A. So I don't know -- I'm not sure the type of  6 compression you're talking about. Let's suppose it was  7 lossless compression, and let's assume that by some  8 chance, they're different encoders -- well, there seem to  9 be a lot -- when you're talking about different encoders,  10 are you talking about that they use the same algorithm to  11 compress the data but may be implemented different so as  12 to run the different speeds, or are you saying that they  13 actually use different algorithms to compress the data?  14 Or another way to ask my question is, could both  15 compressions from these encoders be decoded by the same  16 decoder, or are they producing data that is encoded at  17 the same size but actually requires a different decoder  18 to decode it?  19 Q. Either way.  20 A. Either way? Well, okay. So in your  21 hypothetical, let's assume the same decoder can decode  22 either output; and let's assume, I guess, for the sake of  23 argument that there are lossless encoders and they both  24 encode -- because they use the same decoder, they both  25 literally output the same sequence of bits when they</p>	<p style="text-align: right;">Page 140</p> <p>1 same compression ratio?  2 MR. BATTS: Objection. Form.  3 THE WITNESS: What do you mean by having the  4 same compression ratio?  5 BY MR. STONEDALE:  6 Q. That would achieve the same compression ratio on  7 a given piece of data.  8 A. Okay. On a given piece of data. So now you're  9 saying there's a particular block -- in your  10 hypothetical, would the encoders possibly achieve  11 different compression ratios on different blocks but that  12 happens to be that on a particular block, they achieve  13 the same ratio?  14 Q. Yes.  15 A. So could you -- with that understanding, could  16 you repeat the question?  17 Q. Can you think of any reason a person of ordinary  18 skill in the art would include two different encoders  19 that have different compression rates but the -- but  20 achieve the same compression ratio on a given piece of  21 data?  22 MR. BATTS: Objection. Form.  23 THE WITNESS: Well, first of all, they may  24 achieve different compression ratios in different pieces  25 of data. So Imai selects things based on data type. In</p>
<p style="text-align: right;">Page 139</p> <p>1 encode the data block, so literally output is identical  2 in both cases, but one takes more time than the other.  3 I don't know why you would not always use the --  4 if one inherently takes more time -- that is somehow the  5 way it's been implemented -- it performs the same  6 sequence of operations, but it runs slower, maybe you  7 purchased a piece of software that doesn't take advantage  8 of multicores and the other one does or something, there  9 could be a reason to use one over the other because of  10 the hardware available, but it doesn't quite make a lot  11 of sense without knowing more details about your  12 hypothetical why someone wouldn't simply, if they're  13 equivalent in all ways but the one way they're different  14 is one is faster, why wouldn't you just choose that one?  15 I don't quite understand. There may be parts of  16 your hypothetical that I don't understand. But sitting  17 here, it doesn't make a lot of sense to me. Not in any  18 way criticizing your question. Just, it doesn't make  19 sense.  20 Q. So you can't think of any way -- or any reason  21 why a person of ordinary skill in the art would include  22 two encoders with different compression rates and the  23 same -- sorry. Can you think of any reason a person of  24 ordinary skill would include two encoders in the system  25 of Imai that have different compression rates but the</p>	<p style="text-align: right;">Page 141</p> <p>1 your hypothetical as well, are you assuming that they --  2 different methods -- when you're measuring time, are they  3 taking different advantages of the available hardware?  4 For example, is one multicore? Is one single core?  5 It seems like -- I worry about trying to compare  6 apples and oranges here in your hypothetical. I'm not  7 quite sure about how you're actually framing these two  8 hypothetical encoders.  9 BY MR. STONEDALE:  10 Q. Well, the only characteristics that I'm telling  11 you about them is they're compression rates and they're  12 compression ratios. Is there any -- is there any world  13 in which a person of ordinary skill in the art would  14 create a system with two encoders that achieved the same  15 compression ratio on a given piece of data and have  16 different compression rates?  17 MR. BATTS: Objection. Form.  18 THE WITNESS: Well, I'm not sure. First of  19 all -- well, could you repeat the question?  20 BY MR. STONEDALE:  21 Q. Can you think of any situation why a person of  22 ordinary skill -- sorry. Can you think of any reason why  23 a person of ordinary skill would include two encoders  24 that achieve the same compression ratio on a given piece  25 of data but have different compression rates?</p>

<p style="text-align: right;">Page 142</p> <p>1 A. In your hypothetical, is this piece of data</p> <p>2 something that -- first of all, are you talking with --</p> <p>3 when you say "include," are you talking about include in</p> <p>4 Imai's system, or are you saying include in some other</p> <p>5 context?</p> <p>6 Q. Include in Imai's system.</p> <p>7 A. When you say a particular data block, is this</p> <p>8 one that Imai's system would be processing or one that</p> <p>9 somehow there is some data block out there that you knew</p> <p>10 they happened to compress the same -- get the same</p> <p>11 compression ratio on?</p> <p>12 Q. One that Imai's system would be processing.</p> <p>13 A. So, in your hypothetical, would Imai be working</p> <p>14 as it normally does with many different users, or would</p> <p>15 it be a single user?</p> <p>16 Q. In any situation you can think of, is there any</p> <p>17 situation under any circumstance under any answers to all</p> <p>18 your responses to questions where a person of ordinary</p> <p>19 skill in the art would include two encoders that achieve</p> <p>20 the same compression ratio on a given data block but have</p> <p>21 different compression units?</p> <p>22 A. Was that the end of your question? I think you</p> <p>23 got cuff off. Maybe you can try again. The transmission</p> <p>24 I think got cut off at the end.</p> <p>25 Q. Can you think of any situation in which a person</p>	<p style="text-align: right;">Page 144</p> <p>1 So the -- generally, the encoders that -- the</p> <p>2 typical situation you would think of using Imai, the</p> <p>3 encoders are used as a group of encoders, and they are</p> <p>4 used -- different encoders are used on different blocks</p> <p>5 depending on data type.</p> <p>6 So I'm not sure if the -- I'm not really quite</p> <p>7 sure the significance of your hypothetical. It's -- I</p> <p>8 think the main thing is I don't try to necessarily think</p> <p>9 of hypothetical possibilities of some particular block.</p> <p>10 What Imai clearly teaches is having a suite of encoders</p> <p>11 that have different properties with respect to time to</p> <p>12 encode and compression ratio tradeoffs and selects an</p> <p>13 appropriate encoder based on a number of parameters,</p> <p>14 including, for example, the data type of the block in</p> <p>15 question.</p> <p>16 Q. So can you think of a reason to include two</p> <p>17 encoders that achieve the same compression ratio --</p> <p>18 (Reporter asked for clarification.)</p> <p>19 BY MR. STONEDALE:</p> <p>20 Q. Let's go back to paragraph 145 here. Now, how</p> <p>21 would you solve this problem by manipulating the</p> <p>22 compression ratio?</p> <p>23 MR. BATTS: Objection. Form.</p> <p>24 THE WITNESS: Are you asking outside the patent</p> <p>25 what I would do, or are you asking what is described in</p>
<p style="text-align: right;">Page 143</p> <p>1 of ordinary skill in the art would include in Imai two</p> <p>2 encoders that achieve the same compression ratio on a</p> <p>3 given piece of data that have different compression</p> <p>4 rates?</p> <p>5 A. Well, I'm not sure what, you know -- what you're</p> <p>6 exactly including in your hypothetical. Imai will make</p> <p>7 an assessment based on data type, which encoder's best to</p> <p>8 use for that type. It's possible that two encoders for</p> <p>9 some particular block happen to get the same compression</p> <p>10 ratio on that block and happen to run it, let's say,</p> <p>11 about the same time on that block or different times on</p> <p>12 that block; but on other blocks, the situation was</p> <p>13 different.</p> <p>14 Imai, on a block-by-block basis, actually</p> <p>15 examines the data type of the block, and Imai makes</p> <p>16 decisions based on both the compression rate, the time it</p> <p>17 takes to do the encoding and the re -- the and resulting</p> <p>18 compression ratio.</p> <p>19 And the point being, you need to -- Imai needs</p> <p>20 to have an -- a method that has an acceptable ratio and</p> <p>21 encodes an acceptable length of time; that is, a time</p> <p>22 that is fast enough so that the data gets to the</p> <p>23 communication channel in a compression ratio that is</p> <p>24 small enough so it can actually travel over the</p> <p>25 communication channel.</p>	<p style="text-align: right;">Page 145</p> <p>1 Imai?</p> <p>2 BY MR. STONEDALE:</p> <p>3 Q. How would Imai solve the problem of the network</p> <p>4 being too slow to reproduce the data in real time?</p> <p>5 A. First of all, Imai teaches that -- Imai takes</p> <p>6 into account a number of considerations, so Imai will</p> <p>7 take into account the speed of the network. And when</p> <p>8 Imai is examining the suite of algorithms it has</p> <p>9 available to it, it will take into account the speed of</p> <p>10 the encoder and the amount of compression that it would</p> <p>11 be expected to get on the particular block in question.</p> <p>12 And, of course, in making that choice, it also</p> <p>13 takes into account the data type of the block because</p> <p>14 different types and different encoders -- different</p> <p>15 encoders have different properties for different types.</p> <p>16 So what Imai does is to select an encoder that</p> <p>17 it satisfies the constraints of being fast enough. It</p> <p>18 does the process fast enough and makes the data small</p> <p>19 enough, both compression rate and compression ratio, so</p> <p>20 as to guarantee a throughput for the data coming into the</p> <p>21 encoder and going out onto the communication line.</p> <p>22 Q. What if Imai selected an encoder that had a</p> <p>23 higher compression rate but the same compression ratio?</p> <p>24 Would it solve this problem?</p> <p>25 MR. BATTS: Objection. Form.</p>

<p style="text-align: right;">Page 146</p> <p>1 THE WITNESS: Could you repeat your question?</p> <p>2 BY MR. STONEDALE:</p> <p>3 Q. What if Imai selected an encoder that had a</p> <p>4 higher compression rate but the same compression ratio?</p> <p>5 Would it solve this problem?</p> <p>6 A. The same compression ratio as what?</p> <p>7 Q. As the one that it's currently using where the</p> <p>8 transmission rate of the network is reduced down smaller</p> <p>9 than the data rate of the coded data, as described in</p> <p>10 paragraph 145.</p> <p>11 A. Your question sort of is -- sort of is kind of</p> <p>12 framing it not in the way that's described by Imai. For</p> <p>13 example, if you go on to the very next paragraph, it's</p> <p>14 kind of -- paragraph 145 is kind of explaining what the</p> <p>15 problem could be. And paragraph 146, along with a lot of</p> <p>16 other places in Imai, is describing how Imai avoids this,</p> <p>17 right? So paragraph 146 says, "Thus, in view of the</p> <p>18 above problem, the server 1 is designed to detect</p> <p>19 transmission rate of the network at the time of</p> <p>20 transferring data between a server and the client</p> <p>21 terminal and to change the encoding schedule so as to</p> <p>22 include the coding method which can provide the encoded</p> <p>23 data having a bit rate not higher than the detected</p> <p>24 transmission rate of the network."</p> <p>25 And, of course, other things we've already</p>	<p style="text-align: right;">Page 148</p> <p>1 entirely.</p> <p>2 Q. Which problem is that?</p> <p>3 A. When I read paragraph 146, it says, "Thus, in</p> <p>4 view of the above problem," et cetera, et cetera.</p> <p>5 Q. But you said my question poses a problem that</p> <p>6 Imai is designed to avoid entirely. Which problem is</p> <p>7 that?</p> <p>8 A. Well, I understood your question to be referring</p> <p>9 to paragraph 145, and then I read paragraph 146, which is</p> <p>10 referring back to paragraph 145. And it says, "Thus, in</p> <p>11 view of the problem" -- "of the above problem..."</p> <p>12 Paragraph 146 comes directly after paragraph 145.</p> <p>13 Q. The bit rate referred to in paragraph 146, would</p> <p>14 that be measured in bits per second?</p> <p>15 A. Can you point to me where the term "bit rate" is</p> <p>16 used?</p> <p>17 Q. Oh, sorry. Paragraph 146, it's the last line --</p> <p>18 the second to last line.</p> <p>19 A. Sorry. I thought you were pointing to paragraph</p> <p>20 145. I apologize. (Witness reviewed document.) Well, I</p> <p>21 don't think it really matters how you measure it as long</p> <p>22 as you're always measuring it in the same way. Bits per</p> <p>23 second is a standard way to measure bit rate. You could</p> <p>24 have megabits per second or kilobytes per second. As</p> <p>25 long as when you're comparing two things, you measure the</p>
<p style="text-align: right;">Page 147</p> <p>1 looked at and other places in Imai describe making that</p> <p>2 selection in such a way that the time is not too long.</p> <p>3 And again, we talked about the summary at the end where</p> <p>4 the goal, of course, is, "Transmission of the coded data</p> <p>5 can be avoided from becoming too late." Right?</p> <p>6 So Imai is concerned with providing a system</p> <p>7 that doesn't have this problem. It's trying to explain</p> <p>8 to you what a potential problem is and how his system</p> <p>9 avoids the problem by taking into account -- we've been</p> <p>10 mainly concentrating on time to encode and compression</p> <p>11 ratio because those terms are related. And as I</p> <p>12 mentioned earlier, my entire analysis of Claim 1, it</p> <p>13 really is an analysis that analyzes Claim 1 whether you</p> <p>14 view it as compression rate or compression ratio because</p> <p>15 they're related and they're embodied in the analysis.</p> <p>16 But, also, Imai takes into account the condition</p> <p>17 of the channel as does, for example, Pauls, which you</p> <p>18 mentioned earlier. And it takes into account</p> <p>19 considerations such as compatibility with the encoder.</p> <p>20 That's an optional feature, but it's a good feature as</p> <p>21 well. And it bases its decisions on the data type, the</p> <p>22 type of the data so it can use an encoder that is going</p> <p>23 to have these desirable properties for that type of data.</p> <p>24 So your question is kind of -- actually posing a</p> <p>25 problem that the Imai system is designed to avoid</p>	<p style="text-align: right;">Page 149</p> <p>1 same way, I don't think it matters.</p> <p>2 Q. And is that -- is that rate describing the rate</p> <p>3 of the outputted coded data or the data going into the</p> <p>4 encoder?</p> <p>5 MR. BATTS: Objection. Form.</p> <p>6 THE WITNESS: Could you repeat your question?</p> <p>7 BY MR. STONEDALE:</p> <p>8 Q. Is the bit rate described in paragraph 146</p> <p>9 describing the bit rate of the data output from the</p> <p>10 encoder or input to the encoder?</p> <p>11 A. Well, your question is worded a little funny.</p> <p>12 Literally speaking, it happens to be talking -- it says,</p> <p>13 "Which can provide the coded data having a bit rate." So</p> <p>14 it's sort of talking about the output. On the other</p> <p>15 hand, at a given compression ratio, the bit rate of the</p> <p>16 output is directly related to the bit rate of the input.</p> <p>17 (Reporter asked for clarification.)</p> <p>18 At a given compression ratio, the bit rate of</p> <p>19 the output is directly related to the bit rate of the</p> <p>20 input. If I'm getting a two-to-one compression ratio and</p> <p>21 the bit rate of the output is 1,000 bits per second, then</p> <p>22 the bit rate of the input is 2,000 bits per second.</p> <p>23 So in the abstract, your question is kind of</p> <p>24 asking about both. But literally what is being talked</p> <p>25 about here was that Imai is describing how to avoid, as</p>

<p style="text-align: right;">Page 150</p> <p>1 the paragraph begins, the problem that is kind of</p> <p>2 described or explained in paragraph 145 in a way of Imai</p> <p>3 explaining what the advantages of a system and how the</p> <p>4 system works.</p> <p>5 BY MR. STONEDALE:</p> <p>6 Q. And the bit rate, it specifically says, is not</p> <p>7 higher than the detected transmission rate of the network</p> <p>8 2. So which bit rate is not higher than the detected</p> <p>9 transmission of the network 2? Is that the bit rate of</p> <p>10 the data output from the encoder or the bit rate of the</p> <p>11 data input to the encoder?</p> <p>12 MR. BATTS: Objection. Form.</p> <p>13 THE WITNESS: Could you repeat your question?</p> <p>14 MR. STONEDALE: Could the court reporter please</p> <p>15 read back the question?</p> <p>16 (Record was read back as requested.)</p> <p>17 THE WITNESS: So specifically there, it's</p> <p>18 comparing the -- the bits that are going into the</p> <p>19 communication channel, coming out from the encoder, to</p> <p>20 what the communication channel can accommodate.</p> <p>21 BY MR. STONEDALE:</p> <p>22 Q. Okay. Thank you.</p> <p>23 MR. BATTS: Would now be a good time to take a</p> <p>24 break? We've been going for an hour and 20 minutes.</p> <p>25 MR. STONEDALE: Yeah. Sounds good.</p>	<p style="text-align: right;">Page 152</p> <p>1 for certain target applications where often you will talk</p> <p>2 about the number of bits per second, output for a second</p> <p>3 of input.</p> <p>4 But it's in the context of the implementation of</p> <p>5 the standard where the whole point of the standard is to</p> <p>6 provide very detailed specification where now that target</p> <p>7 compression ratio, for example, can be implemented in --</p> <p>8 in sufficient -- in sufficient time typical kinds of</p> <p>9 hardware that users will want to use to employ the</p> <p>10 standards.</p> <p>11 So in some sense, when one talks about an</p> <p>12 implementation of it, you're not talking about some</p> <p>13 hypothetical thing that could do it but wouldn't do it</p> <p>14 faster, wouldn't do it in a practical way. You're</p> <p>15 talking about something that can be implemented to do it</p> <p>16 fast enough in order to, in real time -- at least in many</p> <p>17 applications, in real time, have the input flow in --</p> <p>18 flow through the encoder and flow out at the targeted bit</p> <p>19 rate. That's sort of the point of employing the encoder.</p> <p>20 There can be other applications where you don't</p> <p>21 care about the time you're going to store it or something</p> <p>22 on a hard drive or something in a way that you don't</p> <p>23 care. But for the applications of streaming or going</p> <p>24 over a network, for which many of these standards are</p> <p>25 specifically intended, such as MPEG 2 and H.263, that</p>
<p style="text-align: right;">Page 151</p> <p>1 (Recess was taken.)</p> <p>2 BY MR. STONEDALE:</p> <p>3 Q. Let's look at paragraph 176, the declaration in</p> <p>4 the first petition.</p> <p>5 A. Paragraph 176. Okay. I'm at that place in the</p> <p>6 declaration.</p> <p>7 Q. All right. You see where you state that, "H.263</p> <p>8 renders video at a bit rate of 8-24 Kbps; MPEG renders</p> <p>9 video at a bit rate of 1.5 Mbps and MPEG 2 renders video</p> <p>10 at a bit rate of 2 Mbps"?</p> <p>11 THE COURT REPORTER: Can you repeat the last</p> <p>12 part? I'm sorry.</p> <p>13 Q. Do you see where you state that, "H.263 renders</p> <p>14 video at a bit rate of 8-24 Kbps; MPEG renders video at a</p> <p>15 bit rate of 1.5 Mbps; and MPEG 2 renders video at a bit</p> <p>16 rate of 2 Mbps"?</p> <p>17 A. Let me take a look at the paragraph.</p> <p>18 Q. It's right there in the middle of the paragraph.</p> <p>19 A. Yes. I see the middle of that paragraph.</p> <p>20 Q. When you say "rendered video" there at a</p> <p>21 particular bit rate, are you talking about the rate at</p> <p>22 which the data is output from the encoder?</p> <p>23 A. So, we talked about this earlier, that sometimes</p> <p>24 people refer to the standard in terms of the target, how</p> <p>25 it's often used and it's often being intended to be used</p>	<p style="text-align: right;">Page 153</p> <p>1 would be the case.</p> <p>2 Q. So does the -- what is the 1.5 Mbps describe? I</p> <p>3 mean, I know it's the name -- the name of the standard,</p> <p>4 but it seems to be giving a bit rate; is that right?</p> <p>5 A. So actually, that's not the name of the</p> <p>6 standard. That's the name of -- or how one might refer</p> <p>7 to a profile of the standard. The standards -- we</p> <p>8 already talked about how different encoders, even for a</p> <p>9 given profile, can take much different amounts of time</p> <p>10 because they can do a better or worse job at that</p> <p>11 profile; perhaps, let's say, better or worse quality, but</p> <p>12 also different profiles, that this is going to be -- the</p> <p>13 target application will be a 1.5 megabits per second, and</p> <p>14 we now want to have appropriate software and hardware</p> <p>15 that can implement that; that is, the hardware or</p> <p>16 software has to be able to run fast enough so you can</p> <p>17 actually have one second of video come in, and it can</p> <p>18 compute fast enough in that second so that you get this</p> <p>19 bit rate coming out.</p> <p>20 So the 1.5 megabits is referring to the number</p> <p>21 of bits per second of input that are output by an encoder</p> <p>22 that, presumably, that's -- that one of the targeted</p> <p>23 applications of MPEG 2 and H.263 would be real time</p> <p>24 streaming, for example.</p> <p>25 Q. It sounds to me like you said 1.5 megabits per</p>

Page 154	Page 156
<p>1 second refers to the bit rate in which the data is input 2 and output. That's not what you said, though, right? 3 A. That's not what I meant to say. If I did, 4 you're right. That's not what I meant to say. What I 5 meant to say is that for one second of input of 6 uncompressed data, when you talk about a profile that -- 7 that achieves -- just using as one example of 1.5 8 megabits per second, that achieves -- let's say the 9 MPEG 2, 2 megabits per second. 10 In this profile where it renders video at the 11 bit rate of 2 megabits per second -- that's Mbps -- what 12 that means is that for one second of uncompressed video 13 coming into the encoder, the output from the encoder 14 would be at the rate of 2 megabits -- 2 megabits would 15 come out in that second; and that the whole point of Imai 16 is that Imai will be choosing a method -- one of these 17 profiles, for example, that's intended to run on certain 18 software and hardware resources so that it can operate at 19 a sufficient speed to be meeting that profile; that is, 20 meeting that compression ratio that is required by the 21 profile. 22 Q. Does Pauls discuss the situation where the 23 encoding hardware is so slow that it's holding up the 24 ability of the -- of the system to transmit data? 25 A. Oh, by the way, when you say "Pauls," I think I</p>	<p>1 compress it and the amount of compression, just as we saw 2 in Imai, where the goal of Pauls is to get the data to 3 have a throughput that gets to the user at the other end. 4 And like Imai -- 5 Q. I understand -- 6 A. Oh, I'm sorry. I'll stop there. That's fine. 7 Go ahead. 8 BY MR. STONEDALE: 9 Q. I understand that's the goal. I'm asking you, 10 where does it describe the way of satisfying the goal as 11 compressing the data quickly? 12 MR. BATTS: Objection. Form. 13 THE WITNESS: I'm not sure -- you know, you 14 frame the question in "satisfying the goal." Maybe you 15 could repeat the question just so I understand what it 16 is. 17 BY MR. STONEDALE: 18 Q. Yeah. You said Imai is talking about the goal 19 of transmitting data to quickly increase the throughput. 20 And you said there's various things that go into that, 21 one of which is the network speed, compression speed, 22 decoding speed. Where does -- where does Pauls talk 23 about making sure the encoder is fast enough to transmit 24 the data as quickly through Pauls? 25 A. Well, Pauls obviously uses different</p>
Page 155	Page 157
<p>1 might have used the word "Imai" in my last thing, but the 2 answer applies equally to both of them in the way I 3 discussed the profiles of the MPEG standard. 4 Could you repeat your question? 5 Q. Where does Pauls discuss the situation in which 6 the encoder or the encoding hardware is so slow that it's 7 holding up the ability of the system to transmit data? 8 A. Well, let me take a look at Pauls. (Witness 9 reviewed document.) I've had a chance to quickly take a 10 look at Pauls. If you could repeat your question. 11 Q. Where does Pauls describe the situation in which 12 the encoder is so slow as to hold up the system from 13 transmitting data? 14 A. So, I don't know -- it's not so much Pauls 15 describes the negative. Pauls describes the goal, and it 16 describes techniques for minimizing the time it takes to 17 communicate over a network and possibly networks with 18 limited speed, such as wired networks. So throughout the 19 Pauls patent, not only in the introduction summary of the 20 invention but in the different considerations that Pauls 21 describes, he describes that the reason you're choosing 22 between different methods is so that you can actually 23 minimize the time it takes to send data -- the amount of 24 data, the time it takes for the data to get to one end or 25 the other, so he has to minimize the time it takes to</p>	<p>1 terminology -- it's a different patent -- than Imai. But 2 if you look at Figure 3 of Pauls, it shows a system which 3 operates in a very similar way to Imai where it has a 4 selection based on data type of choosing between 5 different encoders, which it refers to as "transcoders." 6 It shows multiple encoders for speech and video, for 7 example. 8 And it describes making this choice in order to 9 achieve throughput. I don't recall if it uses the word 10 "throughput," but that is what is described, is to 11 actually increase the amount of data that can be sent to 12 the -- to the receiver. And of course, in order to do 13 that, you have to both achieve compression and also do it 14 fast enough. Either one of those things, very slow 15 execution or very bad compression ratio, could reduce the 16 amount of data that can get to the end user. 17 And so that idea of having a suite of algorithms 18 that have selected from each of which has different 19 properties in terms of tradeoffs is very similar to what 20 we saw in Imai when you look at something like Figure 3. 21 Q. Okay. I totally understand that the 22 transmission of data is affected by the compression feed 23 of the data. What I'm trying to ask is, where does Pauls 24 talk about that issue? 25 MR. BATTS: Objection. Form.</p>



<p style="text-align: right;">Page 158</p> <p>1 THE WITNESS: Could you repeat the question?</p> <p>2 BY MR. STONEDALE:</p> <p>3 Q. Where does Pauls discuss encoding speed, in</p> <p>4 particular, as opposed to the goal of increasing</p> <p>5 throughput generally?</p> <p>6 A. (Witness reviewed document.) So, for example,</p> <p>7 in my report, again, we're just using as an example</p> <p>8 the -- hold on one second. I found another place in the</p> <p>9 report I wanted to mention. So, for example -- hold on</p> <p>10 one sec. Sorry. I just saw another place, so one quick</p> <p>11 second. I actually need to check that one, too.</p> <p>12 Well, okay. Let me start with this example. If</p> <p>13 you go to page 176 of my -- I'm sorry, not page 176,</p> <p>14 paragraph 176 of my declaration, it reads, "Pauls</p> <p>15 explains that each of the aforementioned encoding</p> <p>16 algorithms have associated different levels or percentage</p> <p>17 levels of compression. For example, Figure 5 teaches</p> <p>18 that H.263 renders video at a bit rate of 8-24 Kbs --</p> <p>19 THE COURT REPORTER: I'm sorry. Can you please</p> <p>20 slow down a little bit?</p> <p>21 -- "at a bit rate of 8-24 Kbs; MPEG renders</p> <p>22 video at a bit rate of 1.5 Mbs; and MPEG 2 renders video</p> <p>23 at a bit rate of 2.0 Mbs." This is a passage we referred</p> <p>24 to before.</p> <p>25 And then I go on to say that, "A POSITA" --</p>	<p style="text-align: right;">Page 160</p> <p>1 standard may run at different speeds because the</p> <p>2 standards both -- for example, both H.263 and MPEG offer</p> <p>3 the ability for you to spend more or less time in doing</p> <p>4 motion compensation, for example.</p> <p>5 There are other parts of the standard as well.</p> <p>6 And depending on the amount of time you spend, you may do</p> <p>7 a better or worse job. You may have lower quality or</p> <p>8 something like that on that output.</p> <p>9 And so time is something that is -- when you're</p> <p>10 working with a standard, one understands these standards</p> <p>11 are designed to work on typical competing platforms in a</p> <p>12 way where, in real time, they can be implemented --</p> <p>13 encoders can be implemented that will consume the input</p> <p>14 and be able to operate fast enough to produce the output</p> <p>15 associated with that profile.</p> <p>16 Q. Where does Pauls -- where does Pauls say that?</p> <p>17 I understand you're telling me that a person of ordinary</p> <p>18 skill in the art would refer -- infer these things from</p> <p>19 Pauls, but where does Pauls describe the situation in</p> <p>20 which the encoding step is what is holding up the data</p> <p>21 throughput?</p> <p>22 MR. BATTS: Objection. Form.</p> <p>23 THE WITNESS: Could you repeat the question?</p> <p>24 BY MR. STONEDALE:</p> <p>25 Q. Where does Pauls describe the situation in which</p>
<p style="text-align: right;">Page 159</p> <p>1 person of ordinary skill in the art -- "would have</p> <p>2 appreciated that each of these well-known and widely used</p> <p>3 video compression standards have different relative rates</p> <p>4 of compression, with MPEG having the lowest compression</p> <p>5 ratio and MPEG 2 and H.263 having higher compression</p> <p>6 ratios," and I cite to to paragraph 7 through 9 in Pauls.</p> <p>7 So when one of ordinary skill in the art -- this</p> <p>8 is one of the nice things about data compression</p> <p>9 standards. When one of ordinary skill in the art now</p> <p>10 sees something like Figure 3 of Pauls and then reads the</p> <p>11 description in Pauls, where, hey, those components in</p> <p>12 Figure 3 can be encoders based on known data compression</p> <p>13 standards, well-known to one of ordinary skill in the</p> <p>14 art, as we mentioned earlier; for example, H.263 and</p> <p>15 MPEG 2 came out to the public in 1994. And, of course,</p> <p>16 the -- the -- technology used in those standards was</p> <p>17 known before that as the standard was being discussed and</p> <p>18 evolved and MPEG 1 came out in 1992.</p> <p>19 So when you talk -- when Pauls talks about the</p> <p>20 standard profiles of the -- of -- talks about these</p> <p>21 profiles that are offered by the standards, such as, oh,</p> <p>22 2.0 Mbs. One of ordinary skill in the art clearly</p> <p>23 understands that the standards have different --</p> <p>24 different rates, different speeds. And as we mentioned</p> <p>25 earlier, different implementations may -- of the same</p>	<p style="text-align: right;">Page 161</p> <p>1 the encoding step is holding up the data's throughput?</p> <p>2 A. Well, I don't know -- you seem to be phrasing</p> <p>3 the question in the negative. Of course, this analysis</p> <p>4 here is talking about how Pauls renders Claim 1 obvious,</p> <p>5 and Pauls speaks positively about incorporating known</p> <p>6 standards with known profiles that have time and</p> <p>7 compression ratio associated with them in a system that</p> <p>8 can select from multiple methods based on, for example,</p> <p>9 data type and other considerations.</p> <p>10 So I don't know about the negative or the word</p> <p>11 "holding up" and so on in your question. But a reader --</p> <p>12 one of ordinary skill in the art in the time when they</p> <p>13 read Pauls and they see Pauls talking about the whole</p> <p>14 purpose of having this choice, this suite of algorithms</p> <p>15 is so that you can, in fact, minimize -- or maximize, in</p> <p>16 some sense, the amount of data that can be sent over a</p> <p>17 limited communication line; for example, a wired -- he</p> <p>18 gives the example of wire -- wireless communications</p> <p>19 where the resources are even more limited using known</p> <p>20 standards.</p> <p>21 There's the positive information conveyed by</p> <p>22 Pauls using known standards, using known profiles for</p> <p>23 those standards, using standards that are intended for</p> <p>24 real time -- real time operation at those profiles.</p> <p>25 So in other words, the profile itself is</p>

<p style="text-align: right;">Page 162</p> <p>1 addressing both time and compression ratio because the</p> <p>2 whole idea, let's say, of an H.263 encoder being this</p> <p>3 fast encoder for low quality video, perhaps -- or that's</p> <p>4 certainly a target application, let's say, is that, yeah,</p> <p>5 the encoder can run fast enough that when it reads one</p> <p>6 second of video, it can actually work fast enough to</p> <p>7 compress and produce the number of bits per second</p> <p>8 according to that profile.</p> <p>9 So the pat -- my report here is not trying to</p> <p>10 point out certain negative things that Pauls might say or</p> <p>11 nothing -- or something else. It's trying to -- it is, I</p> <p>12 think, explaining why one of ordinary skill in the art at</p> <p>13 the time when reading Pauls and seeing Pauls would see</p> <p>14 that the claim -- that, for example, Claim 1 of the</p> <p>15 Fallon patent is obvious -- is rendered obvious by Pauls.</p> <p>16 Q. So it's not your opinion, then, that Pauls</p> <p>17 actually describes the situation in which the encoding</p> <p>18 step is reducing the throughput of the data?</p> <p>19 MR. BATTS: Objection. Form.</p> <p>20 THE WITNESS: Could you repeat the question?</p> <p>21 BY MR. STONEDALE:</p> <p>22 Q. It's not your opinion, then, that Pauls</p> <p>23 describes the situation in which the encoding step</p> <p>24 reduces the throughput of the data?</p> <p>25 A. Could you repeat it again? I'm trying to</p>	<p style="text-align: right;">Page 164</p> <p>1 with that profile.</p> <p>2 And so through the use of describing positively</p> <p>3 what is being achieved and what is -- and how the system</p> <p>4 is working and how it is selecting among multiple methods</p> <p>5 with different properties where the multiple methods</p> <p>6 include known standards to one of ordinary skill in the</p> <p>7 art at the time, I think that the description in my</p> <p>8 report here of that in Pauls does address very well the</p> <p>9 issue you're addressing but not necessarily in quite the</p> <p>10 negative, sort of, example way that you're looking for.</p> <p>11 Although, I can't preclude that. Again, I'd</p> <p>12 have to look through all of Pauls here. What I've done</p> <p>13 in my report, and I've just reviewed -- for example, just</p> <p>14 the section relating to the first of the -- the claim</p> <p>15 in -- that we've been talking about in Claim 1.</p> <p>16 Certainly, what I've done here is to make the case how</p> <p>17 Pauls renders obvious that -- the Claim 1 of the Fallon</p> <p>18 patent -- the Fallon '477 patent.</p> <p>19 Q. Does Pauls describe -- does it disclose the</p> <p>20 compression rate of MPEG?</p> <p>21 MR. BATTS: Objection. Form.</p> <p>22 THE WITNESS: Could you repeat the question?</p> <p>23 BY MR. STONEDALE:</p> <p>24 Q. Does Pauls disclose the compression rate of</p> <p>25 MPEG?</p>
<p style="text-align: right;">Page 163</p> <p>1 understand the question.</p> <p>2 MR. STONEDALE: Could the reporter please repeat</p> <p>3 the question?</p> <p>4 (Record was read back as requested.)</p> <p>5 THE WITNESS: No. I don't think that's correct.</p> <p>6 BY MR. STONEDALE:</p> <p>7 Q. And where does it describe that?</p> <p>8 A. So in my previous answer, I talked about how</p> <p>9 Pauls describes how to avoid that. So in other words,</p> <p>10 you seem to be trying to frame the question -- we saw how</p> <p>11 in Imami (phonetic) -- Imai. Sorry. Not Imami. Imai</p> <p>12 gave some examples of what problems might occur and how</p> <p>13 Imai avoids them.</p> <p>14 I don't know. I'd have to look through Pauls in</p> <p>15 detail to see if he gives examples of specifically of</p> <p>16 what you're saying. But what he does do is he conveys to</p> <p>17 the reader how to avoid those situations because he</p> <p>18 conveys to the reader the use of known standards, of</p> <p>19 known profiles and standards that, at that time, are</p> <p>20 known to be used for real time encoding. Okay?</p> <p>21 So real time encoding meaning, yeah, the</p> <p>22 compressor has to run fast enough, and it has to achieve</p> <p>23 a compression ratio that is, according to that profile,</p> <p>24 the standard, which you then would be using in</p> <p>25 conjunction with a communication line that matches up</p>	<p style="text-align: right;">Page 165</p> <p>1 A. So, again, not to -- to be disrespectful to your</p> <p>2 question, but it's sort of formed in a way that doesn't</p> <p>3 match the technology. Again, the whole point of the</p> <p>4 standard is to provide a very precise definition of how</p> <p>5 the compression works so that anyone out in the world,</p> <p>6 when they know they're receiving, let's say, an MPEG 2</p> <p>7 stream and they've already used the part one of the</p> <p>8 standard to parse the syntax that is associated with that</p> <p>9 and know which parameters of the standard are being used</p> <p>10 and which constraints are relevant to that stream, the</p> <p>11 decoder can properly decode it -- no ifs, ands or</p> <p>12 buts -- because it's according to the standard.</p> <p>13 So anyone out there understands that the</p> <p>14 standard has different profiles and also understands that</p> <p>15 the standard is designed to be implemented on commonly</p> <p>16 available hardware and software of different levels,</p> <p>17 depending on the profile you're using and -- and what</p> <p>18 you're doing in the encoding.</p> <p>19 For example, you might have an encoder that is</p> <p>20 going to do a really good job of motion compensation, and</p> <p>21 that one will be implementable in real time but only if</p> <p>22 you have, let's say, a system that has multicore</p> <p>23 processing or a really fast processor.</p> <p>24 But another method, according to the standard,</p> <p>25 which is intended for real time operation, one of</p>

Page 166	Page 168
<p>1 ordinary skill in the art -- well-known because this is a  2 standard that, yes, you can get good compression and good  3 performance in real time, right? "Real time" meaning  4 that yes, the time -- the compression -- the time to  5 compress is small enough so that you, in fact, can  6 consume each second of video and produce the appropriate  7 size output according to that profile of the standard.  8 Again, the standards can be used in -- usually  9 have multiple profiles that specify -- that relate to  10 both compression ratio and time. As you go up in higher  11 profiles, you typically often are concerned with higher  12 quality, higher compression ratio and thereby more  13 software and hardware resources to achieve that in real  14 time.  15 And as you go down the profile level, you have  16 the ability to do it quicker, also to decode it quicker.  17 The decoder could also have fewer resources.  18 So this idea of the standard is very, very well  19 familiar to one of ordinary skill in the art. And one of  20 ordinary skill in the art is very well aware of encoders  21 based on the standard having properties of time and  22 compression ratio in order to be used in a real time  23 application, for example.  24 "Real time" by the way, nothing to do with the  25 name of the company here, but in operation in a time</p>	<p>1 which have different properties, very well-known kinds of  2 properties because they're based in standards in many  3 cases, based on data type, for example, and other  4 considerations, such as the type of line.  5 Pauls specifically talks about the fact the  6 network could be wired or wireless and have different  7 speeds associated with the network and based on data type  8 and so on and so forth. So it's the -- that's how this  9 section is organized. It's describing how, when one of  10 ordinary skill in the art, reads Pauls, that renders  11 Claim 1 of the Fallon patent obvious.  12 Q. I understand that. I'm just asking you a much  13 narrower question. And that's, if I were a person of  14 ordinary skill in the art and I'm reading that -- that  15 Pauls has H.263, MPEG and MPEG 2 encoders, would I know  16 which of those three is the fastest encoder?  17 MR. BATTS: Objection. Form.  18 THE WITNESS: Could you repeat the question?  19 BY MR. STONEDALE:  20 Q. If I'm a person of ordinary skill in the art and  21 I read that Pauls has H.263, MPEG and MPEG 2 encoders,  22 would I know which of those encoders is the fastest?  23 A. So, first of all, Pauls may very well have  24 multiple versions of each of those. And secondly, Pauls  25 teaches that he is going to take into account various</p>
Page 167	Page 169
<p>1 where there's throughput -- the input flowing through  2 without delay through the encoder.  3 Q. Would a person of ordinary skill know the  4 compression rate of the encoders mentioned in Pauls?  5 MR. BATTS: Objection. Form.  6 THE WITNESS: Could you repeat the question?  7 BY MR. STONEDALE:  8 Q. Would a person of ordinary skill know the  9 compression rate of the encoders mentioned in Pauls?  10 A. Well, as I mentioned earlier, many of the  11 encoders mentioned in Pauls are standard base -- are --  12 many of the -- Pauls describes using encoders, many of  13 which -- based on many well-known standards so that a  14 user is very well familiar with the capabilities of these  15 standards and that there are implementations out there  16 that can be implemented in various different  17 configurations that require certain speed and compression  18 ratio.  19 So I -- I don't know exactly how to answer your  20 question because the whole -- my -- the whole theme, I  21 guess you will, or what I'm describing here in my report  22 is how when one reads the Pauls patent, it renders  23 obvious, for example, Claim 1 of the Fallon patent  24 because the user sees how Pauls provide -- describes the  25 way of selecting and choosing between different methods</p>	<p>1 considerations, including the data rates, the rate I'm  2 receiving, the rate I'm transmitting, the type of  3 network, the data type that I'm compressing, the type of  4 video and so on -- in the case of video. The three you  5 mentioned are video compression standards.  6 And so the user does -- one of ordinary skill at  7 the time, given that these standards have been around so  8 long at that time -- the three you mentioned are all, you  9 know, 1994 or earlier. 1994, released by -- publicly,  10 but even earlier perhaps known publicly.  11 So they're well-known to one of ordinary skill  12 in the art, and the idea is that they see a system of  13 Pauls which will have available some number of encoders  14 based on well-known standards, and they see that Pauls  15 will select among them as appropriate.  16 So they're well aware of the fact that the same  17 standard -- we talked about this earlier, can have  18 encoder implementations and encoders that have different  19 tradeoffs between time and compression ratio and can have  20 different tradeoffs even for a given profile in term --  21 in those terms as well where one may do not such a good  22 job in terms of quality, but will run much faster and so  23 on. We talked about motion compensation as an example,  24 that there's a great variability in the amount of time  25 you can spend to do a better or worse job.</p>

<p style="text-align: right;">Page 170</p> <p>1 So, I guess I'm not sure if your question</p> <p>2 exactly maps to the technology, but that's the best I can</p> <p>3 certainly answer it in that context.</p> <p>4 Q. Is it generally true that -- that MPEG has a</p> <p>5 higher compression rate than H.263?</p> <p>6 MR. BATTS: Objection. Form.</p> <p>7 THE WITNESS: Could you repeat your question?</p> <p>8 BY MR. STONEDALE:</p> <p>9 Q. Is it generally true that MPEG has a higher</p> <p>10 compression rate than H.263?</p> <p>11 A. Well, first of all, your question -- we talked</p> <p>12 about this before. You just talked about the standard</p> <p>13 versus an encoder for the standard. And it's certainly</p> <p>14 possible to create coders which, on a particular</p> <p>15 platform, either one could be faster than the other one</p> <p>16 in performing its task.</p> <p>17 It's more that when one views the standards and</p> <p>18 one looks at the type of the data coming in, one may</p> <p>19 select one standard over the other -- an encoder based on</p> <p>20 one standard over the other. And among such encoders</p> <p>21 available, possibly ones with different rates of</p> <p>22 compression.</p> <p>23 But to answer your question, some rule of thumb</p> <p>24 based on the standards themselves in the abstract, it</p> <p>25 doesn't really map with the technology.</p>	<p style="text-align: right;">Page 172</p> <p>1 suite available to you, and it's describing how you</p> <p>2 choose among them. And it's describing giving examples</p> <p>3 of the standards for which it -- are examples of encoders</p> <p>4 that you might have according to those standards.</p> <p>5 You might have more than one encoder for a given</p> <p>6 standard, and it's describing how to choose among them.</p> <p>7 It's not limiting -- it's not somehow limiting the</p> <p>8 disclosure that there's a certain particular "the" MPEG</p> <p>9 encoder and "the" H.263 encoder that you're supposed to</p> <p>10 use.</p> <p>11 It's giving exemplary standards on which coders</p> <p>12 basing those standards would be appropriate and ones that</p> <p>13 would be good examples of things you might want to</p> <p>14 include in a suite of encoders that is going to operate</p> <p>15 as we saw, for example, in Figure 3 and the associated</p> <p>16 description of that figure.</p> <p>17 Q. Okay. Thank you.</p> <p>18 Would a person of ordinary skill be likely to</p> <p>19 use an H.263 encoder and an MPEG encoder to encode the</p> <p>20 same data?</p> <p>21 MR. BATTS: Objection. Form.</p> <p>22 THE WITNESS: Could you repeat the question?</p> <p>23 BY MR. STONEDALE:</p> <p>24 Q. Would a person of ordinary skill in the art be</p> <p>25 likely to use MPEG encoders and H.263 encoders to encode</p>
<p style="text-align: right;">Page 171</p> <p>1 Q. So would a person of ordinary skill know from</p> <p>2 reading Pauls that its MPEG encoders have a higher</p> <p>3 compression rate than an H.263 encoder?</p> <p>4 MR. BATTS: Objection. Form.</p> <p>5 THE WITNESS: Could you repeat the question?</p> <p>6 BY MR. STONEDALE:</p> <p>7 Q. Would a person of ordinary skill in the art know</p> <p>8 from reading Pauls that MPEG encoders have a higher</p> <p>9 compression rate than an H.263 encoder?</p> <p>10 A. That's a different question than your last</p> <p>11 question. So just to be safe, could you repeat it again?</p> <p>12 Q. Would a person of ordinary skill in the art know</p> <p>13 from reading Pauls whether the MPEG encoders have a</p> <p>14 higher compression rate than the H.263 encoders?</p> <p>15 A. That's still a different question than the one</p> <p>16 you just asked. You keep specifying between "the" and</p> <p>17 "its" and "anyone." And it's sort of a hypothetical,</p> <p>18 broad question. I really need to have a precise</p> <p>19 statement even to try to answer it.</p> <p>20 MR. STONEDALE: Could the court reporter please</p> <p>21 read the most recent question?</p> <p>22 (Record was read back as requested.)</p> <p>23 THE WITNESS: So when you say "the MPEG</p> <p>24 encoders," Pauls is not limiting its disclosure to a</p> <p>25 particular set of encoders. It's saying that you have a</p>	<p style="text-align: right;">Page 173</p> <p>1 the same data?</p> <p>2 A. Well, your hypothetical -- are you saying that</p> <p>3 there are two different users or two different streams or</p> <p>4 is it one user -- is your question asking about using</p> <p>5 different parts of the stream or using different</p> <p>6 standards?</p> <p>7 Q. In any situation.</p> <p>8 A. Again, you're asking hypothetically what a user</p> <p>9 might or might not want to do. Pauls certainly wouldn't</p> <p>10 preclude doing that.</p> <p>11 A typical situation might be based on data type.</p> <p>12 You would select something from the suite that had the --</p> <p>13 in the case of Pauls, he's trying to get the best</p> <p>14 possible property in how much data can be communicated.</p> <p>15 In order to do that, you have to do it both fast enough</p> <p>16 and you have to compress it well.</p> <p>17 And it's -- you're asking some hypothetical</p> <p>18 about which methods a user would want to use. Again,</p> <p>19 Pauls is really describing a system where the server is</p> <p>20 choosing what to do based on considerations which could</p> <p>21 include one of the things that it could include as user</p> <p>22 preferences.</p> <p>23 So Pauls talks about a number of considerations</p> <p>24 that it can take into account for what should be done,</p> <p>25 including the type of the data -- okay? -- and so forth.</p>

Page 174	Page 176
<p>1 Certainly, user preferences could also be incorporated.</p> <p>2 So your question, could a user who wished to do something</p> <p>3 do it, it's sort of a hypothetical. I don't see any</p> <p>4 reason why not, but I don't really -- I sort of take it</p> <p>5 as a hypothetical outside of what is actually being --</p> <p>6 what we're actually relying upon here, and that is the</p> <p>7 disclosure of Pauls that clearly renders Claim 1 of the</p> <p>8 Fallon patent, for example, obvious because it's</p> <p>9 describing very clearly a system that is selecting among</p> <p>10 methods that have different tradeoffs between -- between</p> <p>11 how much time it takes to compress and compression ratio</p> <p>12 and other kinds of things examining the condition of the</p> <p>13 channel and all sorts of things.</p> <p>14 Q. When would a -- in what situation would a person</p> <p>15 of ordinary skill use JPEG to encode a video?</p> <p>16 MR. BATTS: Objection. Form.</p> <p>17 THE WITNESS: Could you repeat the question?</p> <p>18 BY MR. STONEDALE:</p> <p>19 Q. In what situation would a person of ordinary</p> <p>20 skill prefer to use JPEG to encode a video?</p> <p>21 A. So, actually, again, this is sort of a</p> <p>22 hypothetical. I'm not exactly sure how it would relate</p> <p>23 to my analysis. But, for example, in the 2000/2001</p> <p>24 timeframe, which is not -- which is in the same vicinity</p> <p>25 here as the Fallon patent, point-and-shoot cameras were</p>	<p>1 short videos -- maybe your child jumping off the diving</p> <p>2 board or something -- and that's it because they made</p> <p>3 these huge files because they didn't do any motion</p> <p>4 compensation at all.</p> <p>5 Not only did they not -- they didn't even do a</p> <p>6 bad job of motion compensation or a quick job just</p> <p>7 looking at a region in the previous frame. They didn't</p> <p>8 do any motion compensation at all. And that's okay. The</p> <p>9 standard doesn't require it.</p> <p>10 That's an example of an encoder that is still</p> <p>11 operating according to the standard but has sort of the</p> <p>12 extreme tradeoff where it's really fast, doesn't even</p> <p>13 spend any time on motion compensation, but the output is</p> <p>14 really big. Okay?</p> <p>15 And those cameras were sold. And initially, you</p> <p>16 think you bought this great camera that could take video.</p> <p>17 And it was sort of cool. It could. But you couldn't</p> <p>18 take long videos. You couldn't do what you do with your</p> <p>19 iPhone. You would take a little, short ten-second video,</p> <p>20 maybe a 30-second video, that sort of thing, because it</p> <p>21 was using -- it was either essentially or literally doing</p> <p>22 JPEG on each frame to compress video, for example.</p> <p>23 Q. All right. Does Pauls disclose using JPEG to</p> <p>24 encode video?</p> <p>25 A. I don't recall sitting here. I can look through</p>
Page 175	Page 177
<p>1 available that had an option to take video.</p> <p>2 And interestingly enough -- we've talked about</p> <p>3 this -- some of them actually went to the extreme of some</p> <p>4 of the examples I've given. We talked earlier about how</p> <p>5 an implementation of the -- of, let's say, the MPEG</p> <p>6 standard, two encoders for the same standard -- two</p> <p>7 encoders based on the same standard could take much</p> <p>8 different time and have much different properties with</p> <p>9 respect to the amount of time compared to the amount of</p> <p>10 compression, and you still would be obeying the standard</p> <p>11 because it's just a matter of how much work you did to do</p> <p>12 good motion compensation. But as long as you were</p> <p>13 outputting a format, according to the standard, it could</p> <p>14 be decoded by any decoder.</p> <p>15 And some of these early point-and-shoot cameras,</p> <p>16 when they offered a video option, what they really did is</p> <p>17 they just compressed each frame individually. And when</p> <p>18 you actually look at the MPEG 2 standard, if you compress</p> <p>19 one frame in isolation, it's very, very similar to a JPEG</p> <p>20 compression. And, in fact, some of the cameras actually</p> <p>21 had what's called motion JPEG where they would JPEG each</p> <p>22 frame individually.</p> <p>23 And the result was you would get these huge</p> <p>24 files, but they were really simple in implement and they</p> <p>25 ran really fast, but you really could only take really</p>	<p>1 Pauls.</p> <p>2 Q. Well, do you offer the opinion in your -- in</p> <p>3 your declaration that Pauls discloses using JPEG to</p> <p>4 compress video?</p> <p>5 A. I don't recall sitting here. Again, generally</p> <p>6 speaking, although those consumer cameras -- you asked me</p> <p>7 for an example. I gave you an example. Pauls is talking</p> <p>8 about a server. I think the normal way you would look at</p> <p>9 Pauls, the most natural way is not -- there's nothing</p> <p>10 precluding it, but the most natural way is if you saw the</p> <p>11 data type is video, you would use a video coder in a way</p> <p>12 that was -- that was sort of a good way to use the video</p> <p>13 coder. Not that those digital cameras in the 1990s were</p> <p>14 bad, but normally -- you would normally take advantage of</p> <p>15 the motion compensation. That's the point of the</p> <p>16 standard.</p> <p>17 There's nothing that would preclude one of</p> <p>18 Pauls' coders to be a motion JPEG or something or an</p> <p>19 implementation that didn't do motion compensation at all,</p> <p>20 but I think in a typical situation with the server</p> <p>21 operating and sending data to a user, your typical use</p> <p>22 of, let's say, the Pauls system, choosing between</p> <p>23 multiple methods of different tradeoffs, you probably</p> <p>24 would be using a video compression coder that actually</p> <p>25 used the motion compensation feature of a video</p>

<p style="text-align: right;">Page 178</p> <p>1 compression coder.</p> <p>2 Q. Does your declaration state that Pauls discloses</p> <p>3 using JPEG as a video encoder?</p> <p>4 A. I don't recall sitting here. That seems to be</p> <p>5 factual. I mean, if you can point me to a place in my</p> <p>6 declaration where I address JPEG one way or the other, I</p> <p>7 would be happy to look at it.</p> <p>8 Q. Okay. Does your declaration state where Pauls</p> <p>9 discloses using the arithmetic coding option of H.263 or</p> <p>10 JPEG?</p> <p>11 A. Well, first of all, H.263 does have arithmetic</p> <p>12 coding as an option. And, for example, we described</p> <p>13 earlier on how --</p> <p>14 Q. I'm sorry. Can I object here? I think --</p> <p>15 A. Well, if you want to withdraw the question.</p> <p>16 Otherwise, I wasn't finished.</p> <p>17 Q. I think you're misunderstanding the --</p> <p>18 A. Are you withdrawing the question?</p> <p>19 Q. I'm not asking if H.263 has an arithmetic</p> <p>20 encoding option. I'm asking you whether Pauls discloses</p> <p>21 using the arithmetic encoding option of H.263?</p> <p>22 MR. BATTS: Objection. Form.</p> <p>23 THE WITNESS: Well, could you -- could you</p> <p>24 repeat the question?</p> <p>25 BY MR. STONEDALE:</p>	<p style="text-align: right;">Page 180</p> <p>1 the time of Pauls and still at the time of Fallon, in</p> <p>2 that timeframe in the 1990s, the arithmetic coding had</p> <p>3 the property that did a little better but it took longer.</p> <p>4 And arithmetic coding was one component in the</p> <p>5 processing chain of H.263, one of the things that you got</p> <p>6 to specify in the syntax header of an H.263 stream as to</p> <p>7 whether you're using that or not.</p> <p>8 And furthermore, arithmetic coding also had the</p> <p>9 property that it could be accelerated depending on the</p> <p>10 particular hardware you were using as well and so that --</p> <p>11 Q. Dr. Storer --</p> <p>12 A. Again -- let me finish. Are you withdrawing</p> <p>13 your question, or can I finish my answer?</p> <p>14 THE COURT REPORTER: Hold on. I need you to</p> <p>15 start over. I didn't hear a whole lot of what just</p> <p>16 happened here.</p> <p>17 Q. Dr. Storer, my question was about whether or not</p> <p>18 Pauls discloses using the arithmetic option of H.263.</p> <p>19 You're telling me a lot of stuff, and it's very</p> <p>20 interesting, but I don't know if we have time for that.</p> <p>21 I really want to know whether Pauls discloses</p> <p>22 using the option of H.263, not whether a person of</p> <p>23 ordinary skill would know that H.263 has such an option</p> <p>24 and not what such an option does.</p> <p>25 MR. BATTS: Objection. Form.</p>
<p style="text-align: right;">Page 179</p> <p>1 Q. Does Pauls disclose using the arithmetic</p> <p>2 encoding options of H.263 or JPEG?</p> <p>3 A. Well, Pauls does say that H.263 is well-known,</p> <p>4 and I would agree with that, especially when you get to</p> <p>5 the timeframe of the Fallon patent when it's been years</p> <p>6 since it's been out.</p> <p>7 So anyone of ordinary skill in the art, when</p> <p>8 they see Pauls saying you can have a selection of</p> <p>9 encoders, which include ones based on H.263; and</p> <p>10 furthermore, they certainly understand that, in fact,</p> <p>11 arithmetic coding is one of the features in H.263 which</p> <p>12 takes more or less time. You can turn it on. You can</p> <p>13 use it. You can not use it.</p> <p>14 Certain encoders might use it, and other</p> <p>15 encoders might not use it so that certainly that's what</p> <p>16 is rendered obvious and what is taught by Pauls. Anyone</p> <p>17 reading Pauls -- anyone of ordinary skill in the art</p> <p>18 reading Pauls clearly understands that that is a feature</p> <p>19 of H.263, for example. There's no question about it.</p> <p>20 And so -- and Pauls is teaching that you can now</p> <p>21 have multiple video encoders that you're choosing from,</p> <p>22 and it would be perfect sense that two different versions</p> <p>23 would be one that used the arithmetic coding and did a</p> <p>24 little better job and one that didn't use the arithmetic</p> <p>25 coding and ran a little faster because at that time -- at</p>	<p style="text-align: right;">Page 181</p> <p>1 THE WITNESS: I hadn't finished my answer to the</p> <p>2 previous question. Are you withdrawing the previous</p> <p>3 question and now replacing it with this one, or may I</p> <p>4 finish my answer?</p> <p>5 BY MR. STONEDALE:</p> <p>6 Q. You can answer the question unless you refuse.</p> <p>7 A. I'm not refusing to answer. It's just that</p> <p>8 you've now asked a new question before I finished my</p> <p>9 answer to the previous question. Are you withdrawing the</p> <p>10 previous question, or can I first finish the answer</p> <p>11 before addressing the current question?</p> <p>12 Q. No. I'm not withdrawing the previous question.</p> <p>13 But you weren't answering the previous question, and I</p> <p>14 think you know that. But it's getting late in the day.</p> <p>15 Let's see if we can move this on a little faster.</p> <p>16 A. Well, I didn't get to finish my answer. I was</p> <p>17 almost done. I wanted to make a point that I felt was</p> <p>18 very relevant to your question. I'm simply asking, can I</p> <p>19 finish the answer or are you withdrawing the question?</p> <p>20 It's perfectly reasonable. I'm trying to do the best I</p> <p>21 can. And I want to know, are you withdrawing the</p> <p>22 question or may I finish my answer?</p> <p>23 Q. I'm going to ask you a new question.</p> <p>24 A. Are you withdrawing the old question for which</p> <p>25 you interrupted me and didn't let me finish my answer?</p>

Page 182	Page 184
<p>1 Are you withdrawing it or not?</p> <p>2 Q. I'm asking a new question.</p> <p>3 A. Well, I want to know whether you're withdrawing</p> <p>4 the old question which I was trying to answer and was</p> <p>5 almost done and didn't get a chance to answer. Just let</p> <p>6 me know or let me first finish the answer and then I'll</p> <p>7 address the new question.</p> <p>8 Q. I'm not going to do either. I'm going to</p> <p>9 instead ask a new question.</p> <p>10 A. Well, I didn't get a chance to finish my answer</p> <p>11 to the previous question. I think just out of normal</p> <p>12 course of questioning and answering, I was almost done</p> <p>13 and would like to finish the answer. There was very</p> <p>14 little left to say, but I would like to say it. Or if</p> <p>15 you're withdrawing the question, fine. Then it's</p> <p>16 irrelevant. But one or the other. It seems only</p> <p>17 reasonable.</p> <p>18 Q. I understand your position. I'm going to ask</p> <p>19 you a new question.</p> <p>20 A. Well, I would like to know, first of all,</p> <p>21 whether you're withdrawing the previous question, or may</p> <p>22 I finish my answer?</p> <p>23 Q. Where is -- where does Pauls discuss arithmetic</p> <p>24 encoding?</p> <p>25 A. You haven't answered my question as to whether I</p>	<p>1 A. So, as I said before -- actually, I think that's</p> <p>2 the same question you asked before. So I would say I</p> <p>3 can't answer it better. I tried to be very thorough in</p> <p>4 that answer. I don't know if I can answer any better.</p> <p>5 It sounds like exactly the same question you asked.</p> <p>6 Q. Does Pauls use the word "arithmetic"?</p> <p>7 MR. BATTS: Objection. Form.</p> <p>8 THE WITNESS: Could you repeat the question?</p> <p>9 BY MR. STONEDALE:</p> <p>10 Q. Does Pauls use the word "arithmetic"?</p> <p>11 A. I don't recall. I would have to look through</p> <p>12 Pauls; however, Pauls does have point out the H.263</p> <p>13 standard. And to anyone of ordinary skill in the art,</p> <p>14 they understand that arithmetic coding is an option in</p> <p>15 the standard, and different encoders may support it or</p> <p>16 not support it and do it at different speeds.</p> <p>17 Q. Does Pauls mention the arithmetic mode of JPEG?</p> <p>18 MR. BATTS: Objection. Form.</p> <p>19 THE WITNESS: Pauls mentions JPEG for -- at one</p> <p>20 point, Pauls says, "Enhanced Variable Rate Coder, H.263</p> <p>21 (which is a set of guidelines being considered by the</p> <p>22 International Telecommunications Union for implementation</p> <p>23 into standards), pkzip (by PKWare, Inc.), MPEG and</p> <p>24 MPEG 2, (Moving Pictures Experts Group ), and JPEG (Joint</p> <p>25 Pictures Experts Group) are examples of encoding</p>
Page 183	Page 185
<p>1 may finish my answer to the previous question or whether</p> <p>2 you're withdrawing the question.</p> <p>3 Q. I don't have to answer your question. It's my</p> <p>4 deposition.</p> <p>5 A. Well, then you've interrupted me, and I will now</p> <p>6 finish the answer, and then I will go ahead to your</p> <p>7 current question.</p> <p>8 What I was going to say to finish that answer is</p> <p>9 arithmetic coding in particular has the property that it</p> <p>10 can be accelerated by various kinds of hardware</p> <p>11 configurations, and that also depends on whether you</p> <p>12 would choose that encoder or not, and that may be present</p> <p>13 in different encoders and present for different servers</p> <p>14 or even a given server where it's now dividing its</p> <p>15 resources among multiple users.</p> <p>16 And that was how I wanted to finish that answer.</p> <p>17 Thank you for letting me do that. And now, please, if</p> <p>18 you could repeat your current question.</p> <p>19 Q. Where does Pauls mention the arithmetic encoding</p> <p>20 of H.263?</p> <p>21 MR. BATTS: Objection. Form.</p> <p>22 THE WITNESS: Could you repeat the question?</p> <p>23 BY MR. STONEDALE:</p> <p>24 Q. Where does Pauls mention the arithmetic encoding</p> <p>25 option of H.263?</p>	<p>1 algorithms which are well-known in the art."</p> <p>2 And so, of course, when you look at Figure 3 of</p> <p>3 Pauls, the user can select among multiple encoders, and</p> <p>4 it's well-known that JPEG has an arithmetic coding</p> <p>5 option. It's well-known that that is slower; it takes</p> <p>6 more time, does a little better in terms of compression</p> <p>7 or quality.</p> <p>8 So I think any person of ordinary skill in the</p> <p>9 art reading Pauls, independent of whether the word</p> <p>10 "arithmetic" is there or not -- I would have to search</p> <p>11 Pauls -- would certainly be familiar with the standards</p> <p>12 and would be familiar with the fact that different</p> <p>13 encoders for that standard could offer or not offer the</p> <p>14 arithmetic option or do or not do the arithmetic option,</p> <p>15 and that would imply different tradeoff between time,</p> <p>16 and, for example, compression ratio or quality, and that</p> <p>17 is one of the things that is being taught by Pauls, is to</p> <p>18 choose among a suite of available encoders for the best</p> <p>19 one.</p> <p>20 BY MR. STONEDALE:</p> <p>21 Q. Does your declaration ever state why a person of</p> <p>22 ordinary skill, in combining Imai and Pauls, would not</p> <p>23 want to include an encoder?</p> <p>24 A. I'm sorry. The last part of your question got</p> <p>25 garbled by the transmission. Could you repeat it?</p>

<p style="text-align: right;">Page 186</p> <p>1 Q. Would not want to use an encoder -- let me start 2 over. 3 A. Yeah. Thanks. 4 Q. Does your declaration indicate why a person of 5 ordinary skill in the art combining pie -- Imai and Pauls 6 would not want to include an encoder? 7 MR. BATTS: Objection. Form. And which 8 declaration are you referring to? 9 MR. STONEDALE: Either or both. 10 BY MR. STONEDALE: 11 Q. I'm curious if any of your declarations indicate 12 why a person of ordinary skill in the art would not 13 include an encoder. 14 A. I'm not sure what you mean by "a person of 15 ordinary skill in the art would not include an encoder." 16 What Pauls teaches is there's a suite of encoders 17 available. In fact, the more, the better. I don't 18 really see a reason why it's advantageous to have fewer 19 because Pauls teaches that among the available encoders, 20 to choose the one that is best, for example, for the 21 given data type that is -- that is at hand; for example, 22 you see in Figure 3 mentioning text, speech, video. 23 So I don't know -- I don't really understand 24 your question about why -- I don't see that in the claim 25 language, I mean, why you wouldn't do it. In your</p>	<p style="text-align: right;">Page 188</p> <p>1 either one or the combination renders the claims -- for 2 example, Claim 1, obvious. You seem to be talking about 3 some hypothetical situation where some particular user is 4 building some system using the principles of Imai and/or 5 Pauls and not talking about my declaration, which is 6 talking about how the claim -- the particular claims are 7 obvious in light of Imai or Pauls or both. And maybe I 8 don't understand your hypothetical. If you could flush 9 it out a little bit more. 10 BY MR. STONEDALE: 11 Q. Well -- so does your declaration not disclose 12 what a person of ordinary skill in the art would do if 13 they were building a system in light of Imai and Pauls? 14 MR. BATTS: Objection. Form. 15 THE WITNESS: Could you repeat your question? 16 BY MR. STONEDALE: 17 Q. Does your declaration not disclose what a person 18 of ordinary skill in the art would do if they were 19 building a system in light of Imai and Pauls? 20 A. I'm not sure what you're encompassing in 21 "building a system." The point of my report is to 22 describe why, for example -- we discussed before -- in 23 view of Imai, the Claim 1, for example, of Fallon is 24 rendered obvious or in view of Pauls or in view of the 25 combination of the two.</p>
<p style="text-align: right;">Page 187</p> <p>1 hypothetical, I guess, some user -- I guess maybe you 2 could tell me more about the hypothetical. 3 BY MR. STONEDALE: 4 Q. Well, would a person of ordinary skill in the 5 art include every encoder that is available in Imai and 6 Pauls, combination? 7 A. What do you mean by "every encoder that is 8 available"? 9 Q. Every encoder the person of ordinary skill in 10 the art possibly could include. 11 MR. BATTS: Objection. Form. 12 THE WITNESS: I'm not quite sure the meaning of 13 your -- well, maybe you could repeat it. Could you 14 repeat the question? 15 BY MR. STONEDALE: 16 Q. Would a person of ordinary skill in the art, 17 combining Pauls and Imai, include every available 18 encoder, or would there be some encoders they wouldn't 19 include? 20 MR. BATTS: Objection. Form. 21 THE WITNESS: In your hypothetical, what do you 22 mean by a person including? Are you talking about 23 someone who is implementing a system using the ideas of 24 these two patents? 25 My declaration is talking about how one --</p>	<p style="text-align: right;">Page 189</p> <p>1 One of ordinary skill in the art reading the 2 disclosure, what is described and taught in these prior 3 art references, it now makes, for example, Claim 1 of 4 Fallon rendered obvious. You seem to be talking about 5 sort of a building thing. I don't know if it's a legal 6 question, the difference between someone trying to build 7 something and someone seeing this reference and 8 understanding what is being disclosed and understanding 9 that that would certainly -- in view of that disclosure, 10 it would render, for example, Claim 1 obvious, so I don't 11 know whether this is a -- you're asking for some kind of 12 legal opinion or what, or is it just a hypothetical about 13 some supposed person to building something? 14 Q. I'm asking whether or not you offer any opinions 15 about how a person would implement the teachings of Imai 16 and Pauls to create a system. 17 MR. BATTS: Objection. Form. 18 THE WITNESS: (Witness reviewed document.) I'm 19 not sure I can answer any better. But could you repeat 20 your question again? 21 MR. STONEDALE: Could the reporter please repeat 22 the question? 23 (Record was read back as requested.) 24 THE WITNESS: So I've talked about the 25 motivation to combine. I've talked about each one</p>



<p style="text-align: right;">Page 190</p> <p>1 individually. We've talked -- we've talked about Imai  2 alone rendering the claim obvious. You seem to be  3 talking about a hypothetical user doing an  4 implementation, and I've talked about how Imai and Pauls  5 and the combination renders the claim obvious by what is  6 disclosed and taught.  7 And certainly, they disclose how a suite of  8 compression methods, multiple compression methods, some  9 of them, according to the same standard, can be selected  10 from in order to achieve throughput, and throughput  11 relies on two considerations at least; other  12 considerations, but certainly on speed and compression  13 ratio, as we discussed many times today.  14 So I'm not quite sure what you're -- whether  15 it's sort of a hypothetical you're asking about someone  16 performing an implementation as opposed to someone  17 reading these references and understanding what is being  18 disclosed and taught; and therefore, for example, the  19 Claim 1 of the Fallon patent being rendered obvious.  20 I'm not sure whether it's a hypothetical or a  21 legal question. I don't quite understand the distinction  22 over what we've already discussed and what I discussed in  23 my report.  24 BY MR. STONEDALE:  25 Q. Well, I guess what I'm asking, is there a</p>	<p style="text-align: right;">Page 192</p> <p>1 there were data types that they would be useful for, for  2 example.  3 So it's an incredibly natural, obvious thing to  4 do to combine the two references and certainly to --  5 they're just so similar. And so -- in fact, they're so  6 similar that in my report, either one of them alone  7 renders obvious and completely natural to combine them.  8 So I guess the way I've described the  9 obviousness isn't in terms of some hypothetical user  10 building something, but I've certainly described how it  11 would be obvious, for example, to incorporate additional  12 encoders into Imai that are referenced or discussed in  13 Pauls, for example.  14 And I -- it seems as though I addressed the  15 issue of obvious to combine and addressed the issue of  16 how these references render, for example, Claim 1  17 obvious. I don't quite understand the distinction of  18 what you're asking or whether it's a legal question or a  19 hypothetical about a hypothetical person building a  20 system, but I certainly -- I think I've made quite clear  21 in this report that one of ordinary skill in the art  22 would certainly see these references as highly similar  23 and highly compatible, and I talk about how it would be  24 very natural -- in fact, there's even some paragraphs we  25 were reading before. I don't necessarily need to walk</p>
<p style="text-align: right;">Page 191</p> <p>1 distinction? Do you describe how a person of ordinary  2 skill would take the teachings of Imai and take the  3 teachings of Pauls and combine them to create a system  4 and how they would do that.  5 A. (Witness reviewed document.) Earlier on in this  6 deposition, we went through a section of my report which  7 describes the motivation to combine. And it describes  8 how both patents employ asymmetric encoders, and both  9 patents employ a suite of encoders that are selected  10 from.  11 And both of them take into account data type and  12 making that choice. And both of them take into account  13 the transmission medium. And I'm -- right now, I'm  14 actually flipping through that section. They -- they  15 both talk about determining bandwidth. So you have these  16 two systems.  17 And, in fact, when you looked at Figure 3 of  18 Pauls and you looked at Figures 4, 5 and 7 or even just  19 Figure 5 of Imai, it's -- these references are highly,  20 highly similar. And also, both references have a  21 framework where you can insert encoders, standard  22 encoders.  23 You can add them to the suite of encoders. You  24 can have a suite of encoders. It would be perfectly  25 natural to add additional encoders that were available if</p>	<p style="text-align: right;">Page 193</p> <p>1 over this area again, so I'm not sure how to better  2 answer your question.  3 Q. Okay. Well, let's say a person of ordinary  4 skill in the art is taking the system of Imai and they're  5 adding some encoders to it, some encoders that are not  6 disclosed in Imai. Would that person want to include all  7 the encoders available to him, or might he want to limit  8 the number of encoders for some reason?  9 MR. BATTS: Objection. Form.  10 THE WITNESS: Could you repeat the question?  11 MR. STONEDALE: Could the court reporter please  12 repeat the question?  13 (Record was read back as requested.)  14 THE WITNESS: I'm not sure what you mean by a  15 "user." Imai talks about a server sending -- for  16 example, transmitting audio or music -- or it says it  17 could also be video -- to a viewer or a listener at the  18 other end.  19 Imai talks about an end-to-end system where the  20 data flows through the encoder, through the communication  21 line, through the decoder and to the decoder without  22 interruption where the decoder can watch it. So there's  23 a whole attention to getting the proper throughput to  24 make this system work and a lot of description and  25 teaching in Imai.</p>

<p style="text-align: right;">Page 194</p> <p>1 And furthermore, Imai invites you -- invites a</p> <p>2 reader to understand that, yeah, of course you can</p> <p>3 incorporate other methods because it says it can apply</p> <p>4 equally on the video and it says you have a suite. And I</p> <p>5 don't know what you mean by "all possible available to</p> <p>6 some hypothetical user." The point is, the server and</p> <p>7 whoever designed the server based on Imai would have</p> <p>8 certain encoders they had purchased and had available,</p> <p>9 especially for types of data they expected to deal with.</p> <p>10 BY MR. STONEDALE:</p> <p>11 Q. Would they have some encoders available to them</p> <p>12 that they wouldn't find useful?</p> <p>13 MR. BATTS: Objection. Form.</p> <p>14 THE WITNESS: Could you repeat the question?</p> <p>15 BY MR. STONEDALE:</p> <p>16 Q. Would they have some encoders available to them</p> <p>17 that they wouldn't find useful?</p> <p>18 A. So who is the "they" you're referring to?</p> <p>19 Q. A person of ordinary skill.</p> <p>20 A. Well, the person of ordinary skill reading these</p> <p>21 patents, as I've described in my report -- let's say</p> <p>22 they're reading Imai -- reads the teachings of Imai,</p> <p>23 reads the disclosures of Imai and from -- in view of</p> <p>24 that, for example, Claim 1 of Fallon is rendered obvious.</p> <p>25 I'm not sure what you mean by "they doing something" or</p>	<p style="text-align: right;">Page 196</p> <p>1 many encoders that are based on well-known standards</p> <p>2 because standards are a good thing because now it's more</p> <p>3 likely that users out there will be able to decode the</p> <p>4 data. If you just use a decoder not based on a standard,</p> <p>5 you would only be able to use it for users who had that</p> <p>6 corresponding decoder.</p> <p>7 But when it's based on a standard, even if you</p> <p>8 have two versions of the encoder -- or maybe it's the</p> <p>9 MPEG standard. So for encoders based on the same</p> <p>10 standard, one may run much slower than another one</p> <p>11 because it's doing much more work to do motion</p> <p>12 compensation, but that same -- the output streams for</p> <p>13 both of them can still be decoded by a decoder that is</p> <p>14 capable of decoding MPEG -- MPEG streams.</p> <p>15 So, you know, I -- certainly one of ordinary</p> <p>16 skill in the art understands that in designing a server</p> <p>17 using things -- using what is taught by Imai and</p> <p>18 disclosed by Imai and rendered obvious by Imai would</p> <p>19 certainly imagine a server that selected encoders based</p> <p>20 on common standards, for example.</p> <p>21 And certainly when Imai suggests that his whole</p> <p>22 system of taking into account data type and channel of</p> <p>23 characteristics and taking into account all these things</p> <p>24 to create a nice -- a throughput that works, would</p> <p>25 certainly understand, oh, yes. And, of course, when he</p>
<p style="text-align: right;">Page 195</p> <p>1 "they hypothetically out there building something" as you</p> <p>2 said in your previous question. Is there another way you</p> <p>3 can phrase the question? I don't think I really</p> <p>4 understand the question.</p> <p>5 Q. If a person of ordinary skill in the art were to</p> <p>6 implement Imai in the real world at the time of the</p> <p>7 invention --</p> <p>8 (Reporter asked for clarification.)</p> <p>9 BY MR. STONEDALE:</p> <p>10 Q. If a person of ordinary skill in the art were to</p> <p>11 implement Imai in the real world at the time of the</p> <p>12 invention, build a system based on the teachings of Imai,</p> <p>13 they would have to include some encoders; is that right?</p> <p>14 A. Well, I guess this hypothetical person, again,</p> <p>15 the -- you're talking about a hypothetical person</p> <p>16 building something, and I don't know if it's a legal</p> <p>17 distinction between this person of ordinary skill in the</p> <p>18 art reading the Imai patent and understanding what is</p> <p>19 disclosed, what is taught and certainly understanding</p> <p>20 what is being claimed in the Fallon patent as being</p> <p>21 rendered obvious.</p> <p>22 But certainly when that person understands what</p> <p>23 is being disclosed in Imai, they certainly would</p> <p>24 understand that the -- when designing the server, you</p> <p>25 certainly might very well encode many common encoder --</p>	<p style="text-align: right;">Page 197</p> <p>1 says video, you would certainly want to use --</p> <p>2 incorporate the standard video encoders as well as</p> <p>3 standard audio encoders, for example.</p> <p>4 Q. Do you state which encoder in the combination of</p> <p>5 Pauls and Imai would be the first asymmetric data</p> <p>6 compression encoder of Claim 1?</p> <p>7 MR. BATTS: Objection. Form.</p> <p>8 THE WITNESS: Could you repeat the question?</p> <p>9 BY MR. STONEDALE:</p> <p>10 Q. Do you state which of the encoders in the</p> <p>11 combination of Pauls and Imai would be the first</p> <p>12 asymmetric data compression encoder?</p> <p>13 A. So, for example, this -- we -- we talked about</p> <p>14 this question a number of hours ago where you asked it</p> <p>15 with respect to Imai. And we had quite few questions</p> <p>16 relating to this where Imai -- and of course, Imai and</p> <p>17 Pauls work in a very similar way.</p> <p>18 Data comes in. It may be divided into blocks.</p> <p>19 And there's a determination of the data type, for</p> <p>20 example. And what type of data is this? Okay. And it</p> <p>21 might be that currently, for example, Imai gives the</p> <p>22 example of different kinds of music or different portions</p> <p>23 of a musical sequence having different properties and you</p> <p>24 may choose a different encoder at that point because</p> <p>25 you're trying to achieve throughput, trying to achieve a</p>

<p style="text-align: right;">Page 198</p> <p>1 system where the data -- where the incoming data to the</p> <p>2 encoder flows through the encoder, flows through the</p> <p>3 channel.</p> <p>4 And Imai even teaches how it needs to flow</p> <p>5 through the decoding to the decoder so the decoder person</p> <p>6 or entity can view the -- let's say the audio or video as</p> <p>7 it comes in real time.</p> <p>8 And so -- and so there's a selection process,</p> <p>9 and Imai teaches doing that, for example on a</p> <p>10 block-by-block basis. If it's video, Imai can very well</p> <p>11 be using encoders of the type that are described in</p> <p>12 Pauls, MPEG, H.263. And Imai teaches on a block-by-block</p> <p>13 basis, for example, you're going to now choose -- if</p> <p>14 you're currently using an encoder which is too slow,</p> <p>15 you're going to choose an encoder which is faster. Okay?</p> <p>16 And so in that case, your -- your first encoder</p> <p>17 would be the faster one that you choose, and the second</p> <p>18 encoder would be the slower one because you have -- Imai</p> <p>19 has a system which is configured to have encoders of</p> <p>20 different tradeoffs between speed and compression ratio.</p> <p>21 That's what is being taught.</p> <p>22 MR. BATTS: So we've been going for about an</p> <p>23 hour and a half now. Does anyone need a break?</p> <p>24 (Discussion had off the record.)</p> <p>25 (Recess was taken.)</p>	<p style="text-align: right;">Page 200</p> <p>1 So it would be -- one of ordinary skill in the</p> <p>2 art, it would be entirely obvious, especially when we're</p> <p>3 talking about well-known standards at the time, like</p> <p>4 H.263, MPEG, to incorporate various encoders according to</p> <p>5 that standard that may have different properties. And</p> <p>6 again, we mentioned, even with the given standard, there</p> <p>7 may be multiple encoders that have different tradeoffs</p> <p>8 between the amount of time it takes to compress and the</p> <p>9 compression ratio and other factors such as the quality</p> <p>10 of the output.</p> <p>11 Q. Would it be obvious to incorporate H.263 into</p> <p>12 Imai?</p> <p>13 MR. BATTS: Objection. Form.</p> <p>14 THE WITNESS: So, could you repeat your</p> <p>15 question?</p> <p>16 BY MR. STONEDALE:</p> <p>17 Q. Would it be obvious to incorporate H.263 into</p> <p>18 Imai?</p> <p>19 A. I'm not sure what you mean by someone</p> <p>20 incorporating it. What would be obvious to one of</p> <p>21 ordinary skill in the art reading Imai is that that list</p> <p>22 of encoders, when Imai says his system applies equally to</p> <p>23 video, could include video coders, and of course it would</p> <p>24 be -- the most obvious kind of video coders to include in</p> <p>25 that list would be video coders that are based on</p>
<p style="text-align: right;">Page 199</p> <p>1 ///</p> <p>2 BY MR. STONEDALE:</p> <p>3 Q. Okay. You explained that a person of ordinary</p> <p>4 skill would want to include the video coders from Pauls</p> <p>5 into Imai in order to compress video data; is that right?</p> <p>6 A. I don't think that's how I said it. But I</p> <p>7 certainly pointed out the fact that Imai actually invites</p> <p>8 or points out that the system of Imai, this very nice</p> <p>9 framework that we see in Figures 4, 5 and also 16, where,</p> <p>10 based on data type and other considerations, different</p> <p>11 encoders can be chosen from. Imai says you can just as</p> <p>12 well use it for video.</p> <p>13 So certainly when one of ordinary skill in the</p> <p>14 art reads Imai, I think they would understand that</p> <p>15 anyway, but Imai specifically points that out it would be</p> <p>16 perfectly natural in a system that is highly similar to</p> <p>17 Imai.</p> <p>18 We've already talked about how Pauls uses</p> <p>19 asymmetric methods. Pauls chooses between methods.</p> <p>20 Pauls takes into account the nature of the communication</p> <p>21 line. Pauls choice -- choosing between two methods is</p> <p>22 based on type. All these things incredibly similar, even</p> <p>23 the figures look similar. You look at Figure 3 of Pauls</p> <p>24 and you look at Figure 5 or Figure 4 -- Figures 4 and 5,</p> <p>25 for example, of Imai.</p>	<p style="text-align: right;">Page 201</p> <p>1 current, well-known standards of the time.</p> <p>2 In fact, those standards are still, you know,</p> <p>3 present today as well. But standards that have been</p> <p>4 available for years prior to -- that were -- for example,</p> <p>5 available to Imai and Pauls and were available years</p> <p>6 before the Fallon patent.</p> <p>7 Q. So would a POSITA have found it obvious to</p> <p>8 incorporate H.263 into Imai?</p> <p>9 A. Isn't that exact -- I believe that's exactly the</p> <p>10 same question you just asked, and so I would say I -- I</p> <p>11 would defer to my answer I gave, which I thought was a</p> <p>12 very good answer. I don't know how to answer any better.</p> <p>13 Q. Do you offer any opinions about any encoder that</p> <p>14 is a first video data compression encoder for purposes of</p> <p>15 Claim 20 and Imai, Pauls or the combination?</p> <p>16 MR. BATTS: Objection. Form.</p> <p>17 THE WITNESS: Could you repeat the question?</p> <p>18 BY MR. STONEDALE:</p> <p>19 Q. I'm going to rephrase it. Do you, in either</p> <p>20 declaration, point to any encoder that is the first video</p> <p>21 data compression encoder for purposes of Claim 20?</p> <p>22 A. Well, let's go to that portion of my report.</p> <p>23 (Witness reviewed document.) So, for example, if you</p> <p>24 read paragraph 230, it says, "I understand that</p> <p>25 independent Claim 20 in Claim 2 include all the claim</p>

Page 202	Page 204
<p>1 limitations of Claim 1 and have an additional requirement 2 that 'at least one of the plurality of different 3 asymmetric data compression encoders is configured to 4 utilize an arithmetic algorithm.' As discussed in my 5 opinion above, both Imai alone or in view of Pauls 6 teaches and renders obvious independent Claim 1." And it 7 goes on. 8 But by the way, we've talked about the fact that 9 my analysis of Claim 1 very thoroughly talks about how 10 Imai discloses both taking into account time to encode 11 and compression ratio. So, when you see Claim 20, 12 really, it mentions compression ratio instead of 13 encode -- instead of -- 14 Q. Do you offer the opinion -- 15 A. Let me finish my -- you're interrupting me. 16 Instead of comp -- 17 Q. Yes. I am interrupting you. 18 A. Instead of comp -- Instead of com -- 19 Q. Yes. I am -- 20 A. Instead of com -- you have to let me finish my 21 answer. 22 MR. BATTS: Dr. Storer, I think he was actually 23 asking -- I do think Joel was asking a different question 24 here. So maybe we hear the question again. 25 THE WITNESS: Okay. Sorry. Go ahead.</p>	<p>1 equally well here. The addition of arithmetic coding, I 2 do address here. 3 And so the answers to my questions about first 4 and second would be relevant here as well. We've talked 5 about this quite a bit, and I'm happy to answer again. 6 But I'm just pointing out that the analysis, the great 7 level of detail that is in the report and we've had a lot 8 of discussion about, Imai takes into account both 9 compression rate and compression ratio, and you look at 10 the similarity of these claims. 11 And I'm pointing out, okay. Now let's also talk 12 about the arithmetic coding, which is a new element here. 13 But my previous answers would apply. And I'm happy to 14 answer again. 15 Q. I'm wondering, can you give me a -- the name of 16 an encoder that you're suggesting is the first video data 17 compression encoder of Claim 20? 18 A. So, again, I believe we've really -- I've really 19 already answered this question so many times with respect 20 to Claim 1, and the answer would -- really be the same 21 for Claim 20, but I'll answer again, if you would like. 22 Q. I'm specifically trying to clarify -- I'm 23 interested in an answer that comes in the form of the 24 name of an encoder. 25 A. So, the answer -- -- you've asked this question</p>
Page 203	Page 205
<p>1 /// 2 BY MR. STONEDALE: 3 Q. Did you point to any encoders in either 4 declaration that is the first video data compression 5 encoder of Claim 20? 6 MR. BATTS: Objection to form. 7 Go ahead. 8 THE WITNESS: Okay. Objection to form. 9 As I was starting to answer your previous 10 question, I point out here the similarity between Claim 1 11 and Claim 20. And Claim 20 uses compression ratio 12 versus -- 13 BY MR. STONEDALE: 14 Q. You're not answering the question in -- 15 A. Can I just finish the answer? 16 Q. I'm asking about the name of the encoder that 17 could constitute the first video data compression encoder 18 in Claim 20. 19 A. So if I may finish my answer. So I point out 20 with a high similarity -- now, you can go back and 21 look -- we had all the same questions for Claim 1. You 22 asked me about first, second -- all these things. That 23 analysis of Claim 1, which includes both compression rate 24 and compression ratio, describing how Imai thoroughly 25 addresses both and they're related, that analysis applies</p>	<p>1 before, and I've answered it many times, and I'm happy to 2 answer it again. An answer with respect to Claim 1 -- 3 Q. Is there any answer that comes in the form of 4 the name of an encoder? 5 A. So before, we talked about this. And in 6 reference to Claim 1, which reads incredibly similar to 7 Claim 20, Claim 20 -- both in my analysis of Claim 1, 8 very clearly it analyzes Imai disclosing measuring both 9 compression rate and compression ratio. And in that 10 answer, I pointed to the list of areas of different -- 11 Q. I need to move on. In -- let's talk about the 12 combination of Dawson, Imai and Pauls. If you can go to 13 paragraph 212 of your second declaration. 14 A. 212 of the second declaration. Okay. Now, this 15 declaration is the one -- the second one we're referring 16 to would be the one labeled IPR2018-1630 where we 17 mainly -- we've mainly been looking at -- so far, most of 18 our discussion has been with respect to the one labeled 19 IPR2018-01187. And you're asking me to go to what 20 paragraph? 21 Q. 212. Here, you state that, "A POSITA would have 22 been motivated to combine the compression encoder 23 selection techniques taught by Imai, Pauls and Dawson." 24 My question is how a POSITA would have done that. 25 A. Let me take a quick look, then, at this section.</p>

Page 206	Page 208
<p>1 (Witness reviewed document.) So the paragraph 212 that  2 you're pointing to reads, "It is my opinion that a POSITA  3 would have been motivated to combine the compression  4 encoder selection techniques taught by Imai, Pauls and  5 Dawson because it would have been combining prior art" --  6 Q. Objection.  7 A. -- "elements" --  8 Q. Dr. Storer, as a general rule, we can just let  9 the paragraph speak for itself. You don't have to read  10 the whole thing into the record because the exhibit is in  11 the record. So you can just refer to 212.  12 A. I actually wasn't going to read the whole thing.  13 I was going to say, "et cetera, et cetera." And my point  14 was that the paragraph begins -- of course this paragraph  15 follows a number of paragraphs describing the high  16 similarity between the three references.  17 But one important point of similarity, which is  18 why I read the beginning of this, was because it involved  19 to combine the compression encoder selection techniques.  20 So you noticed that, if you recall, we described those  21 pieces of prior art where there's a component in both --  22 for example, we described earlier in Pauls and Imai where  23 the selector takes into account the data type, for  24 example, and you also see that in Dawson.  25 So this idea of selecting different asymmetric</p>	<p>1 You understand the difference in why you do something  2 versus how you do something? Like, you know, you may  3 walk to get from point A to point B, but you walk by  4 moving one leg in front of the other. There's a  5 difference in why and how. Does that make sense?  6 A. I suppose. I'm not quite sure what you're  7 asking.  8 Q. Yeah. Okay. So just like you may -- the reason  9 someone does something is distinct from what they do.  10 That's a distinction I want to draw here. I'm not asking  11 why a person of ordinary skill would combine Dawson, Imai  12 and Pauls. I'm asking you how they would do that.  13 A. You seem to be talking about a hypothetical  14 person performing an implementation. I certainly do  15 describe here, though, when analyzing the claims the fact  16 that you now have three systems which are highly similar,  17 which both have a selection mechanism to select between  18 methods.  19 And, furthermore, we actually already have seen  20 how arithmetic coding is incorporated into some of the  21 methods described by Pauls. But now we also have a very  22 natural combination with Dawson which specifically is  23 addressed as arithmetic coding.  24 And I don't think there's any debate about  25 arithmetic coding qualifying as an asymmetric method in</p>
Page 207	Page 209
<p>1 methods which are going to work better for particular  2 type of data. And, of course, we've already talked about  3 the fact that some of the methods that we described  4 earlier, such as H.263, JPEG and so on use arithmetic  5 coding, and I talk about that as well in this section.  6 So, I guess -- I'm not sure if I fully answered  7 your question. If you would like to repeat it, if  8 there's something else I can add, I can try to do that.  9 Q. Is there any other paragraphs in your  10 declarations where you describe how a POSITA would have  11 combined Imai, Pauls and Dawson?  12 A. Well, I would have to look through the report,  13 and there was -- I'm now going to be talking about how  14 claim elements have satisfied.  15 But certainly, in this section -- and I'm not  16 referring just to section 212. I'm referring to the  17 paragraphs 206, 207, 208, 209, 210, 211 and 212 that  18 describe why it would be obvious to someone of ordinary  19 skill in the art to combine these references.  20 We also -- these paragraphs are referring back  21 to -- and certainly, one would understand reading my  22 declaration that I've also had previous places where I've  23 described why it would be obvious to combine Imai and  24 Pauls as well.  25 Q. I'm not asking about why. I'm asking about how.</p>	<p>1 the context of the Fallon patent because Fallon calls it  2 out, doesn't really give you much information. But does  3 call it out as something, asymmetric.  4 So when someone talks about the how -- I mean,  5 the method taught, for example, by Imai, Imai teaches how  6 Imai takes into account both time to encode and  7 compression ratio and other factors in order to get a  8 throughput, which is what is talked about in the claims  9 of the -- in other words -- in other words, Imai  10 addresses throughput, and that is what is being addressed  11 in the Fallon claims, and that is why Imai alone and Imai  12 in combination with Pauls renders obvious Claim 1.  13 And now we combine with Dawson when we're  14 specifically talking about arithmetic coding to get  15 further support to the arithmetic coding limitation of  16 Claim 20.  17 MR. BATTS: So I'm just going to note there's  18 five minutes left before we hit seven hours on the  19 record.  20 BY MR. STONEDALE:  21 Q. Okay. I will ask you the same question about  22 the Lai, Imai and Pauls combination. Where do you  23 explain how a person of ordinary skill would have  24 combined Imai, Lai and Pauls? And I'm not asking about  25 why they would do it. I'm asking about how that POSITA</p>

<p style="text-align: right;">Page 210</p> <p>1 would combine the references.  2 A. Well, let's go to that section. Give me one  3 second.  4 MR. BATTS: That's page 117.  5 BY MR. STONEDALE:  6 Q. Paragraph 219 is probably where you want to go.  7 A. (Witness reviewed document.)  8 Q. I think you might lose your chance to answer  9 that question pretty soon here.  10 A. (Witness reviewed document.) Well, in order to  11 move on quickly, yes, I describe the motivation to  12 combine in terms of why you would do it, why it would be  13 obvious to combine them. But the report -- the  14 declaration also describes the teachings of, for example,  15 Imai and Pauls in terms of how they teach to implement  16 and to -- and to have a system that does work by -- work  17 by selecting among different encoders with different  18 properties of either encoding speed or -- or compression  19 ratio so that the descriptions in my report about the way  20 in which -- in which Imai and Pauls work and operate or  21 the teachings of how the system operates of course now  22 relate to the obviousness to incorporate -- to use a  23 combination such as we talked about combining Imai with  24 Pauls, combining Imai and Pauls with Dawson or combining  25 Imai and Pauls with Lai.</p>	<p style="text-align: right;">Page 212</p> <p>1 DECLARATION UNDER PENALTY OF PERJURY  2  3 I, DR. JAMES ANDREW STORER, do hereby certify under  4 penalty of perjury that I have read the foregoing  5 transcript of my deposition taken on May 7, 2019; that I  6 have made such corrections as appear noted on the  7 Deposition Errata Page, attached hereto, signed by me;  8 that my testimony as contained herein, as corrected, is  9 true and correct.  10 Dated this _____ day of _____  11 2019, at _____, California.  12  13  14  15  16  17  18  19  20  21  22  23  24  25</p> <p style="text-align: center;">_____  DR. JAMES ANDREW STORER</p>
<p style="text-align: right;">Page 211</p> <p>1 MR. BATTS: So we're over seven hours. Do you  2 have a final question, Joel?  3 MR. STONEDALE: No. I think that wraps it up.  4 Thank you all for hanging out with me today. It's been  5 fun.  6 THE WITNESS: Thank you.  7 (Deposition concluded at 6:46 p.m.)  8 ---oOo---  9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25</p>	<p style="text-align: right;">Page 213</p> <p>1 DEPOSITION ERRATA SHEET  2 Page No. _____ Line No. _____  3 Change: _____  4 Reason for  5 change: _____  6 Page No. _____ Line No. _____  7 Change: _____  8 Reason for  9 change: _____  10 Page No. _____ Line No. _____  11 Change: _____  12 Reason for  13 change: _____  14 Page No. _____ Line No. _____  15 Change: _____  16 Reason for  17 change: _____  18 Page No. _____ Line No. _____  19 Change: _____  20 Reason for  21 change: _____  22 _____  23 _____  24 _____  25 DR. JAMES ANDREW STORER Dated _____</p>

54 (Pages 210 to 213)

1 STATE OF CALIFORNIA ) SS.  
2

3 I do hereby certify that the witness in the  
4 foregoing deposition was by me duly sworn to testify to  
5 the truth in the within-entitled cause; that said  
6 deposition was taken at the time and place therein  
7 stated; that the testimony of said witness was correctly  
8 reported by me, a certified shorthand reporter and  
9 disinterested person, and was under my supervision  
10 thereafter transcribed and when so transcribed was  
11 carefully read to or by the said witness, and, being in  
12 every desire, was thereafter by the said witness duly  
13 subscribed; that if unsigned by the witness, signature  
14 has been waived in accordance with stipulation between  
15 counsel for the respective parties.

16 And I further certify that I am not of counsel  
17 or attorney for either or any of the parties to said  
18 deposition nor in any way interested in the outcome of  
19 the cause named in said caption.

20 IN WITNESS WHEREOF, I have here unto set my hand  
21 and affixed my seal of office this 13th day of May,  
22 2019.

23 \_\_\_\_\_  
24 CARLY C. TILLOTSON, CSR No. 13627  
25 Certified Shorthand Reporter

<b>A</b>	206:23 209:6	<b>addressed</b> 37:3	45:23 46:19,24	137:20 145:10
<b>abbreviation</b> 45:4	<b>accurate</b> 36:15	69:8 94:20 192:14	47:18 48:15 49:11	155:23 156:1
<b>ability</b> 154:24	52:15 132:3	192:15 208:23	50:19,23 52:16	157:11,16 160:6
155:7 160:3	<b>achieve</b> 63:9 64:18	209:10	53:7,20 54:19	161:16 169:24
166:16	65:17 87:14 88:22	<b>addresses</b> 14:13	55:19 56:2 60:6	175:9,9 200:8
<b>able</b> 69:15 98:16	110:5 111:14	47:15 53:23	61:2 71:11 72:4	<b>amounts</b> 103:15,16
100:19 111:22	131:1 134:23	126:18,21 203:25	72:14,18 100:14	153:9
119:16 123:12	136:21 137:6,14	209:10	118:14 138:10	<b>analysis</b> 27:7 29:9
153:16 160:14	138:2 140:6,10,12	<b>addressing</b> 32:13	202:4	30:10 39:8 40:16
196:3,5	140:20,24 141:24	43:23 60:9 70:3	<b>algorithmic</b> 68:22	43:17,21 45:21,25
<b>abstract</b> 90:12,12	142:19 143:2	93:12 94:8,21	105:20 108:1	47:17 50:5 53:4
149:23 170:24	144:17 157:9,13	98:5 105:16 113:2	113:5 117:10	53:10,18 60:2
<b>academic</b> 94:18,24	163:22 166:13	115:12 117:2,19	<b>algorithms</b> 14:21	76:22,22,24 90:9
94:25 95:21	190:10 197:25,25	126:14 162:1	15:11,16,17 19:3	93:6,8 95:18,19
<b>accelerated</b> 180:9	<b>achieved</b> 103:5	164:9 181:11	19:7,15,21 20:19	97:7 98:3,3,6
183:10	111:5 141:14	<b>adequate</b> 108:20	20:25 23:1 26:2	99:25,25 100:2
<b>accept</b> 123:13	164:3	130:14	27:13 28:5,8 40:5	103:4 115:14,15
135:17	<b>achieves</b> 111:13,15	<b>ADPCM</b> 58:22	42:12,17,18 44:11	147:12,13,15
<b>acceptable</b> 97:21	112:6,9,11 117:20	77:18 125:10	45:2,6,15 46:5,5	161:3 174:23
130:21,23,23	124:4 135:19	<b>ADPCN</b> 82:9	46:13 47:3,4,9,11	202:9 203:23,25
131:2 134:23	154:7,8	<b>advantage</b> 136:23	47:12,24 48:1,2	204:6 205:7
135:19 143:20,21	<b>achieving</b> 116:22	139:7 177:14	49:24 50:12,13,16	<b>analyze</b> 90:8 100:1
<b>accepted</b> 133:22	119:18	<b>advantageous</b>	50:17 51:15,17	<b>analyzed</b> 56:20
<b>accommodate</b>	<b>Acoustic</b> 59:5	186:18	52:3,4,8,24 54:1,2	<b>analyzes</b> 115:15
129:21 134:2	77:20	<b>advantages</b> 141:3	54:4,5,15 55:3,15	147:13 205:8
150:20	<b>acronyms</b> 15:8,9	150:3	55:16 56:4,5,11	<b>analyzing</b> 56:19,23
<b>accommodated</b>	<b>adapting</b> 66:22	<b>advertise</b> 34:24,24	56:14 57:3,17,19	90:10 98:6 208:15
133:9	<b>adaptive</b> 1:8 3:10	<b>advertising</b> 33:20	58:2,6,8,9 59:16	<b>Andrew</b> 1:14 2:1
<b>accompanied</b> 114:9	58:22 59:4 77:18	<b>affect</b> 71:24 120:15	60:13,19 138:13	5:9,18 212:3,16
114:10	77:20 85:1	120:21 131:4	145:8 157:17	213:25
<b>account</b> 14:11	<b>adaptively</b> 69:16	<b>affixed</b> 214:21	158:16 161:14	<b>ands</b> 165:11
26:20 64:3 65:21	<b>add</b> 129:2 191:23	<b>aforementioned</b>	185:1	<b>and/or</b> 86:7 95:17
71:10 76:18 83:2	191:25 207:8	158:15	<b>allegation</b> 75:21	188:4
83:3 85:17 87:1	<b>adding</b> 193:5	<b>Afternoon</b> 74:1	<b>allegations</b> 75:18	<b>answer</b> 8:17,25
89:23 90:11 92:18	<b>addition</b> 24:24	<b>ago</b> 30:5 129:13	<b>alleging</b> 74:14	16:2,9 23:4,6 28:3
93:4,9 98:10	25:11,12 32:9,9	197:14	<b>allow</b> 24:13 71:13	28:6 29:2,7 31:12
103:3 104:24	121:13 129:1	<b>agree</b> 48:23 131:24	89:17	33:10 35:2,3 36:5
106:2,12,13 109:2	204:1	179:4	<b>allows</b> 31:15	36:6,11,15,19,23
109:6 115:23	<b>additional</b> 9:19	<b>ahead</b> 18:2 28:17	<b>Alto</b> 1:16 2:5 3:7	37:7 38:7 40:17
116:21 119:17,18	37:4 129:24 136:4	28:18 40:15 41:16	5:4	41:8 42:22 47:20
123:22 134:4,24	136:5 191:25	86:9,14 99:5	<b>amount</b> 68:23 78:9	48:4,6,11,18
136:4 145:6,7,9	192:11 202:1	156:7 183:6	78:10 103:6	49:14,15 50:9
145:13 147:9,16	<b>address</b> 5:17 14:12	202:25 203:7	105:21 106:21	52:19,20 53:21
147:18 168:25	60:12 106:10	<b>algorithm</b> 33:8	108:2 113:7	54:11,22 55:8,23
173:24 191:11,12	126:17 129:10	38:24 39:4,6,25	117:14 119:18	60:14,15 64:2,16
196:22,23 199:20	164:8 178:6 182:7	40:4,14 41:24	125:22,24 126:2,3	67:13,14,16,17,18
202:10 204:8	204:2	42:19 43:1 44:12	126:4,5,9,9,10,12	67:18,19,24,24,24



68:1,7,8 72:10 76:11 81:21 83:13 89:7 94:4 102:14 102:14 110:1 115:3 126:20 155:2 163:8 167:19 170:3,23 171:19 180:13 181:1,4,6,7,9,10 181:16,19,22,25 182:4,5,6,10,13 182:22 183:1,3,6 183:8,16 184:3,4 184:4 189:19 193:2 201:11,12 201:12 202:21 203:9,15,19 204:5 204:14,20,21,23 204:25 205:2,2,3 205:10 210:8 <b>answered</b> 22:2,20 47:13 55:1 61:10 72:8,24 135:11 182:25 204:19 205:1 207:6 <b>answering</b> 19:17,17 41:22 181:13 182:12 203:14 <b>answers</b> 49:12,13 60:7 72:25 95:1 142:17 204:3,13 <b>anybody</b> 31:23 <b>anyway</b> 18:3 49:15 199:15 <b>apologize</b> 148:20 <b>APPEAL</b> 1:2 <b>appear</b> 212:6 <b>APPEARANCES</b> 3:1 <b>appeared</b> 5:7 <b>apples</b> 141:6 <b>application</b> 4:11 47:16 153:13 162:4 166:23 <b>applications</b> 35:1 96:18 152:1,17,20 152:23 153:23	<b>applied</b> 21:3 27:2 59:19 <b>applies</b> 76:24 155:2 200:22 203:25 <b>apply</b> 31:25 70:12 89:9,10,11,12 111:6 194:3 204:13 <b>appreciated</b> 159:2 <b>appreciates</b> 83:3 <b>approaches</b> 39:14 66:17 <b>appropriate</b> 64:25 65:1,17 83:24 144:13 153:14 166:6 169:15 172:12 <b>area</b> 34:3 110:12 110:15 115:25 193:1 <b>areas</b> 205:10 <b>arguably</b> 32:6 <b>argue</b> 14:14 <b>arguing</b> 91:24 <b>argument</b> 138:23 <b>arithmetic</b> 178:9 178:11,19,21 179:1,11,23,24 180:2,4,8,18 182:23 183:9,19 183:24 184:6,10 184:14,17 185:4 185:10,14,14 202:4 204:1,12 207:4 208:20,23 208:25 209:14,15 <b>arrive</b> 129:11 135:25 136:1,2 <b>art</b> 7:23 10:3,22 11:12 12:12,19,24 13:3,8,17 15:23 18:7 19:6 20:2,13 21:7,13 23:8 24:21 25:15,23 26:1,22 27:13,16 28:16,19,21 29:14 29:24,25 30:17,20	31:1,3,18,24 32:2 35:21 45:5,9,14 46:4 57:25 59:15 59:20,20 60:25 64:20 71:8 74:18 75:14 80:15 83:3 84:19 93:15 94:14 98:9 110:25 111:12,19 112:5,8 115:4 138:1 139:21 140:18 141:13 142:19 143:1 159:1,7,9 159:14,22 160:18 161:12 162:12 164:7 166:1,19,20 168:10,14,20 169:12 171:7,12 172:24 179:7,17 184:13 185:1,9 186:5,12,15 187:5 187:10,16 188:12 188:18 189:1,3 192:21 193:4 195:5,10,18 196:16 199:14 200:2,21 206:5,21 207:19 <b>asked</b> 6:17 7:13,16 8:7 10:5 12:8 17:13,18 22:8 36:4 37:7 40:19 45:22 47:20 48:16 48:19 49:6 54:20 54:21 55:6,9,22 61:9 76:3 89:7 91:1 131:12 132:25 144:18 149:17 171:16 177:6 181:8 184:2 184:5 195:8 197:14 201:10 203:22 204:25 <b>asking</b> 8:23 9:14,15 12:11 13:21 28:1 29:3 30:8,19,25 31:2,8 54:23	55:25 56:17 57:4 60:18,20,23 61:4 68:12 72:8 75:17 91:23 92:23,25 93:20,21 94:1,6 94:12,18,24 101:25 112:19 130:2 132:15 133:1 136:14 144:24,25 149:24 156:9 168:12 173:4,8,17 178:19 178:20 181:18 182:2 189:11,14 190:15,25 192:18 202:23,23 203:16 205:19 207:25,25 208:7,10,12 209:24,25 <b>aspect</b> 64:14 65:20 <b>aspects</b> 129:15 <b>asserted</b> 6:23 12:22 <b>assessing</b> 83:15,16 <b>assessment</b> 94:6 143:7 <b>associated</b> 51:22 106:24 158:16 160:15 161:7 165:8 168:7 172:15 <b>assume</b> 24:25 112:23 138:7,21 138:22 <b>assuming</b> 120:7,12 141:1 <b>assumption</b> 116:13 <b>assure</b> 65:18 <b>asymmetric</b> 14:10 21:9 44:6,8,9 47:8 47:11,23 48:1 49:22 50:17 52:4 53:24 54:5 55:16 56:5,24,25 57:1 61:19,20,23 62:3 62:4,7,9,16,22 63:25 64:15 66:14 67:20 68:13 69:20	69:24,25 70:4,5,7 70:14,15 72:5,12 72:17 74:5,8,15 74:25 75:7,19 76:7 79:17,18,21 80:11 81:24 84:10 84:16 125:25 126:1 191:8 197:5 197:12 199:19 202:3 206:25 208:25 209:3 <b>ATRAC</b> 15:8,8 19:1,1 22:24,24 45:16 47:10,10,25 47:25 50:12,12,16 50:16 52:2,3 54:4 54:4 55:15,15 56:4,4 57:15 59:4 59:5 77:20,21 82:9,22 87:3,8,12 88:13,25 93:22 94:3 101:22 108:19 119:3 125:11,11 <b>attached</b> 212:7 <b>attempt</b> 68:1 <b>attempting</b> 68:7 <b>attention</b> 193:23 <b>attorney</b> 214:17 <b>attorneys</b> 6:8 <b>audio</b> 15:9 19:1 22:24 23:11,24 32:17 33:15 37:25 38:1,2,16,17,17 45:5,6 46:15,17 51:9,12,13,20,22 51:25 52:12 57:18 59:9 70:12 77:16 77:24 78:2,5 83:23 88:23 89:10 89:10,12 95:12 125:7,14,17,20 127:4 130:4,11 132:10 133:12,16 193:16 197:3 198:6 <b>available</b> 34:9
---	--	---	--	---

68:24 79:9 84:2,2 92:7 94:7 104:21 105:22 108:3 113:8 117:15 122:25 139:10 141:3 145:9 165:16 169:13 170:21 172:1 175:1 185:18 186:17,19 187:5,8 187:17 191:25 193:7 194:5,8,11 194:16 201:4,5,5 <b>Avenue</b> 2:4 3:6 5:4 <b>avoid</b> 147:25 148:6 149:25 163:9,17 <b>avoided</b> 104:2 109:1 115:9 119:14 129:17 134:20 135:23 147:5 <b>avoids</b> 146:16 147:9 163:13 <b>aware</b> 26:2 166:20 169:16 <b>A-T-R-A-C</b> 15:8 <b>a.m</b> 2:3 5:3	<b>backwards</b> 99:2 <b>bad</b> 85:9 157:15 176:6 177:14 <b>balance</b> 118:14 <b>ball</b> 88:3,6,6 <b>bandwidth</b> 191:15 <b>base</b> 64:17 167:11 <b>based</b> 11:4 13:17 21:10 25:13 45:25 46:7,14 49:9 53:15 56:10,10 58:7,10,11 69:12 69:15 70:24,25 78:19 81:5,6 82:19 86:13 95:16 99:4 130:19 140:25 143:7,16 144:13 157:4 159:12 161:8 166:21 167:13 168:2,3,7 169:14 170:19,24 173:11 173:20 175:7 179:9 194:7 195:12 196:1,4,7 196:9,19 199:10 199:22 200:25 <b>bases</b> 147:21 <b>basic</b> 5:15 <b>basically</b> 47:20 51:8 <b>basing</b> 172:12 <b>basis</b> 27:8 51:14 69:16 79:12 80:20 85:2 97:15 143:14 198:10,13 <b>bathroom</b> 35:9 <b>BATTS</b> 3:5 6:3 8:14,22 10:6 12:14 15:19 16:1 16:5,14 17:9,12 17:17,23 19:8 20:5 21:16 22:12 26:9 27:18 29:17 30:22 31:7 32:23 35:11,23 36:13 37:15 38:25 46:21	48:8 50:20 52:17 55:4,20 60:21 66:4 67:22 68:15 69:21 73:14 74:10 80:13 82:1 87:4 89:1 91:8 93:24 96:8 98:25 102:21 105:7 107:12 109:9,13,23 111:17 112:13 114:11 116:7 120:17 121:25 122:3,7,13 124:19 127:8 128:2 131:6 131:19 132:18 135:4 136:9 137:9 140:2,22 141:17 144:23 145:25 149:5 150:12,23 156:12 157:25 160:22 162:19 164:21 167:5 168:17 170:6 171:4 172:21 174:16 178:22 180:25 183:21 184:7,18 186:7 187:11,20 188:14 189:17 193:9 194:13 197:7 198:22 200:13 201:16 202:22 203:6 209:17 210:4 211:1 <b>becoming</b> 104:3,15 109:1 115:9 119:6 119:14 129:18 135:24 147:5 <b>began</b> 31:13 <b>beginning</b> 50:1,5 60:3 92:22 103:20 206:18 <b>begins</b> 43:22 44:5 84:15 105:16 150:1 206:14 <b>begun</b> 75:5 <b>believe</b> 8:8 9:4,12	9:13,15 17:3 36:8 36:18 47:14 55:7 73:5 201:9 204:18 <b>best</b> 13:12 28:3 34:1 42:21 49:14 66:20 87:18,24 143:7 170:2 173:13 181:20 185:18 186:20 <b>better</b> 29:7 34:17 35:2,3 36:6,19 37:6,7 38:14 46:11 47:21 48:4 53:21 54:22 55:8 55:23 60:15 65:11 65:14 67:17 68:5 68:10 72:9 80:2 83:8 84:1 85:4 86:12,18 88:7,9 88:15,15 89:20,21 92:24 93:13,14 97:10 99:20,20 131:21 153:10,11 160:7 169:25 179:24 180:3 184:3,4 185:6 186:17 189:19 193:1 201:12 207:1 <b>beyond</b> 35:11 56:18 <b>big</b> 51:8 87:16 104:8 133:24 176:14 <b>bigger</b> 110:14 <b>bit</b> 14:24 54:8 61:25 78:1,4 99:13 102:12 114:1,3,5,15,17 119:1 121:13 122:14,20 124:9 124:14,15,23 125:4,16,19 132:2 146:23 148:13,15 148:23 149:8,9,13 149:15,16,18,19 149:21,22 150:6,8	150:9,10 151:8,9 151:10,14,15,15 151:21 152:18 153:4,19 154:1,11 158:18,20,21,22 158:23 188:9 204:5 <b>bits</b> 101:17 102:9 102:17 103:6 105:1 120:4 123:9 126:9,9,10,21 133:8,25 134:14 138:25 148:14,22 149:21,22 150:18 152:2 153:21 162:7 <b>blah</b> 84:17,17,17 112:7 <b>block</b> 33:25 83:21 87:17,19 97:19,22 110:9,9 139:1 140:9,12 142:7,9 142:20 143:9,10 143:11,12,15 144:9,14 145:11 145:13 <b>blocks</b> 61:21 62:6 70:8 78:18 79:19 83:15 140:11 143:12 144:4 197:18 <b>block-by-block</b> 69:16 79:12 80:20 85:2 97:15 143:14 198:10,12 <b>board</b> 1:2 176:2 <b>bottleneck</b> 127:7 127:15,20,23 128:1,6,14 <b>bottom</b> 118:10 120:2 <b>bought</b> 33:20 176:16 <b>break</b> 17:2 35:6,14 36:5 55:5,6 66:6 73:12 98:15 104:16 106:19
--	---	--	--	---

108:10,11,12 109:10 150:24 198:23 <b>briefly</b> 76:12 <b>broad</b> 171:18 <b>broader</b> 31:12 34:5 <b>broken</b> 78:17 111:9 <b>build</b> 27:17 189:6 195:12 <b>building</b> 28:23,25 29:11 53:14 188:4 188:13,19,21 189:5,13 192:10 192:19 195:1,16 <b>bunch</b> 57:15 82:8 82:10 93:15 <b>but</b> s 165:12 <b>B-I-T</b> 124:14	<b>carefully</b> 214:11 <b>Carly</b> 1:24 5:5 214:24 <b>case</b> 1:7,8 6:11 7:25 10:12 11:10 40:23 52:12 79:24 94:22 96:5 102:3,7 103:25 109:25 116:13 117:18 119:5 129:3 134:9 134:21 153:1 164:16 169:4 173:13 198:16 <b>cases</b> 12:21 21:6 139:2 168:3 <b>cause</b> 214:5,19 <b>certain</b> 12:1,23 47:2 83:22 86:12 103:6 119:18 121:10 124:3,4,5 124:5 130:20 134:13,13 152:1 154:17 162:10 167:17 172:8 179:14 194:8 <b>certainly</b> 6:4,25 7:2 18:20 19:16 24:4 27:6 32:7,14 33:4 33:11,14 38:19 39:22 50:8 60:12 66:17 76:23 83:2 89:10 106:10,14 117:6 129:20 162:4 164:16 170:3,13 173:9 174:1 179:10,15 185:11 189:9 190:7,12 192:4,10 192:20,22 195:19 195:22,23,25 196:15,19,21,25 197:1 199:7,13 207:15,21 208:14 <b>Certificate</b> 4:11 <b>certified</b> 5:5 214:8 214:25 <b>certify</b> 212:3 214:3	214:16 <b>cetera</b> 69:14 75:7,8 148:4,4 206:13,13 <b>chain</b> 66:3 180:5 <b>chance</b> 14:1 24:15 73:6 76:12,25 114:21 118:9 138:8 155:9 182:5 182:10 210:8 <b>change</b> 67:5 100:10 146:21 213:3,5,7 213:9,11,13,15,17 213:19,21 <b>changed</b> 67:3 100:9 <b>changing</b> 16:10 <b>channel</b> 63:1,16 64:6 65:3 81:13 90:15,21 108:19 116:24 123:9,10 123:11,14,20 133:10 143:23,25 147:17 150:19,20 174:13 196:22 198:3 <b>characteristics</b> 97:17 123:20 141:10 196:23 <b>characterize</b> 109:19 132:12 <b>characterizing</b> 18:12 31:13 <b>check</b> 158:11 <b>child</b> 176:1 <b>choice</b> 80:4 145:12 157:8 161:14 191:12 199:21 <b>choose</b> 33:16 69:11 70:22 96:21,21 97:14,22 100:19 119:10 123:25 139:14 172:2,6 183:12 185:18 186:20 197:24 198:13,15,17 <b>chooses</b> 79:10 80:6 80:21 124:4 130:18 135:14,18	199:19 <b>choosing</b> 25:13 26:19 63:8 71:21 83:17,19 86:17 93:10 154:16 155:21 157:4 167:25 173:20 177:22 179:21 199:21 <b>chose</b> 97:23 <b>chosen</b> 133:19 199:11 <b>circumstance</b> 142:17 <b>citation</b> 44:2 <b>citations</b> 16:19 45:9 <b>cite</b> 17:3 44:15 159:6 <b>cited</b> 7:23 <b>cites</b> 53:4 <b>claim</b> 12:18 27:7 28:18,20 29:1,4,5 30:11 33:9 39:7,8 40:7 41:3,20,20 41:23 42:21,23,24 43:12,15,17,21,22 43:25 44:5,5 45:21 46:20,25 50:3,5 53:4,11,11 53:18 56:19,23,23 57:7,7,10 60:2,3,5 60:6,10,10 62:15 62:17 68:17,20 70:3 72:1,19,22 73:1,5,9,11 74:9 74:16 75:1,6,9,15 75:20 76:7,9,14 76:23 77:7 79:15 79:16 80:5,8,12 80:17 81:2,25 82:13 83:12,18 84:11,15,17,21 86:8,16 90:8 91:25 93:1,1 94:9 94:21,22 96:5 99:25 100:1	107:19 108:14 111:21,25 112:3 113:2 115:14,15 115:17 117:13 119:22 121:23 122:21,22 123:6 123:23 134:6 147:12,13 161:4 162:14,14 164:14 164:15,17 167:23 168:11 174:7 186:24 188:2,6,23 189:3,10 190:2,5 190:19 192:16 194:24 197:6 201:15,21,25,25 201:25 202:1,6,9 202:11 203:5,10 203:11,11,18,21 203:23 204:17,20 204:21 205:2,6,7 205:7,7 207:14 209:12,16 <b>claimed</b> 195:20 <b>claiming</b> 53:11 <b>claims</b> 11:3 12:1,13 12:16,17,20,22 39:9 40:13,16,21 40:24 41:4 96:4 128:19 188:1,6 204:10 208:15 209:8,11 <b>claim-by-claim</b> 27:8 <b>clarification</b> 6:17 8:7 10:5 12:8 22:8 40:19 49:6 76:3 91:1 131:12 144:18 149:17 195:8 <b>clarify</b> 119:23 204:22 <b>clause</b> 120:12 <b>clear</b> 16:14 23:15 48:4 50:9 52:20 54:10 58:17 112:2 132:25 133:1
---	---	---	---	--

192:20	105:12 118:25	204:23 205:3	39:12 42:15 87:17	23:1,12,25 25:5
<b>clearly</b> 18:21 20:23	124:9 125:8,9,15	<b>coming</b> 5:14 6:15	89:12 110:8,13	25:22 26:25 27:3
49:11,12,14 54:17	126:6 146:22	6:20 7:1 67:5	160:4 165:20	30:6 33:21 34:16
59:25 60:8 76:20	178:9,12 179:11	81:17 90:14,16	169:23 175:12	35:21 38:2,3,16
80:6 82:18 83:18	179:23,25 180:2,4	98:17 104:17	176:4,6,8,13	38:23 39:3,24,24
85:20 123:23	180:8 183:9	120:15 126:9,10	177:15,19,25	39:25 40:9,9,22
144:10 159:22	184:14 185:4	126:10 131:17	196:12	42:3 44:6,8,9,11
174:7,9 179:18	204:1,12 207:5	133:18,22,23	<b>competing</b> 160:11	45:5,6,14,15,18
205:8	208:20,23,25	145:20 150:19	<b>completely</b> 24:2	46:4,11,19,24
<b>client</b> 120:7,13	209:14,15	153:19 154:13	31:9 32:4,5 48:3	47:8,9,10,11,18
146:20	<b>collection</b> 42:18	170:18	192:7	47:23,24,25 48:1
<b>close</b> 88:10 108:23	<b>collectively</b> 12:20	<b>commencing</b> 5:2	<b>complex</b> 38:13	48:15 49:4,23,23
110:12	<b>Column</b> 118:11	<b>common</b> 6:22 26:3	39:10,11 40:18	50:12,16,17,19,23
<b>code</b> 58:22 64:1	<b>com</b> 202:18,20	110:17 113:17	<b>complexities</b> 56:14	51:21 52:3,4,14
68:14 69:20 77:18	<b>combination</b> 12:1,7	195:25 196:20	<b>complicated</b> 37:21	52:16,24 53:7,20
114:3 124:15	23:14 24:4 28:4	<b>commonly</b> 165:15	39:18	53:25 54:1,2,4,5
125:10	31:22 32:14 42:6	<b>communicate</b>	<b>component</b> 40:1	54:15,19 55:3,15
<b>coded</b> 78:2,5	187:6 188:1,25	155:17	180:4 206:21	55:16,19 56:2,4,5
100:24 101:10,22	190:5 197:4,11	<b>communicated</b>	<b>components</b> 38:20	56:24,25 57:1,3
104:1,2 108:25	201:15 205:12	173:14	159:11	57:18,24 58:1,6
114:2,6,16,18	208:22 209:12,22	<b>communication</b>	<b>composed</b> 40:17	59:14,16,23 60:13
115:9 119:2,14	210:23	8:19 71:5 85:24	<b>compress</b> 35:1	60:19 61:2,19,20
124:10,15,23	<b>combinations</b> 12:4	90:21 92:16 98:13	45:18 51:18,20	61:22,23 62:3,5,7
125:17,20 127:3,4	<b>combine</b> 10:22	98:20 103:21	61:21 62:5 68:24	62:8,16,23 63:5
127:13 129:17	11:12 12:12 13:3	104:18 123:9,10	70:8 79:19 87:2,7	63:13 64:1,4,6,15
130:10,10 135:23	13:14 14:7,20	128:15,24 129:21	88:24 95:4 99:16	64:25 65:2,4,8,23
146:9 147:4 149:3	25:16 29:23 30:1	133:10 134:1,1,8	105:22 108:3	66:14 67:1,20,21
149:13	30:2 32:12 189:25	136:1 143:23,25	111:23 113:8	68:14,21,22,25
<b>coder</b> 96:24,25	191:3,7 192:4,7	145:21 150:19,20	115:6 117:14	69:14,19,20,24,25
99:17 104:7	192:15 205:22	161:17 163:25	138:11,13 142:10	70:4,5,7,9,13,14
177:11,13,24	206:3,19 207:19	193:20 199:20	156:1 162:7 166:5	70:15,23 71:12
178:1 184:20	207:23 208:11	<b>communications</b>	173:16 174:11	72:4,5,12,14,17
<b>coders</b> 25:11 83:10	209:13 210:1,12	8:15,16,24 121:14	175:18 176:22	72:18 74:4,5,8,16
84:23 105:14	210:13	121:15 161:18	177:4 199:5 200:8	74:25 75:7,19
170:14 172:11	<b>combined</b> 10:3	<b>comp</b> 202:16,18	<b>compressed</b> 120:5	76:7,19,19 78:24
177:18 199:4	207:11 209:24	<b>company</b> 166:25	120:8,9,13,21	79:8,17,18,20,21
200:23,24,25	<b>combining</b> 29:15	<b>compare</b> 28:18	121:15 175:17	80:2,3,12,23,24
<b>coding</b> 14:10 18:14	31:19 185:22	97:8 141:5	<b>compresses</b> 39:11	81:8,12,14,24
18:15,17 28:9	186:5 187:17	<b>compared</b> 46:12	90:20	82:15,25 83:8
39:20,21,23 40:8	206:5 210:23,24	175:9	<b>compressing</b> 26:3	84:1,10,16 85:4,9
40:10,10 42:13,14	210:24	<b>comparing</b> 148:25	44:2 81:5 85:6,24	85:20,21 86:7,12
44:14,22,23 45:12	<b>come</b> 6:25 20:7	150:18	91:5,15,17 94:2	86:18 87:14 88:15
45:14,17 46:3	123:12 153:17	<b>compatibility</b>	98:12,14 156:11	88:20,22 89:19,20
57:11,22,24 58:20	154:15	123:21 147:19	169:3	90:6,7,9,10,19,25
59:5,7,9,13,15	<b>comes</b> 113:2	<b>compatible</b> 192:23	<b>compression</b> 14:21	91:6 92:19,19
61:3 77:17,20,21	115:21 148:12	<b>compensation</b> 24:1	14:22 15:11,16	93:5,5,7,10,10
77:25 78:9,11	197:18 198:7	28:10 33:24 38:12	19:3,20 20:19	95:17,18,19 96:19

97:13,21 98:2,2,5 98:6,23,24 99:10 99:11,20,21,23,23 100:12,17 102:19 102:25 103:2,5,7 103:10,14 104:8 105:1,5,15,19,20 105:23,24 106:2,3 106:4,11,11,12,13 106:17,21,22,24 106:25 107:2,3,6 107:10,16,18,22 107:24,25 108:1,4 108:11,17,20 109:4,18,18,22,22 110:3,18,19,22,23 111:5,5,10,13,14 111:15,16,18 112:1,3,10,11,12 112:21 113:3,4,6 113:9,11 114:4,6 114:8,9,10,16,19 115:3,6,10,11,13 115:13,16,17,23 116:3,5,11,11 117:5,6,9,10,15 117:22,23,24 118:1,2,3,5,13,15 118:15,19,21,21 119:3,5,19,21 120:4,15,22 121:6 122:1,2,11,18 123:2,5,19 124:4 124:5,6,16,17,18 124:24,25 125:1,4 126:13,14,19,22 128:23 130:21,23 131:2,4 133:24 134:23 135:2,7,11 135:13,19,21 136:7,8,13,13,18 136:19 137:7,8,14 137:15,18,20 138:3,4,6,7 139:22,25 140:1,4 140:6,11,19,20,24 141:11,12,15,16	141:24,25 142:11 142:20,21 143:2,3 143:9,16,18,23 144:12,17,22 145:10,19,19,23 145:23 146:4,4,6 147:10,14,14 149:15,18,20 152:7 154:20 156:1,21 157:13 157:15,22 158:17 159:3,4,4,5,8,12 161:7 162:1 163:23 164:20,24 165:5 166:2,4,10 166:12,22 167:4,9 167:17 169:5,19 170:5,10,22 171:3 171:9,14 174:11 175:10,20 177:24 178:1 185:6,16 190:8,8,12 197:6 197:12 198:20 200:9 201:14,21 202:3,11,12 203:4 203:11,17,23,24 204:9,9,17 205:9 205:9,22 206:3,19 209:7 210:18 <b>compressions</b> 138:15 <b>compressor</b> 65:16 68:24 105:22 108:3 113:7 117:14 163:22 <b>compretio</b> 112:7 <b>comprise</b> 47:7,22 49:22 53:24 <b>computation</b> 78:9 78:10 125:22,24 126:2,3,4,5 <b>computational</b> 34:18 89:22 <b>computationally</b> 60:24 <b>compute</b> 81:15 85:8,9 153:18	<b>Computer</b> 42:17 <b>concentrating</b> 147:10 <b>concern</b> 129:8 <b>concerned</b> 71:16 81:15 103:16 104:4,14 108:24 115:5,8,24,25 116:12,12,22 119:13 128:21 134:5,7 147:6 166:11 <b>concise</b> 16:8 36:11 <b>concisely</b> 37:3 <b>conclude</b> 54:13 <b>concluded</b> 211:7 <b>conclusion</b> 119:12 <b>condition</b> 147:16 174:12 <b>conferred</b> 21:22 <b>configuration</b> 15:3 15:13 19:4,22 20:21 23:3 80:9 86:10 <b>configurations</b> 167:17 183:11 <b>configured</b> 44:10 57:2 61:21 62:5 70:7 79:19,25 86:11 198:19 202:3 <b>confusion</b> 122:15 <b>conjunction</b> 163:25 <b>consider</b> 40:3 42:12,18 <b>consideration</b> 63:4 85:16 98:2,7 123:16,18,19 <b>considerations</b> 21:10 25:14 26:20 49:4 52:13 64:21 65:22 69:12 81:6 83:16 85:16 128:20 145:6 147:19 155:20 161:9 168:4 169:1 173:20,23 190:11	190:12 199:10 <b>considered</b> 6:7 184:21 <b>considers</b> 103:13 <b>consists</b> 40:4 <b>constitute</b> 74:8,15 74:18,20 203:17 <b>constraints</b> 124:1 130:24 145:17 165:10 <b>constructed</b> 77:16 125:7 <b>construed</b> 125:6 <b>consume</b> 160:13 166:6 <b>consumer</b> 177:6 <b>contained</b> 212:8 <b>containing</b> 61:21 62:6 70:8 79:19 <b>contents</b> 10:24 11:3 12:3 <b>context</b> 9:7,24 29:8 30:9 56:19 69:4 84:5 102:15 104:13 105:25 115:2,22 116:19 119:6,7,20 121:17 129:8 142:5 152:4 170:3 209:1 <b>continue</b> 99:6 <b>convey</b> 56:1 <b>conveyed</b> 161:21 <b>conveys</b> 163:16,18 <b>cool</b> 176:17 <b>coordinates</b> 87:22 <b>copies</b> 21:16 <b>copy</b> 16:3,14 17:10 17:12 40:25 <b>core</b> 141:4 <b>correct</b> 9:10,13,17 17:23 55:12 62:19 67:19 116:6 163:5 212:9 <b>corrected</b> 212:8 <b>corrections</b> 212:6 <b>correctly</b> 122:8 130:7 214:7	<b>correlates</b> 124:18 125:1 <b>correspond</b> 67:7,9 70:18,20 <b>corresponding</b> 44:14 57:11 87:20 110:11 196:6 <b>corresponds</b> 68:13 <b>cosine</b> 42:14 <b>counsel</b> 8:16 21:22 214:15,16 <b>counterpart</b> 17:17 17:19 <b>couple</b> 43:20 <b>course</b> 13:5 18:17 21:4,12 25:9,15 26:1 28:6 38:4 65:8 71:15 77:7 81:1 82:7 83:1 85:14 95:18 103:2 103:18 108:13 115:5,12,14 118:7 118:19 121:11 123:17 130:19 134:5 135:14 145:12 146:25 147:4 157:12 159:15 161:3 182:12 185:2 194:2 196:25 197:16 200:23 206:14 207:2 210:21 <b>court</b> 10:17 14:3,23 15:4 19:11 20:8 21:22 24:17 27:20 29:19 35:25 36:22 54:7 58:24 59:2 61:24 77:3 78:7 82:3 89:3 91:10 112:15 114:23 121:2 124:11 133:4 150:14 151:11 158:19 171:20 180:14 193:11 <b>create</b> 10:3 13:4,17
--	---	---	--	---

141:14 170:14 189:16 191:3 196:24 <b>creating</b> 29:14 <b>criteria</b> 70:22,22 70:23 <b>criticizing</b> 139:18 <b>cross-reference</b> 16:22 <b>CSR</b> 1:24 214:24 <b>cuff</b> 142:23 <b>curious</b> 41:2,7 66:11,13 186:11 <b>current</b> 26:22,23 26:23,24 33:25 110:9 181:11 183:7,18 201:1 <b>currently</b> 70:17 135:10 146:7 197:21 198:14 <b>cut</b> 64:9 142:24	70:13,14,15,24 71:14 72:2,4,5,12 72:13,13,17,18 74:4,5,8,15,25 75:7,19 78:2,5,20 79:17,18,19,20,20 79:21 80:12 81:5 81:17,18,24 83:14 83:15 84:10,16,24 85:3 86:12,13,13 87:2,7 88:23 90:13,25 91:5,17 94:2 95:4 96:7,12 96:25 97:18,20,20 97:22 99:11 100:9 100:11,12,21,24 100:24 101:9,10 101:18,22,22 102:1 104:1,2,17 105:18,22 107:25 108:3,25 110:20 112:10,12 113:4,7 114:2,3,6,16,18 115:3,9 117:8,14 118:24,24 119:2,6 119:14,16 120:4,8 120:10,13,15,21 121:15 123:7,8,12 123:21 124:6,10 124:15,16,23,24 125:17,20 127:3,3 127:4,13,13 128:10,24 129:11 129:17,20 130:4,9 130:10,10,16,20 130:20,22 132:2,8 132:8,9,17,23 133:19,22 134:7 134:10,12,14 135:2,23 137:7,15 137:17 138:3,11 138:13,16 139:1 140:7,8,21,25,25 141:15,25 142:1,7 142:9,20 143:3,7 143:15,22 144:5 144:14 145:4,13	145:18,20 146:9,9 146:20,23 147:4 147:21,22,23 149:3,3,9,13 150:10,11 151:22 154:1,6,24 155:7 155:13,23,24,24 156:2,11,19,24 157:4,11,16,22,23 159:8,12 160:20 161:9,16 162:18 162:24 168:3,7 169:1,3 170:18 172:20 173:1,11 173:14,25 177:11 177:21 186:21 191:11 192:1 193:20 194:9 196:4,22 197:5,12 197:18,19,20 198:1,1 199:5,10 201:14,21 202:3 203:4,17 204:16 206:23 207:2 <b>data's</b> 161:1 <b>Date</b> 2:2 <b>Dated</b> 212:10 213:25 <b>Dawson</b> 205:12,23 206:5,24 207:11 208:11,22 209:13 210:24 <b>day</b> 5:3 181:14 212:10 214:21 <b>days</b> 6:1 <b>DCT</b> 40:9 42:14 61:2 <b>deal</b> 194:9 <b>debate</b> 208:24 <b>decade</b> 21:6 23:7 51:2,4 <b>decades</b> 42:13,15 <b>decide</b> 69:16 85:3 <b>decision</b> 7:24 8:4 64:18 86:10 97:9 <b>decisions</b> 8:10 69:15 81:5 143:16	147:21 <b>declaration</b> 4:9,10 6:11,19 8:6 9:10 9:20 10:1,12,20 10:25 11:9,11,15 12:2,5 14:1 18:6,6 18:10 19:5 22:15 28:14 52:23 61:16 74:7,13,24 105:16 119:24 151:3,6 158:14 177:3 178:2,6,8 185:21 186:4,8 187:25 188:5,11,17 201:20 203:4 205:13,14,15 207:22 210:14 212:1 <b>declarations</b> 5:22 5:24 6:14 7:16,23 9:3,6,12,16 12:9 186:11 207:10 <b>decode</b> 130:15 134:12,14,16 138:18,21 165:11 166:16 196:3 <b>decoded</b> 138:15 175:14 196:13 <b>decoder</b> 63:2 66:2 71:5,18 78:25 86:24 90:16 98:20 98:21 103:22 104:18 109:7 120:6 121:8,16,20 121:24 122:12,12 122:19 123:3,20 124:7 127:6,14,20 129:4,6 130:5,13 130:15 134:11 136:3,5 138:16,17 138:21,24 165:11 166:17 175:14 193:21,21,22 196:4,6,13 198:5 198:5 <b>decoding</b> 34:10 71:18 78:11 81:19	104:1 116:17 123:20 125:22 126:6 129:3 156:22 196:14 198:5 <b>decompress</b> 120:14 <b>decompression</b> 120:6,9 121:23 122:1 <b>decompressor</b> 120:20 <b>decreased</b> 136:6 <b>deduce</b> 100:14 <b>defer</b> 201:11 <b>defined</b> 46:2 136:18 <b>definitely</b> 85:17 <b>definition</b> 165:4 <b>delay</b> 167:2 <b>depend</b> 84:23 89:15 121:7,24 122:11,19 <b>depending</b> 34:6,9 96:22 97:1 117:17 144:5 160:6 165:17 180:9 <b>depends</b> 86:19 99:3 183:11 <b>deposition</b> 1:14 2:1 5:21 6:2,7,16,20 7:2,10,12 8:12,21 35:13 41:14 112:23 183:4 191:6 211:7 212:5 212:7 213:1 214:4 214:6,18 <b>depositions</b> 6:21 7:3,6,8 <b>depth</b> 14:14 <b>derive</b> 98:23 99:10 <b>describe</b> 12:5 28:14 37:18,22 38:15 39:7 40:17 50:7,7 58:8 60:11 64:17 75:12 84:22 85:18 91:24 95:20 147:1 153:2 155:11
---	--	---	--	--

156:10 160:19,25 163:7 164:19 188:22 191:1 207:10,18 208:15 210:11 <b>described</b> 20:4,14 22:11,17 24:6,9 26:17 27:14 30:3 30:5,17 31:4 32:21 33:2 35:22 38:21,21 39:13 49:20 52:25 53:19 55:2 58:9 66:10 71:9 80:19 82:12 91:15 95:21 98:9 104:22 106:1 110:25 111:2 118:6 127:11 131:25 136:5 144:25 146:9,12 149:8 150:2 157:10 178:12 189:2 192:8,10 194:21 198:11 206:20,22 207:3 207:23 208:21 <b>describes</b> 28:7 51:15 53:9 62:24 63:7 70:6,11 71:17 80:19 84:3 86:16 91:16 92:15 136:3 155:15,15 155:16,21,21 157:8 162:17,23 163:9 167:12,24 191:7,7 210:14 <b>describing</b> 12:6 13:7,13 71:1 75:8 90:13 93:18 105:1 119:16 121:17 127:14,19,22,25 128:5,9 132:15,21 133:7 146:16 149:2,9,25 164:2 167:21 168:9 172:1,2,6 173:19 174:9 203:24	206:15 <b>description</b> 4:8 79:22 159:11 164:7 172:16 193:24 <b>descriptions</b> 210:19 <b>designed</b> 94:15 146:18 147:25 148:6 160:11 165:15 194:7 <b>designing</b> 195:24 196:16 <b>desirable</b> 118:16 147:23 <b>desire</b> 214:12 <b>detail</b> 70:12 163:15 204:7 <b>detailed</b> 152:6 <b>details</b> 78:16 93:22 94:3 95:5 139:11 <b>detect</b> 146:18 <b>detected</b> 146:23 150:7,8 <b>determination</b> 197:19 <b>determine</b> 66:19 104:23 123:6 <b>determined</b> 123:7 <b>determining</b> 191:15 <b>developed</b> 23:18 <b>device</b> 120:7,13 <b>devices</b> 121:12 <b>diagram</b> 20:23 <b>difference</b> 40:15 189:6 208:1,5 <b>different</b> 6:22 18:18 20:23,25 26:18,18 27:24 28:10 31:15 33:19 34:13,15,23,25 38:7 39:14 44:6,9 44:18,20 46:8 47:8,11,23 48:1 49:2,3,22 50:17 52:3,10,12,12	53:4,10,24 54:5 55:16 56:5,13,14 56:15,15,24 57:1 61:20 62:4,8 65:7 65:10,16 66:17 67:4,5 70:5,15 75:11 77:16 79:9 79:18 80:22 82:14 83:7,13 84:2,4 86:3,6 88:13,17 88:19,19 90:5 91:13,20 92:11 93:16 95:15 96:17 97:16,17,17,23,25 100:10,20,21 102:8 103:13,14 103:15,16 104:10 105:10,12 107:21 108:16 111:19 115:4 117:3,17 123:2 124:2,9,9 124:13,13 125:8 130:19,25,25,25 132:24 137:8,15 137:19 138:4,8,9 138:11,12,13,17 139:13,22,25 140:11,11,18,19 140:24,24 141:2,3 141:16,25 142:14 142:21 143:3,11 143:13 144:4,4,11 145:14,14,14,15 145:15 153:8,9,12 155:20,22 156:25 157:1,5,18 158:16 159:3,23,24,24,25 160:1 164:5 165:14,16 167:16 167:25 168:1,6 169:18,20 170:21 171:10,15 173:3,3 173:5,5 174:10 175:8,8 177:23 179:22 183:13,13 184:15,16 185:12 185:15 197:22,22	197:23,24 198:20 199:10 200:5,7 202:2,23 205:10 206:25 210:17,17 <b>Differential</b> 58:23 77:18 <b>differentiate</b> 79:9 <b>differently</b> 68:5 111:11,19 <b>difficulties</b> 64:24 <b>digital</b> 177:13 <b>directed</b> 43:25 <b>directly</b> 71:11 100:3 106:10 124:16,24 148:12 149:16,19 <b>disclose</b> 62:22 107:5,8,9,16 164:19,24 176:23 179:1 188:11,17 190:7 <b>disclosed</b> 53:16 189:8 190:6,18 193:6 195:19,23 196:18 <b>discloses</b> 177:3 178:2,9,20 180:18 180:21 202:10 <b>disclosing</b> 205:8 <b>disclosure</b> 171:24 172:8 174:7 189:2 189:9 <b>disclosures</b> 194:23 <b>discrete</b> 42:14 <b>discuss</b> 45:19 76:16 76:16 119:4 154:22 155:5 158:3 182:23 <b>discussed</b> 8:11,20 19:23 70:10 85:15 107:20 129:13 135:21 155:3 159:17 188:22 190:13,22,22 192:12 202:4 <b>discusses</b> 124:13 <b>discussion</b> 64:21	73:3,4,9,10 198:24 204:8 205:18 <b>disinterested</b> 214:9 <b>disk</b> 69:6 <b>disrespect</b> 87:9 <b>disrespectful</b> 165:1 <b>distinct</b> 208:9 <b>distinction</b> 30:14 190:21 191:1 192:17 195:17 208:10 <b>divided</b> 197:18 <b>dividing</b> 183:14 <b>diving</b> 176:1 <b>document</b> 13:25 23:23 24:14 41:18 43:18 76:11 101:5 114:21 120:24 125:3 127:17 148:20 155:9 158:6 189:18 191:5 201:23 206:1 210:7,10 <b>documents</b> 7:5,11 7:19 8:12 12:10 28:17 <b>dog</b> 17:22 <b>doing</b> 64:7 66:24 90:12 95:8 96:14 96:15 110:7,8,21 110:23 116:13 119:19 121:20 128:18 160:3 165:18 173:10 176:21 190:3 194:25 196:11 198:9 <b>Dr</b> 1:14 2:1 5:9,14 35:19 180:11,17 202:22 206:8 212:3,16 213:25 <b>draw</b> 208:10 <b>drive</b> 3:11 69:6 152:22 <b>DTC</b> 28:9 39:18 <b>due</b> 29:6 30:11
---	---	--	--	---

<b>duly</b> 5:10 214:4,12	91:25 92:1 113:3	66:23 67:2,6,6,7,9	195:25 196:8	137:13,17 138:2,8
<b>dynamic</b> 118:12	204:12	67:10,11,20 68:22	197:4,6,12,24	138:9,15,23
<b>dynamically</b> 81:4	<b>elements</b> 42:24,25	69:19,24 70:1,4	198:2,2,14,15,16	139:22,24 140:10
<b>E</b>	53:12 206:7	70:14,16 71:4	198:18 201:13,14	140:18 141:8,14
<b>e</b> 4:13 21:21 129:16	207:14	72:5,12,17 74:4,5	201:20,21 203:5	141:23 142:19
<b>earlier</b> 47:1 48:17	<b>embodied</b> 147:15	74:7,8,14,16,24	203:16,17 204:16	143:2,8 144:1,3,3
49:1,25 50:25	<b>embodies</b> 51:14	75:1,7,19 76:6,7	204:17,24 205:4	144:4,10,17
52:9 56:8 57:16	<b>embodiment</b> 59:7	79:17,21 80:11,12	205:22 206:4,19	145:14,15 153:8
61:5 77:6 78:14	77:23 125:13	81:7,23,24 84:11	<b>encoders</b> 15:2,7,10	157:5,6 159:12
81:10 87:11 91:16	<b>employ</b> 14:10 24:6	84:16 86:24 87:22	15:24,24 18:8,9	160:13 166:20
103:8,14 129:12	26:22 44:18 56:11	88:9,10 90:14,14	18:25,25 19:2,19	167:4,9,11,12
147:12,18 151:23	70:16 152:9 191:8	90:20 95:3,5	20:3,13,17,18,24	168:15,21,22
159:14,25 167:10	191:9	96:20,22 97:2,3,4	22:23,24,25 24:7	169:13,18 170:20
169:9,10,17 175:4	<b>employed</b> 44:22	97:4,23,23 98:19	24:12 25:2,12,12	171:2,8,13,14,24
178:13 191:5	58:21	98:20,24 99:11,12	26:7,12,18 27:13	171:25 172:3,14
206:22 207:4	<b>employing</b> 52:8	99:15 102:18,19	30:25 31:2 32:21	172:25,25 175:6,7
<b>early</b> 175:15	152:19	102:25 103:20,21	33:1,6,15,16,19	179:9,14,15,21
<b>easier</b> 16:19 30:9	<b>employs</b> 42:11	104:17 105:20	34:12 35:21 44:7	183:13 184:15
<b>easiest</b> 29:2	<b>encode</b> 64:24 77:16	107:6,8,10,17	44:10,15,17 45:12	185:3,13,18
<b>easily</b> 15:10 19:2	106:17 125:7	108:1 109:5 110:4	45:14 46:7,14,14	186:16,19 187:18
19:20 20:17,18	126:22 135:2,17	110:21 111:13,15	47:7,8,12,22,23	191:8,9,21,22,23
21:2 22:25	138:24 139:1	111:22 112:6,9,11	48:2 49:1,3,16,20	191:24,25 192:12
<b>eat</b> 35:15	144:12 147:10	113:6 114:17	49:22,23 50:13,18	193:5,5,7,8 194:8
<b>effectively</b> 79:11	172:19,25 174:15	117:10 120:5	52:5,10 53:24,25	194:11,16 195:13
80:24	174:20 176:24	123:3,5 124:3,7	54:6 55:12,17	196:1,9,19 197:2
<b>either</b> 9:2 15:1 18:3	195:25 202:10,13	126:1,4 127:22	56:6,10,25 57:2	197:3,10 198:11
25:17,20 31:19	209:6	128:22 130:20,25	57:12,21,24 58:7	198:19 199:11
38:20 68:9 74:9	<b>encoded</b> 33:15	131:4 132:3,17,23	58:8,10,11 59:8,8	200:4,7,22 202:3
75:20 83:8,25	48:24 99:12 102:2	133:8,18,23 134:8	59:13,15 61:21	203:3 210:17
86:20 136:3	132:8,9 133:20,21	135:1,7,10,16,19	62:5,9 63:8 65:7	<b>encoder's</b> 143:7
138:19,20,22	138:16 146:22	136:7,12 144:13	67:21 70:5,7,15	<b>encodes</b> 143:21
157:14 170:15	<b>encoder</b> 22:10,16	145:10,16,21,22	71:20 77:15,23,24	<b>encoding</b> 24:22
176:21 182:8	22:19 26:15 27:6	146:3 147:19,22	78:19 79:19 81:22	30:17,19 34:10
186:9 188:1 192:6	33:8 34:14 37:12	149:4,10,10	82:8,9,10,13,19	44:18,20 59:9
201:19 203:3	39:25 40:2,5,14	150:10,11,19	83:6,7,13 84:7,8	63:1 66:22 71:11
210:18 214:17	40:22 41:24 42:3	151:22 152:18,19	84:10 86:3,11	71:13 76:19 77:24
<b>elaborate</b> 20:17	42:8,20 43:1,2,13	153:21 154:13,13	88:18 91:20 92:7	78:19,23,23 79:13
<b>element</b> 42:21	44:7,8,22 45:23	155:6,12 156:23	92:10,11,14 94:7	81:17 90:1,15,24
45:22 56:20,23	45:25 46:2,5,9	162:2,3,5 165:19	94:16 95:7 97:12	92:14,17 96:7,12
57:10 60:2,5,6,10	47:3 48:25 49:11	167:2 168:16	97:25 100:6,24	97:16 100:19
68:18,20 72:20,22	51:16 52:6 56:25	169:18 170:13,19	101:10,19,21,23	101:21 103:18
73:1,5,9,11 75:9	58:5,5,13,21,21	171:3,9 172:5,9,9	104:20 108:5	104:6,21 116:18
75:15 76:10,14	60:5 61:19,23	172:19,19 176:10	111:7 122:23,25	123:19 125:14,24
77:7 79:16,16	62:4,8,16,23 63:8	178:3 183:12	123:1 124:13	126:3,11 128:23
80:5,8,19 84:17	63:13,14 64:15,18	185:23 186:1,6,13	125:5,13,14	130:15 131:1
84:18,21 86:8	65:6,10,14,15	186:15 187:5,7,9	130:18 135:14	134:21,22 143:17
	66:11,13,14,19,20	187:18 193:20	136:15,21 137:6	146:21 154:23



155:6 158:3,15 160:20 161:1 162:17,23 163:20 163:21 165:18 178:20,21 179:2 182:24 183:19,24 184:25 210:18 <b>encompass</b> 36:7 46:13 58:9 <b>encompasses</b> 45:15 46:4,5 57:25 58:1 59:16 <b>encompassing</b> 7:14 19:16 22:18 26:14 33:3,8 39:5 58:5 188:20 <b>ended</b> 19:19 37:6 <b>ends</b> 129:16 130:8 <b>end-to-end</b> 62:24 65:18,20,25 66:3 76:17 119:16 128:21 193:19 <b>Enhanced</b> 184:20 <b>ensure</b> 63:6 66:19 69:4 71:8,19 72:1 92:21 <b>ensuring</b> 69:6 79:6 116:19,20 <b>entire</b> 40:3 87:24 147:12 <b>entirely</b> 41:15 148:1,6 200:2 <b>entitled</b> 14:7 51:7,8 <b>entity</b> 71:7 198:6 <b>envision</b> 33:5,14 82:18 86:15 <b>envisioning</b> 94:16 <b>equally</b> 27:2 59:19 70:12 155:2 194:4 200:22 204:1 <b>equates</b> 114:16 118:17,18 <b>equating</b> 114:5 <b>equivalent</b> 126:19 139:13 <b>Errata</b> 212:7 213:1 <b>error</b> 9:8	<b>especially</b> 86:22 179:4 194:9 200:2 <b>ESQ</b> 3:5,6,11 5:12 <b>essentially</b> 176:21 <b>et</b> 69:14 75:7,8 148:4,4 206:13,13 <b>evaluation</b> 80:21 <b>evolved</b> 159:18 <b>exact</b> 36:4,4,9,18 55:6,22 201:9 <b>exactly</b> 6:6 7:14 13:11 19:15 22:18 27:4 43:9 72:23 77:11 137:1,17 143:6 167:19 170:2 174:22 184:5 201:9 <b>EXAMINATION</b> 4:1,2 5:12 <b>examine</b> 85:2 <b>examined</b> 5:11 <b>examines</b> 143:15 <b>examining</b> 145:8 174:12 <b>example</b> 7:10 10:25 14:17 15:6 18:19 18:24 21:7,8 22:21,23 23:16 24:10 25:20 26:25 28:7 33:12,13,18 33:22 38:14 39:23 40:7,9 43:17 44:15 46:6,16 47:6 50:6 52:7 53:18 58:13 59:24 60:10,25 61:1,6 65:15,17 66:21,23 67:2,6,8,9 70:18 70:20 74:6 76:17 77:12,17 78:13 79:5,15 86:4,18 87:15 89:11,13,13 90:8 91:19 94:9 94:13 101:16,21 103:10,11,13,24 103:25 104:11 106:8,17 108:18	110:6 113:1,10 116:16 118:25 122:22 124:1 125:9 135:22 141:4 144:14 146:13 147:17 152:7 153:24 154:7,17 157:7 158:6,7,9,12,17 159:14 160:2,4 161:8,17,18 162:14 164:10,13 165:19 166:23 167:23 168:3 169:23 172:15 174:8,23 176:10 176:22 177:7,7 178:12 179:19 185:16 186:20,21 188:2,22,23 189:3 189:10 190:18 192:2,11,13,16 193:16 194:24 196:20 197:3,13 197:20,21,22 198:9,13 199:25 201:4,23 206:22 206:24 209:5 210:14 <b>examples</b> 18:15,18 45:17 81:24 163:12,15 172:2,3 172:13 175:4 184:25 <b>Exc</b> 59:6 <b>Excit</b> 59:6,6,6 <b>Excitation</b> 59:6 77:21 <b>execution</b> 38:9 68:21 69:13 71:10 79:7 80:7,23 82:15 105:19 107:25 110:3 113:5 117:9 118:14,19 157:15 <b>exemplary</b> 76:13 172:11	<b>exhibit</b> 4:8 10:15 10:19 11:19 13:24 16:13 17:4,9,12 17:15,20 21:17,19 21:21 41:17 206:10 <b>Exhibits</b> 4:7 17:7 <b>expect</b> 102:8,9 <b>expected</b> 145:11 194:9 <b>expensive</b> 33:21,23 34:19 38:10 99:19 <b>expert</b> 7:16 <b>Experts</b> 59:4 77:19 184:24,25 <b>explain</b> 121:6 147:7 209:23 <b>explained</b> 56:8 150:2 199:3 <b>explaining</b> 146:14 150:3 162:12 <b>explains</b> 158:15 <b>explanation</b> 37:4 38:6 <b>explicitly</b> 32:16 126:17 <b>express</b> 13:16 54:18 <b>expressed</b> 54:14 75:22 76:1,5 <b>extent</b> 8:14 9:18 <b>extreme</b> 175:3 176:12 <b>eye</b> 6:15,19 <b>E-mail</b> 3:8,13 <b>e-mailed</b> 8:4 <hr/> <b>F</b> <hr/> <b>F</b> 4:14 41:17 <b>fact</b> 21:5 29:6 31:16 34:22 43:6 57:8 59:18 65:25 69:5 80:20 82:12 82:14,20 84:3 94:21 97:15 98:3 99:3,15 103:23 106:2 109:6	115:15 118:8 129:9 133:22 134:11 161:15 166:5 168:5 169:16 175:20 179:10 185:12 186:17 191:17 192:5,24 199:7 201:2 202:8 207:3 208:15 <b>factor</b> 86:21 <b>factors</b> 14:8 63:5 70:25 76:25 79:8 87:1 88:21 97:13 200:9 209:7 <b>factual</b> 178:5 <b>fairly</b> 5:23 110:10 <b>Fallon</b> 21:6 23:9 25:24 28:20 51:2 74:19 80:15 81:3 84:14 85:15 103:2 105:25 106:3,15 111:2 112:22,22 112:24,25 115:21 116:4,9,10 117:4 118:4,5,7,11,20 121:11 128:19 162:15 164:17,18 167:23 168:11 174:8,25 179:5 180:1 188:23 189:4 190:19 194:24 195:20 201:6 209:1,1,11 <b>Fallon's</b> 69:7 <b>familiar</b> 64:21 166:19 167:14 185:11,12 <b>far</b> 7:3 9:21 82:11 205:17 <b>fast</b> 63:14,16 65:2,5 66:23 67:2 85:22 85:25 87:22 90:20 98:12,15 104:11 108:7,9,17,21,22 109:3 111:22 116:14,24,25
---	--	--	--	--

119:9,20 120:8,14 126:22 130:22 131:1 133:21 134:12,22,23 135:15,20 143:22 145:17,18 152:16 153:16,18 156:23 157:14 160:14 162:3,5,6 163:22 165:23 173:15 175:25 176:12 <b>faster</b> 34:17 38:9 67:6,11,21 69:13 70:17 79:5 80:1,4 80:7,9 81:7 83:9 83:25 86:11,18 87:2,7,13 88:14 88:24 90:24 91:5 92:4,5 93:22 94:2 95:14 96:7,12,23 96:24,24,25 97:20 100:11 110:21 113:14,21 122:24 130:21 136:19,22 136:22 139:14 152:14 169:22 170:15 179:25 181:15 198:15,17 <b>fastest</b> 168:16,22 <b>Fax</b> 3:8 <b>feature</b> 147:20,20 177:25 179:18 <b>features</b> 136:4,5 179:11 <b>feed</b> 61:14 157:22 <b>felt</b> 36:14 181:17 <b>fewer</b> 134:15 166:17 186:18 <b>figure</b> 16:7 18:12 18:16,16,19 20:23 20:25 25:8,8,10 25:10,10,20 31:16 33:12 44:16 61:6 66:18 71:23 157:2 157:20 158:17 159:10,12 172:15 172:16 185:2	186:22 191:17,19 199:23,24,24 <b>figures</b> 16:18 21:15 25:9,21 33:12,13 191:18 199:9,23 199:24 <b>filed</b> 11:11 <b>files</b> 175:24 176:3 <b>filing</b> 23:9 84:20 95:11 <b>final</b> 108:22,23 211:2 <b>finally</b> 44:25 <b>find</b> 84:20 87:18 88:4,9 129:4 194:12,17 <b>fine</b> 17:5 42:2 63:23 67:25 109:13 156:6 182:15 <b>finer</b> 79:12 <b>finish</b> 66:8 69:10 71:3 126:20 180:12,13 181:4 181:10,16,19,22 181:25 182:6,10 182:13,22 183:1,6 183:8,16 202:15 202:20 203:15,19 <b>finished</b> 63:23 126:20 178:16 181:1,8 <b>first</b> 5:10 10:1 13:15,23 27:24 31:13,21,22 39:12 45:21 58:18 60:2 60:5,6,8,10 61:19 62:3,16,22 63:25 64:14 65:12 66:14 67:7,10,20 68:13 69:20,25 70:2,3 70:19 71:22 72:5 72:11,16 74:4,4,8 74:15,19,25 75:7 75:18 76:6 79:17 80:11 81:24 82:7 83:12,17,20 84:10	84:15 91:14 94:4 96:13 102:9 105:8 112:18 118:4 119:24,25 122:23 131:24 140:23 141:18 142:2 145:5 151:4 164:14 168:23 170:11 178:11 181:10 182:6,20 197:5,11 198:16 201:14,20 203:4 203:17,22 204:3 204:16 <b>fit</b> 90:21 <b>five</b> 109:12 209:18 <b>five-minute</b> 35:6 <b>fixed</b> 84:25 <b>flipped</b> 30:4 <b>flipping</b> 191:14 <b>flow</b> 81:17 85:23 86:24 92:21 110:20 152:17,18 152:18 198:4 <b>flowing</b> 83:14 133:8 134:7 167:1 <b>flows</b> 193:20 198:2 198:2 <b>flow-through</b> 71:19 <b>flush</b> 188:8 <b>fly</b> 66:18,22 <b>focus</b> 13:20 <b>following</b> 77:10 <b>follows</b> 5:11 118:23 206:15 <b>foregoing</b> 212:4 214:4 <b>form</b> 12:14,24 15:19 19:8 22:12 26:9 27:18 29:17 30:22 32:23 35:23 36:13 37:15 38:25 46:21 48:8 50:20 52:17 55:4,20 60:21 67:22 68:12 68:15 69:21 74:10 80:13 82:1 87:4	89:1 91:8 93:24 96:8 98:25 102:21 105:7 107:12 109:23 111:17 112:13 114:11 116:7 120:17 122:13 124:19 127:8 128:2 131:6 132:18 135:4 136:9 137:9 140:2 140:22 141:17 144:23 145:25 149:5 150:12 156:12 157:25 160:22 162:19 164:21 167:5 168:17 170:6 171:4 172:21 174:16 178:22 180:25 183:21 184:7,18 186:7 187:11,20 188:14 189:17 193:9 194:13 197:7 200:13 201:16 203:6,8 204:23 205:3 <b>format</b> 48:7,12 175:13 <b>formed</b> 165:2 <b>forth</b> 110:16 137:3 168:8 173:25 <b>found</b> 101:6,7 158:8 201:7 <b>frame</b> 25:6 27:5 33:25 34:2 37:23 87:18,19,21,24 88:5,7 110:9,10 110:11,15 156:14 163:10 175:17,19 175:22 176:7,22 <b>framed</b> 48:17,19 96:13 <b>framework</b> 191:21 199:9 <b>framing</b> 75:10 141:7 146:12	<b>frankly</b> 30:9 <b>fresh</b> 131:13 <b>front</b> 5:23 7:17 10:13 16:4,11 17:19 40:25 41:5 41:11,19,25 208:4 <b>full</b> 43:21 69:9 111:8 <b>fully</b> 19:17 76:11 207:6 <b>fun</b> 211:5 <b>funny</b> 48:17,20 149:11 <b>further</b> 14:14 45:19 66:1 71:16 78:14 92:15 118:20 209:15 214:16 <b>furthermore</b> 59:17 73:2 100:7 118:25 179:10 180:8 194:1 208:19 <b>future</b> 7:9 <hr/> <b>G</b> <hr/> <b>garbled</b> 131:17 185:25 <b>geared</b> 73:10 <b>gee</b> 100:8 <b>general</b> 6:24 18:13 26:17 32:2 97:10 110:1 206:8 <b>generalities</b> 41:23 <b>generally</b> 7:21 13:21 24:25 45:12 57:21,21 59:13 90:23 91:3,4 109:21 113:17 144:1 158:5 170:4 170:9 177:5 <b>generic</b> 15:2 20:22 <b>getting</b> 67:1 85:23 89:19,20 130:16 134:15 149:20 181:14 193:23 <b>give</b> 24:13 38:13 41:16 43:18 44:2
--	---	--	--	--

45:8,9 58:13 65:25 91:24 101:2 103:14 113:20,21 204:15 209:2 210:2 <b>given</b> 6:24 35:12 40:16 58:12 68:25 86:5 89:15 90:24 90:25 91:5,5 103:11 105:23 108:4 112:10 113:8 114:7 117:15 130:20 137:7,14 138:3 140:7,8,20 141:15 141:24 142:20 143:3 149:15,18 153:9 169:7,20 172:5 175:4 183:14 186:21 200:6 <b>gives</b> 18:14,18 64:19 71:2 89:14 104:22 161:18 163:15 197:21 <b>giving</b> 36:21 97:21 103:10 153:4 172:2,11 <b>glitch</b> 131:14 <b>go</b> 5:15 6:1 13:6,12 13:19 14:18 16:19 16:21 17:25 18:2 27:6,7 28:17,18 28:20 38:8 40:13 40:15 41:16 42:21 42:23 44:13,17 45:11,19 47:5 57:5,13,20 58:18 61:17 63:15 64:5 64:22 65:3 69:1 73:14 78:14 81:7 81:8 98:13 99:5 101:2 109:14 116:24 118:8 129:14,14 144:20 146:13 156:7,20 158:13,25 166:10	166:15 183:6 201:22 202:25 203:7,20 205:12 205:19 210:2,6 <b>goal</b> 63:9,9 103:18 147:4 155:15 156:2,9,10,14,18 158:4 <b>goes</b> 25:15 42:23 62:25 64:23 66:1 71:4,4,5,15 73:3,5 73:7 77:22 78:16 78:18 79:2 82:12 92:15 100:8 109:8 119:4 125:12 129:12 202:7 <b>going</b> 8:14,22 40:12 40:14,24 41:2,4 41:10 42:13 43:6 43:14 45:21 61:9 63:18 66:4,18 67:25 77:10 79:10 80:4 81:11,14 83:15 84:23 85:10 85:10,11,23,25 86:1,9,14 89:24 90:14,15,15 95:4 97:14 98:13 99:4 105:14 108:8 109:10 117:7 119:12 122:23 123:5,6 129:20 135:21 145:21 147:22 149:3 150:18,24 152:21 152:23 153:12 165:20 168:25 172:14 181:23 182:8,8,18 183:8 198:13,15,22 201:19 206:12,13 207:1,13 209:17 <b>good</b> 33:21 34:16 34:16 35:10 38:13 49:15 65:4 78:3 88:4 99:17 109:9 109:12 110:13	125:18 147:20 150:23,25 165:20 166:2,2 169:21 172:13 175:12 177:12 196:2 201:12 <b>gotten</b> 73:2 <b>great</b> 35:16 81:14 169:24 176:16 204:6 <b>ground</b> 9:25 10:9 <b>grounds</b> 11:2 <b>group</b> 59:4 77:20 144:3 184:24,25 <b>guarantee</b> 66:3,24 85:14 86:21,25 99:24 100:10 108:12 109:4 145:20 <b>guaranteeing</b> 69:10 76:17 85:11 86:23 <b>guarantees</b> 135:16 <b>guess</b> 17:23 40:23 40:25 41:10 43:4 62:11 75:25 94:4 94:11 102:6 118:10 138:22 167:21 170:1 187:1,1 190:25 192:8 195:14 207:6 <b>guidelines</b> 184:21 <b>gzip</b> 113:12	<b>handy</b> 16:16 <b>hanging</b> 211:4 <b>happen</b> 135:1 136:6,12 143:9,10 <b>happened</b> 129:4,5 129:5 131:16 142:10 180:16 <b>happens</b> 128:13 140:12 149:12 <b>happy</b> 16:9 33:10 68:8 178:7 204:5 204:13 205:1 <b>hard</b> 152:22 <b>harder</b> 110:4 <b>hardware</b> 34:9,19 38:10 42:6 95:24 99:19 139:10 141:3 152:9 153:14,15 154:18 154:23 155:6 165:16 166:13 180:10 183:10 <b>harm</b> 136:23 <b>Harmonic</b> 59:5 77:21 <b>HARPER</b> 3:5 <b>hbatts@sheppar...</b> 3:8 <b>header</b> 180:6 <b>hear</b> 62:10 122:5 131:21 180:15 202:24 <b>heard</b> 37:2 120:7 <b>Hello</b> 5:14 <b>help</b> 46:1 47:16 65:2,4 81:11,14 95:1 116:23,25 135:3,8,13 <b>helps</b> 76:10 <b>hereto</b> 212:7 <b>hey</b> 159:11 <b>hiccupped</b> 61:14 <b>high</b> 32:10 45:17 78:1 110:2 111:10 111:14 112:6,9 114:4,6,16,18 116:5,6 118:1,1,1	118:2,3 119:2 124:23 125:16 126:8 203:20 206:15 <b>higher</b> 13:15 61:22 62:6 65:17 69:14 70:9,13 79:20 109:21,22 110:18 110:23 111:4 114:8,9,10 126:12 126:12 135:2,7,12 145:23 146:4,23 150:7,8 159:5 166:10,11,12 170:5,9 171:2,8 171:14 <b>highly</b> 20:15 118:16 191:19,20 192:22,23 199:16 208:16 <b>hit</b> 209:18 <b>hold</b> 14:23 54:7 58:24 61:24 155:12 158:8,9 180:14 <b>holding</b> 130:4 154:23 155:7 160:20 161:1,11 <b>hour</b> 5:2 66:5 109:10 150:24 198:23 <b>hours</b> 197:14 209:18 211:1 <b>Huffman</b> 28:9 39:21,23 40:8,10 42:13 61:2 <b>huge</b> 96:20 175:23 176:3 <b>human</b> 126:7 <b>HVXC</b> 59:5 77:21 <b>hypothesizing</b> 136:17 <b>hypothetical</b> 92:23 93:13 94:6,7,12 95:25 97:9 136:14 136:25 137:1,4,17 137:19,24 138:21
--	--	---	---	---

139:12,16 140:10 141:1,6,8 142:1 142:13 143:6 144:7,9 152:13 171:17 173:2,17 174:3,5,22 187:1 187:2,21 188:3,8 189:12 190:3,15 190:20 192:9,19 192:19 194:6 195:14,15 208:13 <b>hypothetically</b> 92:3 92:9 173:8 195:1 <b>H-U-F-F-M-A-N</b> 39:21 <b>H.263</b> 25:4 28:11 31:23 32:8 34:23 37:1 39:10 59:24 96:6,11,24 97:2,3 97:20,23 110:6 151:7,13 152:25 153:23 158:18 159:5,14 160:2 162:2 168:15,21 170:5,10 171:3,9 171:14 172:9,19 172:25 178:9,11 178:19,21 179:2,3 179:9,11,19 180:5 180:6,18,22,23 183:20,25 184:12 184:20 198:12 200:4,11,17 201:8 207:4	<b>image</b> 40:8 61:22 62:6 70:8,10,11 79:20 <b>images</b> 26:3,4 <b>imagine</b> 133:14 196:19 <b>imaging</b> 25:11 <b>Imai</b> 4:13 10:4,6,6 10:23 11:4,12 12:2,6,10 13:3,18 14:7,9,10,12,20 15:1,1,6,24 16:3 16:11 17:4,13,15 17:16 18:13,21,21 18:24 19:7 20:14 20:18,23 21:1,11 21:11,15,17 22:11 22:17,23 23:5,10 23:13,14 24:3,6,9 24:21 25:8,21 26:17,25 27:14 28:4 29:15 30:7 31:4,6,14,17,20 31:24 32:2,17,22 33:2,4,13 35:22 38:21 44:1,13,19 44:21 45:11,13,16 49:16,20 50:7,7 52:6,25 53:3,6,6,9 53:12,13,17,18,19 54:14,18 55:2 57:8,10,20,21,23 58:13,20 59:12,14 59:18 60:11,12,13 60:19,23 61:4,18 62:19,20,22,24 63:4,7,25 64:14 64:17,22 65:6,10 65:12,21,25 66:11 66:12,15,16,18 67:3 68:13,17 69:4,4,5,11,15,19 69:25 70:6,11,16 70:21 71:1,9,15 71:16,16,20,22 72:5,12,17,21,25 73:10 74:9,15,18	74:24 75:9,13,14 75:20 76:6,16,16 76:16,21 77:8,13 78:14,15,16,19,21 78:24,24,25 79:4 79:4,9,10,22,23 80:6,14,15,16,16 80:18,20 81:3,15 81:23 82:12,18,20 82:22 83:2,4,14 83:19 84:2,3,3,8 84:13,19,20,20,21 84:22,22,24 86:2 86:8,9,13,15,16 86:22 88:12 89:14 89:23 90:1,4,11 90:12 92:1,2,7,10 92:12,13,15,23 93:2,9,9,17 94:10 94:23 95:11 96:3 97:11 98:1,1,7,9 100:2,4,5,7,8,19 100:23 101:6 102:16 103:4,10 103:16,23 104:4 104:12,14,20,21 106:1,18 107:6,10 108:5,7,8,8,9,10 108:15,18,22,24 109:2,6 110:25 111:1 113:24 114:14 115:5,5,18 117:19,25 123:1 123:17,18,23,23 124:8,13 126:25 128:17,21 129:15 129:25,25 130:17 133:19 134:4,5,6 134:20 135:14,15 135:18,18,25 136:3,5 139:25 140:25 142:13 143:1,6,14,15,19 144:2,10 145:1,3 145:5,5,6,8,16,22 146:3,12,16,16 147:1,6,16,25	148:6 149:25 150:2 154:15,16 155:1 156:2,4,18 157:1,3,20 163:11 163:11,13 185:22 186:5 187:5,17 188:4,7,13,19,23 189:15 190:1,4 191:2,19 192:12 193:4,6,15,19,25 194:1,7,22,22,23 195:6,11,12,18,23 196:17,18,18,21 197:5,11,15,16,16 197:21 198:4,9,10 198:12,18 199:5,7 199:8,11,14,15,17 199:25 200:12,18 200:21,22 201:5,8 201:15 202:5,10 203:24 204:8 205:8,12,23 206:4 206:22 207:11,23 208:11 209:5,5,6 209:9,11,11,22,24 210:15,20,23,24 210:25 <b>Imai's</b> 15:11 16:15 18:8 19:3,21 20:4 20:20 23:1 24:23 26:8,13 30:18 44:3,17 47:7,12 47:22 48:2 49:21 50:1,13,18 52:5 53:23 54:6 55:12 55:17 56:6,21 129:2 142:4,6,8 142:12 <b>Imami</b> 163:11,11 <b>implement</b> 30:18 30:21,21 31:4,5 42:5 92:3 153:15 175:24 189:15 195:6,11 210:15 <b>implementable</b> 165:21 <b>implementation</b>	42:9 43:7 48:22 49:9 89:16 91:18 91:21 94:3 95:6 96:15,22 97:2 104:10 152:4,12 175:5 177:19 184:22 190:4,16 208:14 <b>implementations</b> 51:15 56:10,13 86:6 88:14 92:5,6 93:14,16 95:13 103:12 105:10 159:25 167:15 169:18 <b>implemented</b> 42:19 56:15 87:13 91:7 93:23 95:7 138:11 139:5 152:7,15 160:12,13 165:15 167:16 <b>implementing</b> 38:8 51:16 97:3,5 109:3 187:23 <b>implements</b> 47:3 <b>implied</b> 115:19 <b>imply</b> 111:11 185:15 <b>important</b> 65:20 69:2,3 70:22,23 82:16 92:12 117:12 206:17 <b>improve</b> 70:25 <b>include</b> 15:11 16:22 19:2,20 20:19 22:7,10,16 23:1 24:8 26:7,12 27:13,16 32:8 35:21 42:25 44:23 58:21 137:6,13 138:2 139:21,24 140:18 141:23 142:3,3,4,6,19 143:1 144:16 146:22 164:6 172:14 173:21,21 179:9 185:23
---	--	--	---	--

## I

**idea** 33:5 35:10  
65:6,13 95:16  
100:4 157:17  
162:2 166:18  
169:12 206:25  
**ideas** 30:2 187:23  
**identical** 139:1  
**identification**  
10:19 11:19 17:8  
21:21 41:17  
**ifs** 165:11

186:6,13,15 187:5 187:10,17,19 193:6 195:13 199:4 200:23,24 201:25 <b>included</b> 82:9 88:2 <b>includes</b> 32:16 37:19 38:17 43:25 66:16 95:18 203:23 <b>including</b> 20:24 26:3,4,4 32:16 39:20 41:23 43:1 44:24 46:15 65:22 77:25 104:13 125:15 143:6 144:14 169:1 173:25 187:22 <b>incoming</b> 120:9,21 198:1 <b>inconsistency</b> 115:19 <b>incorporate</b> 13:9 28:15 192:11 194:3 197:2 200:4 200:11,17 201:8 210:22 <b>incorporated</b> 174:1 208:20 <b>incorporates</b> 28:8 41:21 <b>incorporating</b> 29:1 161:5 200:20 <b>incorrect</b> 9:23 52:21 67:15 <b>incorrectly</b> 122:4 <b>increase</b> 81:11 156:19 157:11 <b>increasing</b> 158:4 <b>incredibly</b> 192:3 199:22 205:6 <b>independent</b> 12:16 12:18,22 185:9 201:25 202:6 <b>INDEX</b> 4:1,7 <b>indicate</b> 10:25 186:4,11	<b>individually</b> 175:17 175:22 190:1 <b>industry</b> 45:15 46:4 57:25 58:1 59:15 <b>infer</b> 160:18 <b>inferring</b> 100:3 <b>information</b> 95:23 95:23 161:21 209:2 <b>inherently</b> 92:4 139:4 <b>initial</b> 60:2 <b>initially</b> 176:15 <b>input</b> 45:18 68:23 78:17 79:2 86:23 98:18 102:8,17 105:21 106:9 108:2 113:7 117:14 135:17 149:10,16,20,22 150:11 152:3,17 153:21 154:1,5 160:13 167:1 <b>insert</b> 191:21 <b>install</b> 136:16 <b>institution</b> 7:24 8:4 8:10 <b>instruct</b> 8:16,24 <b>insufficient</b> 135:10 135:12 <b>integer</b> 87:21 <b>intended</b> 96:18 151:25 152:25 154:17 161:23 165:25 <b>interested</b> 79:1 204:23 214:18 <b>interesting</b> 180:20 <b>interestingly</b> 175:2 <b>international</b> 37:19 184:22 <b>interpolate</b> 88:1 <b>interpolation</b> 34:3 <b>interpret</b> 46:1 <b>interrupted</b> 63:19 63:21,22 181:25	183:5 <b>interrupting</b> 202:15,17 <b>interruption</b> 193:22 <b>intimately</b> 90:7 92:20 99:23 117:6 118:20 <b>introduced</b> 23:19 23:20 25:5 <b>introduction</b> 155:19 <b>introductory</b> 45:20 <b>invalid</b> 29:6 30:11 <b>invention</b> 53:15 129:16 155:20 195:7,12 <b>inventor</b> 53:14 <b>inverse</b> 110:2 <b>invites</b> 194:1,1 199:7 <b>involved</b> 206:18 <b>iPhone</b> 176:19 <b>IPR2018-01187</b> 1:8 4:9 11:1 205:19 <b>IPR2018-01360</b> 11:21 <b>IPR2018-01630</b> 1:7 4:10 <b>IPR2018-1630</b> 205:16 <b>irrelevant</b> 182:16 <b>isolation</b> 128:12 175:19 <b>issue</b> 19:24 40:25 41:5 47:17 94:8 94:19 123:25 124:2 129:11 157:24 164:9 192:15,15 <b>issues</b> 89:15 122:23 <b>I-M-A-I</b> 10:7 <b>i.e</b> 114:3 119:2	213:25 <b>Japanese</b> 16:17,20 16:21,24 18:1 77:14 <b>JEFFREY</b> 3:6 <b>jerks</b> 134:19 <b>jliang@sheppar...</b> 3:9 <b>job</b> 1:25 38:13,14 46:11 65:11,14 66:20,24 83:8 99:20 153:10 160:7 165:20 169:22,25 176:6,6 179:24 <b>Joel</b> 3:11 5:12 16:14 17:9 21:16 202:23 211:2 <b>joel@noroozipc....</b> 3:13 <b>Joint</b> 184:24 <b>JPEG</b> 40:8,9 174:15,20 175:19 175:21,21 176:22 176:23 177:3,18 178:3,6,10 179:2 184:17,19,24 185:4 207:4 <b>jumping</b> 176:1	102:20,24 103:1 105:6 106:9 148:24 <b>kind</b> 35:13 48:16 49:17,18 52:21 61:8,9 83:23,23 84:24 88:6 95:23 95:24,24 97:9 99:1 100:11,12 102:4 105:13 118:20 129:12,15 129:19 137:16 146:11,14,14 147:24 149:23 150:1 189:11 200:24 <b>kinds</b> 37:23 67:4 86:12,13 97:17 123:21,22 152:8 168:1 174:12 183:10 197:22 <b>knew</b> 142:9 <b>know</b> 6:6 28:13 36:19 37:5,6 46:1 48:4 53:21 54:22 55:8,23 56:7 60:15 65:16 67:16 69:2,6 85:3 93:18 94:1,2,25 95:24 99:3 100:6 102:13 112:6,9 113:12 118:17 122:24 128:14 136:25 138:5 139:3 143:5 153:3 155:14 156:13 161:2,10 163:14 165:6,9 167:3,8,19 168:15 168:22 169:9 171:1,7,12 180:20 180:21,23 181:14 181:21 182:3,6,20 184:4 186:23 189:5,11 194:5 195:16 196:15 201:2,12 208:2 <b>knowing</b> 91:6
--	--	---	---	--

93:22 94:3 95:5 139:11 <b>knowledge</b> 59:21 71:20 104:20 <b>known</b> 21:5,13 23:7 28:19 45:5 51:3,3 61:1 95:12 159:12,17 161:5,6 161:19,22,22 163:18,19,20 164:6 169:10 <b>knows</b> 92:8 98:9	55:14 56:2,3 59:3 77:19 125:10 <b>learns</b> 123:18 <b>left</b> 74:3 182:14 209:18 <b>leg</b> 208:4 <b>legal</b> 5:25 8:12 31:9 189:5,12 190:21 192:18 195:16 <b>length</b> 143:21 <b>letter</b> 21:19 <b>letting</b> 123:12 183:17 <b>let's</b> 40:15 43:4 51:5 58:18 63:2 70:2,9 71:6 73:14 81:18 83:6 97:12 99:18,22 106:8 109:14 110:9 113:10 124:3 126:25 133:16 138:6,7,21,22 143:10 144:20 151:3 153:11 154:8 162:2,4 165:6,22 175:5 177:22 181:15 193:3 194:21 198:6 201:22 204:11 205:11 210:2 <b>level</b> 13:15 166:15 204:7 <b>levels</b> 28:10 158:16 158:17 165:16 <b>LIANG</b> 3:6 <b>light</b> 12:23 84:21 188:7,13,19 <b>limit</b> 34:6,7 193:7 <b>limitation</b> 61:18 62:14,15,18,20 130:13 209:15 <b>limitations</b> 202:1 <b>limited</b> 155:18 161:17,19 <b>limiting</b> 86:21 171:24 172:7,7	<b>Lincoln</b> 5:19 <b>line</b> 43:9 66:8 71:5 71:14 85:24 92:16 98:13,20 103:21 104:18 109:7 128:25 129:21 134:1,1,8 136:2 145:21 148:17,18 161:17 163:25 168:4 193:21 199:21 213:2,6,10 213:14,18 <b>linear</b> 58:22 77:17 77:25 125:9 <b>lines</b> 43:9 <b>list</b> 44:23 57:14 200:21,25 205:10 <b>listed</b> 11:2 <b>listen</b> 72:3 98:17 <b>listened</b> 71:6 81:18 90:16 <b>listener</b> 63:2 79:3 98:21 193:17 <b>listening</b> 133:16 <b>lists</b> 15:7 101:23 125:9 <b>literally</b> 36:17 124:2 138:25 139:1 149:12,24 176:21 <b>literature</b> 39:22 <b>little</b> 14:24 15:5 54:8 61:25 75:2 88:5 99:2,13 104:10 109:20 111:20 117:17 121:13 122:14,20 129:13,22 149:11 158:20 176:19 179:24,25 180:3 181:15 182:14 185:6 188:9 <b>live</b> 5:19 <b>LLC</b> 1:9 3:10 <b>LLP</b> 2:4 3:5 <b>Location</b> 2:4 <b>long</b> 62:11 67:11	73:13 85:7 103:17 147:2 148:21,25 169:8 175:12 176:18 <b>longer</b> 37:4 38:6 180:3 <b>look</b> 6:13 7:17,19 11:24 12:15 13:6 13:13,19 14:1 16:7 18:12 24:10 24:11 28:17,20 31:14 33:4,4,9,11 33:22 39:6,7,8 40:13,15 41:2 43:4,14,16 76:8 77:1 79:15 87:19 87:23 98:4 106:14 106:15,16 110:10 113:24 114:20,21 118:10 120:23 122:8 125:2,3 126:25 127:16 131:24 151:3,17 155:8,10 157:2,20 163:14 164:12 175:18 176:25 177:8 178:7 184:11 185:2 199:23,23,24 203:21 204:9 205:25 207:12 <b>looked</b> 7:22 9:6 36:15 41:20 43:21 147:1 191:17,18 <b>looking</b> 8:9 9:22 10:24 11:3,20 12:21 22:21 25:17 31:18,19,20 41:7 41:23 43:5 47:14 53:11 69:9 75:5 75:13 87:21 113:18 135:18 164:10 176:7 205:17 <b>looks</b> 122:4 170:18 <b>lose</b> 86:1 210:8 <b>lossless</b> 39:20	113:11 138:7,23 <b>lost</b> 30:4 <b>lot</b> 40:17 69:7 73:9 92:15 94:4 102:4 110:13 119:17 129:25 130:17 138:9 139:10,17 146:15 180:15,19 193:24 204:7 <b>lots</b> 38:5 53:2 123:17 128:20 <b>low</b> 78:4 114:5 125:19 162:3 <b>lower</b> 110:19,22 111:5,14,16 112:11,12 114:9 114:17 132:16,22 136:13 160:7 <b>lowest</b> 159:4 <b>lunch</b> 6:8 35:11,12 35:14,15 66:6 73:12,13,15 <b>Lytton</b> 2:4 3:6 5:3
<b>L</b>				
<b>labeled</b> 11:21 205:16,18 <b>Lai</b> 209:22,24 210:25 <b>laid</b> 60:8 <b>Land</b> 3:12 <b>language</b> 27:7 33:9 39:7 40:7 41:3,20 43:12,16 75:11 111:21 112:1 186:25 <b>large</b> 5:23 23:23 78:1 87:23 124:23 125:16 126:1,2,3 126:4,5,9 <b>larger</b> 40:1 78:9 125:22,24 <b>late</b> 104:3,5,15 106:18 109:1 115:9 119:14 127:4 129:12,18 129:23 130:11 132:9 135:24,25 136:1,2 147:5 181:14 <b>layer</b> 32:17 45:16 50:19,23 52:7,16 55:12,18 87:8 88:24 93:21 94:2 119:3 <b>layers</b> 15:9 19:1 47:10,25 50:11,15 50:24 52:2,7 54:3				
<b>M</b>				
<b>machines</b> 94:17 <b>main</b> 144:8 <b>maintain</b> 8:22 83:24 <b>making</b> 66:21 69:15 81:5 86:9 115:11 135:16 145:12 147:1 156:23 157:8 191:12 <b>man</b> 78:16 <b>manipulating</b> 131:3,8 144:21 <b>manner</b> 15:2 <b>map</b> 170:25 <b>maps</b> 170:2 <b>marginally</b> 121:13 <b>mark</b> 11:15,17 16:24,25 17:6 21:17 <b>marked</b> 10:19 11:19 17:7 21:21				

41:17 <b>marking</b> 10:17 <b>Massachusetts</b> 5:19 <b>match</b> 34:1,1 87:10 87:24 88:4,7,9,10 99:14 110:8 122:21 165:3 <b>matches</b> 163:25 <b>matching</b> 87:18 <b>materials</b> 6:1 <b>mathematical</b> 39:19 <b>matter</b> 6:8 63:16 92:8 97:8 175:11 <b>matters</b> 148:21 149:1 <b>maximize</b> 161:15 <b>Mbps</b> 151:9,10,15 151:16 153:2 154:11 <b>Mbs</b> 158:22,23 159:22 <b>mean</b> 9:11,18 19:23 24:2 36:4,16 48:3 48:22 50:6 53:8 53:15 54:2 55:6 55:18 74:17,20 97:2 100:4 110:3 113:14 116:9 121:7,19 131:8 135:9 136:25 140:3 153:3 178:5 186:14,25 187:7 187:22 193:14 194:5,25 200:19 209:4 <b>meaning</b> 55:25 130:23 163:21 166:3 187:12 <b>means</b> 102:15,16 154:12 <b>meant</b> 54:21 109:25 126:23 154:3,4,5 <b>measure</b> 68:23 71:17 92:16,17	104:23 105:21 108:2 113:7 117:13 129:2 148:21,23,25 <b>measured</b> 123:9 148:14 <b>measurement</b> 101:18 106:6,20 106:22,25 <b>measurements</b> 101:25 102:11 105:5,9,13 106:5 <b>measuring</b> 66:1 100:7,8 102:24 105:1 137:2 141:2 148:22 205:8 <b>mechanism</b> 25:13 208:17 <b>mechanisms</b> 14:15 14:25 <b>medium</b> 191:13 <b>meet</b> 5:25 <b>meeting</b> 154:19,20 <b>meetings</b> 6:4,5 <b>megabits</b> 148:24 153:13,20,25 154:8,9,11,14,14 <b>memory</b> 8:9 13:5,7 13:20 24:14,15 43:17 55:7 76:10 <b>mention</b> 86:4 118:8 158:9 183:19,24 184:17 <b>mentioned</b> 7:15 9:21 15:17,17,24 15:25 20:3,14 32:21 33:1 38:6 46:6,17 48:17 49:1 50:25 52:9 53:3 57:16 77:6,9 78:13 81:10 87:11 96:16 108:23 109:17 119:21 122:21 129:12 147:12,18 159:14 159:24 167:4,9,10 167:11 169:5,8	200:6 <b>mentioning</b> 24:12 186:22 <b>mentions</b> 24:5 62:16 67:4 184:19 202:12 <b>merely</b> 57:6 <b>met</b> 8:20 <b>method</b> 21:9 32:1 39:24 69:17 78:1 78:3,8,9,11 79:5,6 79:10 80:21 83:25 85:5,6,11 91:17 100:11 106:7,7,23 106:24 107:22 108:15,16 110:17 113:15 118:12,25 119:8,10,20 123:25 125:15,18 125:21,23,25 126:4,6 134:22 143:20 146:22 154:16 165:24 208:25 209:5 <b>methods</b> 14:10,14 18:19 27:5 30:6 31:15 32:15 44:14 44:18,20,22,23 45:12,17 53:5 57:11,22 58:20 59:10,13 60:24 69:11,13,14 71:17 77:17,25 79:9 80:22 84:2,4 85:10 88:19 90:4 93:2,3 97:16 100:20 102:8 103:13 105:12 107:21 108:16 109:3 113:12,13 113:18 125:8,9,15 129:6 141:2 155:22 161:8 164:4,5 167:25 173:18 174:10 177:23 190:8,8 194:3 199:19,19	199:21 207:1,3 208:18,21 <b>middle</b> 49:18 111:9 113:25 151:18,19 <b>mind</b> 7:2 35:5 36:21 77:2 96:18 99:7 <b>minimize</b> 155:23 155:25 161:15 <b>minimizing</b> 155:16 <b>minor</b> 9:6,24 <b>minutes</b> 109:12 150:24 209:18 <b>missed</b> 29:9 36:6 <b>misunderstand</b> 12:25 19:24 22:3 137:4 <b>misunderstanding</b> 64:10 178:17 <b>misunderstood</b> 132:14 <b>mode</b> 184:17 <b>modification</b> 118:12 <b>modified</b> 15:10 19:2,20 20:18 22:25 <b>modify</b> 15:16,23 18:8 <b>modifying</b> 18:12 <b>modulation</b> 58:22 77:18 125:10 <b>moment</b> 8:9 16:25 41:19 43:18 <b>motion</b> 24:1 28:9 33:24 38:11 39:12 42:15 87:17 89:12 110:8,13 160:4 165:20 169:23 175:12,21 176:3,6 176:8,13 177:15 177:18,19,25 196:11 <b>motivated</b> 27:17 205:22 206:3 <b>motivation</b> 13:14 14:7 32:11 189:25	191:7 210:11 <b>move</b> 181:15 205:11 210:11 <b>moved</b> 11:14 <b>moving</b> 59:3 77:19 88:3 184:24 208:4 <b>MPEG</b> 15:8 19:1 21:8 22:7,10,16 22:24 23:7,10,10 23:15,15,16,16,17 23:18,19,22 24:3 24:5,6,25,25,25 25:1,1 28:7,11 31:22,23 32:8,8 32:16,17 33:18,22 34:13,14,22 37:14 37:18,19 38:15,23 39:3,10 40:3,5,17 40:21 42:3,4,6,7 42:11 43:2,5,5,9 43:10,11,12 44:24 45:16 46:1,7,7,19 46:24 47:1,2,3,9 47:18,24 48:14,21 48:22,22,25 49:8 50:11,15,19,23,24 50:24 51:1,4,4,5 52:2,7,16 54:3 55:12,14,18 56:1 56:3 57:15 59:3 59:24,24 77:19 82:9 83:6,9 87:2,7 87:11,15,17 88:2 88:18,24 91:20 93:21 94:2 96:7 96:12,25 97:4,5 97:23 110:6 119:3 125:10 151:8,9,14 151:15 152:25 153:23 154:9 155:3 158:21,22 159:4,5,15,18 160:2 164:20,25 165:6 168:15,15 168:21,21 170:4,9 171:2,8,13,23 172:8,19,25 175:5
--	--	---	--	--

175:18 184:23,24 196:9,14,14 198:12 200:4 <b>Mullin</b> 2:4 3:5 5:3 <b>multicore</b> 141:4 165:22 <b>multicores</b> 139:8 <b>multiple</b> 25:11 26:18 31:16 33:5 33:15,15,15 40:4 49:1,2 52:9,10 58:11,15 63:8 65:6,7 69:11 86:6 95:13 157:6 161:8 164:4,5 166:9 168:24 177:23 179:21 183:15 185:3 190:8 200:7 <b>music</b> 83:22,23 193:16 197:22 <b>musical</b> 197:23 <b>M-P-E-G</b> 15:8 22:10 <b>M.263</b> 37:1	<b>necessarily</b> 31:20 31:21,22 64:7 65:24 100:18 121:7 144:8 164:9 192:25 <b>necessary</b> 65:18 66:2,24 <b>need</b> 40:24 41:8,13 64:24 65:25 70:25 71:9 73:13 79:24 83:1,25 85:15 98:10 128:19 143:19 158:11 171:18 180:14 192:25 198:23 205:11 <b>needed</b> 83:22 104:8 <b>needing</b> 38:10 <b>needs</b> 70:16 81:6,8 98:16 134:14 143:19 198:4 <b>negative</b> 96:3 155:15 161:3,10 162:10 164:10 <b>NETFLIX</b> 1:4 3:4 <b>network</b> 127:3,12 128:1,6,10,16 130:9 131:23 132:1,1,7,16,22 134:18 145:3,7 146:8,19,24 150:7 150:9 152:24 155:17 156:21 168:6,7 169:3 <b>networks</b> 155:17 155:18 <b>never</b> 137:6,13,23 138:2 <b>new</b> 22:2,5 181:8 181:23 182:2,7,9 182:19 204:12 <b>nice</b> 16:23 43:22 159:8 196:24 199:8 <b>normal</b> 25:18 177:8 182:11 <b>normally</b> 142:14	177:14,14 <b>NOROOZI</b> 3:10 <b>note</b> 14:9,10 43:24 44:13,21 45:1 47:7,22 49:21 53:23 56:21 57:10 57:17 58:20 209:17 <b>noted</b> 45:3 49:25 212:6 <b>notes</b> 59:18 <b>Notice</b> 5:1 <b>noticed</b> 9:6 81:21 206:20 <b>notion</b> 58:4,4,5 104:14 <b>not-so-large</b> 78:10 <b>novel</b> 111:1 <b>number</b> 6:21,22 10:13 14:8 17:24 18:14,18 23:18,20 26:24 27:23 28:8 29:1 32:3 37:8 44:23 46:15,16 47:6 50:8 61:9,10 66:16 71:17 77:11 99:2 100:13,21 101:23 103:6 104:13 106:10 120:4 126:21 134:14 144:13 145:6 152:2 153:20 162:7 169:13 173:23 193:8 197:14 206:15 <b>numeral</b> 11:25 <b>numerous</b> 93:16 95:10,11	26:9 27:18 29:17 30:22 31:7 32:23 35:23 36:13,25 37:15 38:25 46:21 48:8 50:20 52:17 55:4,20 60:21 67:22 68:15 69:21 74:10 80:13 82:1 87:4 89:1 91:8 93:24 96:8 98:25 102:21 105:7 107:12 109:23 111:17 112:13 114:11 116:7 120:17 122:13 124:19 127:8 128:2 131:6 132:18 135:4 136:9 137:9 140:2 140:22 141:17 144:23 145:25 149:5 150:12 156:12 157:25 160:22 162:19 164:21 167:5 168:17 170:6 171:4 172:21 174:16 178:22 180:25 183:21 184:7,18 186:7 187:11,20 188:14 189:17 193:9 194:13 197:7 200:13 201:16 203:6,8 206:6 <b>obvious</b> 9:7,24 11:4 12:1,13,18,23 13:8 14:8,20 22:7 22:10,16 23:13 24:3,5,8,20 25:18 26:7,12,21 27:12 28:14,16,18,21 29:5,23,24 30:16 31:9,10 35:20 53:12,17 57:8 61:18 62:19,20 68:18 72:22 73:1	73:11 75:9,16 77:8 80:6,8,17 82:13 83:11,12,18 84:19,21 86:9,16 92:1 93:1,2 94:9 94:23 96:5 115:17 115:18 123:24 161:4 162:15,15 164:17 167:23 168:11 174:8 179:16 188:2,7,24 189:4,10 190:2,5 190:19 192:3,7,11 192:15,17 194:24 195:21 196:18 200:2,11,17,20,24 201:7 202:6 207:18,23 209:12 210:13 <b>obviously</b> 7:1 9:18 71:21 76:15 92:13 113:15 134:10,15 156:25 <b>obviousness</b> 29:6 30:12 97:7 192:9 210:22 <b>occur</b> 7:9 163:12 <b>occurred</b> 7:8 <b>offer</b> 11:25 13:2 15:15,22 18:6 19:5 20:12 22:6,9 22:15 24:7 29:9 32:19,25 35:19 43:2 61:17 72:11 72:16 81:22 96:6 96:11 160:2 177:2 185:13,13 189:14 201:13 202:14 <b>offered</b> 10:2 11:11 20:1 159:21 175:16 <b>offering</b> 10:20 72:19 <b>office</b> 1:1 214:21 <b>off-the-shelf</b> 15:7 18:25 22:23 <b>oh</b> 22:5 62:1 63:24
<hr/>				
<b>N</b>				
<hr/>				
<b>N</b> 77:15 125:6,6,13				
<b>name</b> 5:17,18 52:23				
60:20 81:21 83:13				
107:1,2,2,20,21				
107:22 108:15				
153:3,3,5,6				
166:25 203:16				
204:15,24 205:4				
<b>named</b> 82:8 84:7,8				
84:9 214:19				
<b>narrow</b> 34:4 38:12				
<b>narrower</b> 168:13				
<b>natural</b> 24:3 25:16				
25:18 30:1 32:4,5				
32:14,15,19,20				
33:1 177:9,10				
191:25 192:3,7,24				
199:16 208:22				
<b>nature</b> 199:20				
<b>navigate</b> 16:20				
<b>nearly</b> 51:2				
<hr/>				
<b>O</b>				
<hr/>				
<b>obeying</b> 175:10				
<b>object</b> 8:14 178:14				
<b>objected</b> 37:11				
<b>objection</b> 8:22				
12:14 15:19 16:1				
19:8 20:5 22:12				



86:10 122:9 131:21 132:15 148:17 154:25 156:6 159:21 196:25 <b>okay</b> 5:20 7:3,19 9:25 10:15 11:8 11:14,20 13:25 16:12,13 17:11,21 18:3 24:11 40:23 41:6 55:5 64:13 67:1,3 68:18 75:24 80:18 82:23 91:20 94:25 97:1 101:18 102:11 105:15 113:24 119:25 120:24 124:2,6,8 127:1,2 131:21 138:20 140:8 150:22 151:5 157:21 158:12 163:20 172:17 173:25 176:8,14 178:8 193:3 197:20 198:15 199:3 202:25 203:8 204:11 205:14 208:8 209:21 <b>old</b> 181:24 182:4 <b>once</b> 55:22 78:17 <b>ones</b> 27:15 80:1 170:21 172:12 179:9 <b>one's</b> 84:5 <b>oOo</b> 1:3 4:5,16 5:8 73:16 74:2 211:8 <b>opening</b> 37:2 53:3 60:8,9 68:18 <b>operate</b> 110:12 120:8,14 154:18 160:14 172:14 210:20 <b>operated</b> 94:17 <b>operates</b> 81:4 157:3 210:21 <b>operating</b> 110:21	110:22 127:6 176:11 177:21 <b>operation</b> 161:24 165:25 166:25 <b>operations</b> 139:6 <b>opinion</b> 10:2,21 11:11,25 12:22 13:2,16 14:19 15:15,22 18:7 19:5 20:1,12 22:6 22:9,15 24:8 32:20,25 35:19 43:2 44:3 45:7 50:1 54:14,18 61:18 62:18 67:10 72:11,16,19 74:14 76:1,5 81:23 96:6 96:11 137:5,12 162:16,22 177:2 189:12 202:5,14 206:2 <b>opinions</b> 9:2,13,16 9:20 74:23 75:22 77:7 91:25 189:14 201:13 <b>opposed</b> 106:11 158:4 190:16 <b>optimal</b> 118:13 <b>optimizing</b> 64:4,6 65:24 <b>option</b> 175:1,16 178:9,12,20,21 180:18,22,23,24 183:25 184:14 185:5,14,14 <b>optional</b> 147:20 <b>optionally</b> 129:2 <b>options</b> 95:16 179:2 <b>oranges</b> 141:6 <b>order</b> 7:5 16:2,9 35:14 63:5,8 64:18 65:18 66:3 66:24 69:11 80:24 83:24 85:13 86:25 92:25 100:9 106:17 116:14	123:25 152:16 157:8,12 166:22 173:15 190:10 199:5 209:7 210:10 <b>ordinary</b> 10:3,22 11:12 12:11 13:8 13:16 15:23 18:7 18:21 19:6 20:2 20:13 21:7,12 23:8 24:21 25:14 25:23 26:1,21 27:12,16 28:16,19 29:14 30:16,20 31:1,3,24 32:1 35:20 45:4,9 59:19,20 60:25 64:20 75:14 83:3 84:19 94:14 98:8 110:24 111:12 112:5,8 137:5,12 138:1 139:21,24 140:17 141:13,22 141:23 142:18 143:1 159:1,7,9 159:13,22 160:17 161:12 162:12 164:6 166:1,19,20 167:3,8 168:10,14 168:20 169:6,11 171:1,7,12 172:18 172:24 174:15,19 179:7,17 180:23 184:13 185:8,22 186:5,12,15 187:4 187:9,16 188:12 188:18 189:1 191:1 192:21 193:3 194:19,20 195:5,10,17 196:15 199:3,13 200:1,21 207:18 208:11 209:23 <b>organized</b> 168:9 <b>outcome</b> 214:18 <b>output</b> 86:24 98:19 98:19,21 102:10	102:11,17 106:9 113:14,20,22 126:12,18 132:2 132:17,23 138:22 138:25 139:1 149:9,14,16,19,21 150:10 151:22 152:2 153:21 154:2,13 160:8,14 166:7 176:13 196:12 200:10 <b>outputted</b> 100:24 101:10,19,22 102:1 149:3 <b>outputting</b> 175:13 <b>outside</b> 29:8 39:9,9 40:6 41:23 96:1 111:21 144:24 174:5 <b>overall</b> 81:16 83:5 <b>overview</b> 76:16 <b>Owner</b> 1:9 3:10	103:24 104:12,13 105:4,9,15 107:5 107:8,9,16,19 108:22,23 113:1 113:25,25 114:14 114:20,22 115:1 115:24 116:6,9,16 117:2,7 118:22 119:8,23,25 120:2 120:23,25 121:6 124:8,22 125:2,3 126:25 127:1,11 127:16,17,19 128:5,12 129:16 130:3,6,7 131:25 144:20 146:10,13 146:14,15,17 148:3,9,9,10,12 148:12,13,17,19 149:8 150:1,2 151:3,5,17,18,19 158:14 159:6 201:24 205:13,20 206:1,9,14,14 210:6 <b>paragraphs</b> 14:9 57:6 60:9 73:8 77:9,13 93:7 103:8 192:24 206:15 207:9,17 207:20 <b>parameter</b> 123:15 <b>parameters</b> 37:23 79:7 118:13 123:7 123:8,22 126:18 137:1 144:13 165:9 <b>paraphrase</b> 67:19 67:23 68:1,7,9 <b>paraphrasing</b> 55:14 68:8 <b>parcel</b> 90:2 <b>parentheses</b> 118:18 125:23 <b>parse</b> 13:11 37:21 45:22 56:8 165:8 <b>parsing</b> 43:20
---	---	--	--	--

<b>part</b> 28:24,25 37:2 37:5,11,20,25 38:2,6 51:10,11 51:12,23,24,25,25 53:3 66:2 74:13 75:22 82:7,11 87:16 88:18 91:22 117:13 130:3 151:12 165:7 185:24 <b>partially</b> 19:16 <b>participating</b> 7:4 <b>particular</b> 13:4 29:3,15 30:3,11 39:8 42:9 61:2 65:15 66:12 88:22 88:23 91:17 94:16 97:1,19 106:6,10 117:18 118:7 119:5 121:9 133:19 137:16 140:9,12 142:7 143:9 144:9 145:11 151:21 158:4 170:14 171:25 172:8 180:10 183:9 188:3,6 207:1 <b>particularly</b> 78:11 90:6 126:6 <b>parties</b> 214:15,17 <b>parts</b> 27:24,24 37:20 51:25 82:6 91:13 139:15 160:5 173:5 <b>partway</b> 64:2 <b>passage</b> 82:9 158:23 <b>passages</b> 76:13 116:19 <b>pat</b> 162:9 <b>patent</b> 1:1,2,7,9,9 3:10 4:11,12,14 7:4 8:6 9:3 10:1 11:4,10 16:5,15 16:17,18,21 17:24 21:6 23:9 25:24	28:20 29:4 38:21 38:22 39:9,10 40:7,25 41:3,5,8,8 41:11,11,13,15,16 41:19 62:15 68:17 68:20 74:19 78:14 79:14 81:3,3 85:15 95:11 103:2 105:18,25 106:15 110:25 111:1,2 112:22,23,24,25 113:4 115:22 116:4,9,10 117:8 119:22 121:11 128:20 144:24 155:19 157:1 162:15 164:18,18 167:22,23 168:11 174:8,25 179:5 190:19 195:18,20 201:6 209:1 <b>patents</b> 6:23 51:2 187:24 191:8,9 194:21 <b>PATRICK</b> 3:15 <b>Pauls</b> 10:4,6,23 11:5,13 12:2,6,10 13:4,18 14:7,9,11 14:13,21,22 15:1 15:1,11,18,25 16:7,8 17:10 18:9 19:3,7,21 20:3,14 20:20 21:4,8,9 23:1,14,15 24:4,4 24:12,23,24 25:10 25:21 26:17 27:3 28:4 29:16 30:6 30:18 31:3,5,14 31:16,23 32:15,21 33:1,5,13 35:21 38:21 74:9,15,24 75:20 76:6 81:23 82:18 147:17 154:22,25 155:5,8 155:10,11,14,15 155:19,20 156:2 156:22,24,25	157:2,23 158:3,14 159:6,10,11,19 160:16,16,19,19 160:25 161:4,5,13 161:13,22 162:10 162:13,13,15,16 162:22 163:9,14 164:8,12,17,19,24 167:4,9,11,12,22 167:24 168:5,10 168:15,21,23,24 169:13,14 171:2,8 171:13,24 173:9 173:13,19,23 174:7 176:23 177:1,3,7,9,18,22 178:2,8,20 179:1 179:3,8,16,17,18 179:20 180:1,18 180:21 182:23 183:19,24 184:6 184:10,12,12,17 184:19,20 185:3,9 185:11,17,22 186:5,16,19 187:6 187:17 188:5,7,13 188:19,24 189:16 190:4 191:3,18 192:13 197:5,11 197:17 198:12 199:4,18,19,20,21 199:23 201:5,15 202:5 205:12,23 206:4,22 207:11 207:24 208:12,21 209:12,22,24 210:15,20,24,24 210:25 <b>pauses</b> 134:19 <b>pausing</b> 123:11 <b>PC</b> 3:10 <b>PCM</b> 58:22,23 77:17,19 125:10 <b>penalty</b> 212:1,4 <b>people</b> 6:5 25:25 40:3 42:4,5 48:21 48:23,23 49:7	102:5 111:19 151:24 <b>percentage</b> 158:16 <b>perfect</b> 179:22 <b>perfectly</b> 181:20 191:24 199:16 <b>perform</b> 59:9 77:24 78:23 101:21 103:17 125:14 135:20 <b>performance</b> 71:24 97:17 166:3 <b>performing</b> 170:16 190:16 208:14 <b>performs</b> 139:5 <b>perjury</b> 212:1,4 <b>person</b> 10:2,21 11:12 12:11 13:16 15:22 18:7 19:6 20:2,12 27:12,15 29:14 30:16,20 31:1,2 35:20 45:4 71:7 75:13 111:12 112:5,8 137:5,12 138:1 139:21,23 140:17 141:13,21 141:23 142:18,25 159:1 160:17 167:3,8 168:13,20 171:1,7,12 172:18 172:24 174:14,19 180:22 185:8,21 186:4,12,14 187:4 187:9,16,22 188:12,17 189:13 189:15 191:1 192:19 193:3,6 194:19,20 195:5 195:10,14,15,17 195:22 198:5 199:3 208:11,14 209:23 214:9 <b>personally</b> 5:6 <b>pertain</b> 9:3 <b>pertaining</b> 11:10 <b>petition</b> 8:4,5 119:24,25 151:4	<b>Petitioner</b> 1:6 3:4 <b>phenomena</b> 134:17 <b>phonetic</b> 112:7 163:11 <b>phrase</b> 100:22 195:3 <b>phrased</b> 87:10 89:9 <b>phraseology</b> 12:19 <b>phrasing</b> 161:2 <b>physically</b> 81:13 <b>pick</b> 104:9 130:24 <b>picked</b> 104:6,7 <b>picking</b> 119:20 134:21,22 <b>picture</b> 25:8 59:4 77:19 <b>Pictures</b> 184:24,25 <b>pie</b> 186:5 <b>piece</b> 42:19 90:24 112:10 137:7,14 138:3 139:7 140:7 140:8,20 141:15 141:24 142:1 143:3 <b>pieces</b> 29:23,25 40:18 140:24 206:21 <b>pixel</b> 34:2,2 110:16 <b>PKWare</b> 184:23 <b>pkzip</b> 113:12 184:23 <b>place</b> 29:10 88:7 118:7 121:8 151:5 158:8,10 178:5 214:6 <b>placed</b> 105:17 <b>places</b> 47:6 50:6,8 60:11 76:15 79:23 146:16 147:1 207:22 <b>plane</b> 6:13 7:1,15 7:18,20 9:5 <b>planning</b> 35:11 <b>platform</b> 170:15 <b>platforms</b> 160:11 <b>please</b> 5:17 10:18 14:3 19:11 24:17
--	--	---	--	---

27:21 29:19 35:25 77:3 78:7 82:3 89:3 91:10 112:15 114:24 121:2 127:18 133:4 150:14 158:19 163:2 171:20 183:17 189:21 193:11 <b>plenty</b> 134:11 <b>plug</b> 31:15 32:3 38:20 <b>plugged</b> 20:24 <b>plugging</b> 18:20 25:19 <b>plug-in</b> 37:13,14 38:19 <b>plug-ins</b> 21:14 24:23,23 25:20 31:16 33:11 61:6 <b>plurality</b> 44:6,9,14 47:7,22 49:22 53:24 56:24 57:1 57:11 61:20 62:4 62:8 70:4,6,14,21 79:18 84:16 202:2 <b>point</b> 8:1,10 16:23 20:22 21:2 25:7 27:8 28:13 43:19 64:14 66:5 74:6 74:13,23,24 75:13 82:16 83:19 85:3 88:12 97:6,6,25 100:8 116:8 117:8 118:7 121:9 143:19 148:15 152:5,19 154:15 162:10 165:3 177:15 178:5 181:17 184:12,20 188:21 194:6 197:24 201:20 203:3,10,19 206:13,17 208:3,3 <b>pointed</b> 23:4,6 30:3 54:23 199:7 205:10	<b>pointing</b> 148:19 204:6,11 206:2 <b>points</b> 118:6 199:8 199:15 <b>point-and-shoot</b> 174:25 175:15 <b>poor</b> 78:6 125:21 <b>portion</b> 23:10 28:22 37:4 38:18 57:7 61:16 75:12 201:22 <b>portions</b> 6:13 7:17 7:22 197:22 <b>poses</b> 148:5 <b>posing</b> 147:24 <b>POSITA</b> 10:21 12:5 13:3 15:15 45:3,5,13 57:18 57:23 59:13 158:25 201:7 205:21,24 206:2 207:10 209:25 <b>position</b> 34:5 87:20 88:4 110:11 182:18 <b>positive</b> 96:3 161:21 <b>positively</b> 161:5 164:2 <b>possibilities</b> 144:9 <b>possibility</b> 89:18 <b>possible</b> 25:1 34:1 36:11 48:6,11 87:24 90:23 91:3 91:4 92:9,9 93:21 94:1,13 95:3,9,21 95:22 98:23 99:10 136:23 143:8 170:14 173:14 194:5 <b>possibly</b> 52:21 53:14 78:18 87:25 88:21 89:18,20 97:13 110:15,15 140:10 155:17 170:21 187:10 <b>potential</b> 147:8	<b>practical</b> 152:14 <b>practice</b> 91:18 <b>preamble</b> 43:25 56:20 60:4 <b>preceding</b> 103:8 115:2 119:7 <b>precise</b> 34:6 102:14 165:4 171:18 <b>precisely</b> 6:23 36:18 63:18 77:2 <b>preclude</b> 164:11 173:10 177:17 <b>precluding</b> 177:10 <b>predates</b> 80:14 <b>prefaced</b> 112:19 <b>prefer</b> 37:13 174:20 <b>preferences</b> 173:22 174:1 <b>preparation</b> 6:2,7 7:11,15 8:20 <b>prepare</b> 5:20 7:5 <b>prepared</b> 5:22 59:8 77:23 125:13 <b>present</b> 3:14 183:12,13 201:3 <b>presentation</b> 57:9 <b>presented</b> 15:2 39:23 <b>presumably</b> 121:16 136:15 153:22 <b>pretty</b> 49:12 52:19 54:17 72:9,24 89:6 102:14 110:13 210:9 <b>prevent</b> 133:12 <b>preventing</b> 128:10 130:4 <b>previous</b> 23:4,6 34:1,5 38:7 52:19 72:25 83:21 87:19 87:21,24 88:5 94:5 110:10,11,15 163:8 176:7 181:2 181:2,9,10,12,13 182:11,21 183:1 195:2 203:9	204:13 207:22 <b>principles</b> 188:4 <b>print</b> 17:2 <b>printout</b> 17:18 <b>prior</b> 7:23 12:23 26:24 28:21 29:24 51:2 74:18 80:15 189:2 201:4 206:5 206:21 <b>privileged</b> 8:15 <b>probably</b> 7:22 13:12 32:6 177:23 210:6 <b>problem</b> 64:5,7 81:7 90:1 92:2 123:13 134:18 144:21 145:3,24 146:5,15,18 147:7 147:8,9,25 148:2 148:4,5,6,11,11 150:1 <b>problems</b> 32:13 163:12 <b>process</b> 39:11 86:17 145:18 198:8 <b>processed</b> 120:5 <b>processer</b> 165:23 <b>processes</b> 89:24 <b>processing</b> 142:8 142:12 165:23 180:5 <b>produce</b> 106:9 160:14 162:7 166:6 <b>produced</b> 113:14 120:6 130:5 <b>producing</b> 138:16 <b>profile</b> 153:7,9,11 154:6,10,19,21 160:15 161:25 162:8 163:23 164:1 165:17 166:7,15 169:20 <b>profiles</b> 153:12 154:17 155:3 159:20,21 161:6	161:22,24 163:19 165:14 166:9,11 <b>proper</b> 193:23 <b>properly</b> 90:19 165:11 <b>properties</b> 26:19 34:15,23 49:2,3 52:13 65:7 80:22 82:14 86:3 90:5 92:8,11,13,14,20 98:1 100:6,14,20 123:2 144:11 145:15 147:23 157:19 164:5 166:21 168:1,2 175:8 197:23 200:5 210:18 <b>property</b> 106:7 123:3 124:7,7 130:25 173:14 180:3,9 183:9 <b>protocol</b> 38:5 <b>provide</b> 36:11 45:17 78:4 118:12 118:13 125:19 146:22 149:13 152:6 165:4 167:24 <b>provided</b> 8:5 134:13 <b>provides</b> 78:1 114:2,4 119:1,2 125:16 <b>providing</b> 147:6 <b>public</b> 23:19,20 159:15 <b>publicly</b> 169:9,10 <b>pulse</b> 58:22 77:18 125:10 <b>purchase</b> 34:11 42:9 46:7 <b>purchased</b> 88:16 91:19 136:15,20 139:7 194:8 <b>purpose</b> 66:10 131:3 161:14 <b>purposes</b> 40:21
--	--	---	--	---

43:12 46:19,24 75:19 79:6 201:14 201:21 <b>pursuant</b> 5:1 <b>put</b> 19:25 21:13 57:22,22 81:13 105:17 <b>putting</b> 25:19,19 <b>P-A-U-L-S</b> 10:6 <b>P-O-S-I-T-A</b> 45:3 <b>p.m</b> 74:1 211:7 <b>P.N</b> 3:11 5:12	49:7,12,13,14,15 49:19 50:10,21 53:1,5,21,23 54:11,20,23 55:8 55:22 60:15,17,23 62:10,12 63:22,24 64:10,11,12,16 67:13,17,24,25 68:11 69:22 72:8 72:15,24 74:11 75:3,10,24 76:11 77:1,4 82:2,4,7,11 87:5,9 89:2,4,7,8 91:9,11,14,22,23 92:23,25 93:13,20 93:25 94:5,18,24 95:22,25 96:9,13 99:6,7,8,13 100:22 101:8 102:22 105:3,17 107:7 109:25 110:1 111:8,9,20 112:4,14,16,19 114:12,22,24 115:3,20 117:25 120:11,18,25 121:3,5,21 122:3 122:7,15,20 124:20 127:9,18 128:3 130:7 131:18 132:14,19 132:24 133:1,5 135:5,12 136:10 137:10,22 138:14 139:18 140:16 141:19 142:22 144:15 145:11 146:1,11 147:24 148:5,8 149:6,11 149:23 150:13,15 155:4,10 156:14 156:15 158:1 160:23 161:3,11 162:20 163:1,3,10 164:22 165:2 167:6,20 168:13 168:18 170:1,7,11	170:23 171:5,10 171:11,15,18,21 172:22 173:4 174:2,17 178:15 178:18,24 179:19 180:13,17 181:2,3 181:6,8,9,10,11 181:12,13,18,19 181:22,23,24 182:2,4,7,9,11,15 182:19,21,25 183:1,2,3,7,18,22 184:2,5,8 185:24 186:24 187:14 188:15 189:6,20 189:22 190:21 192:18 193:2,10 193:12 194:14 195:2,3,4 197:8 197:14 200:15 201:10,17 202:23 202:24 203:10,14 204:19,25 205:24 207:7 209:21 210:9 211:2 <b>questioning</b> 66:8 182:12 <b>questions</b> 9:21 36:17 41:22 42:22 43:23 60:7 61:8 72:21 142:18 197:15 203:21 204:3 <b>quick</b> 17:2 24:11 43:14 76:8 109:11 158:10 176:6 205:25 <b>quicker</b> 166:16,16 <b>quickly</b> 89:18 95:4 99:16 110:10,12 130:16 155:9 156:11,19,24 210:11 <b>quite</b> 12:24 28:24 30:8 34:16,16 60:22 72:23 73:4 77:9 99:14 100:15	110:12,16 113:21 121:21 125:4 137:3,24 139:10 139:15 141:7 144:6 164:9 187:12 190:14,21 192:17,20 197:15 204:5 208:6 <b>quote</b> 17:3 51:21 82:21 <b>quoted</b> 36:16 79:23 <b>quotes</b> 57:22,23 77:13 <b>quoting</b> 44:19	123:2,5 124:6,15 124:16,17,18,23 124:24 125:1,16 125:19 127:2,3,12 127:13 128:1,6,10 130:8,9 132:2,7,8 132:16,17,22,22 133:10 136:7,13 143:16 145:19,23 146:4,8,9,19,23 146:24 147:14 148:13,15,23 149:2,2,8,9,13,15 149:16,18,19,21 149:22 150:6,7,8 150:9,10 151:8,9 151:10,14,15,16 151:21,21 152:19 153:4,19 154:1,11 154:14 158:18,21 158:22,23 164:20 164:24 167:4,9 169:1,2 170:5,10 171:3,9,14 184:20 203:23 204:9 205:9 <b>rates</b> 100:24 101:9 101:22,24 124:9 124:14 137:8,15 138:4 139:22,25 140:19 141:11,16 141:25 143:4 159:3,24 169:1 170:21 <b>ratio</b> 33:21 34:16 46:11 49:4 52:14 63:5,13 64:4,6 65:1,3,8,23 67:1 68:25 69:14 70:24 71:12 76:20 78:24 79:8 80:24 81:9 81:12,14 82:15,25 83:9 84:1 85:10 85:21,23 86:7 88:15,20,23 90:6 90:7,10,19,25 91:6 92:19 93:5,8
--	--	--	---	---

93:10 95:17,19 97:13,21 98:3,6 98:24 99:11,22,23 100:3,17 103:5,10 104:8 105:23 106:2,3,11,13,17 106:21,25 107:2 107:23 108:4,11 108:18,20 109:4 109:18,22 110:3,5 110:19,22,23 111:5,11,14,16 112:10,12 113:9 114:10 115:6,11 115:13,16 116:5 116:12 117:6,15 117:23 118:3,15 118:22 119:19 123:19 124:4,5,25 125:4 126:15,19 126:22 128:24 130:21,23 131:2,4 133:24 134:23 135:2,8,11,13,20 136:8,13,18,19,21 137:7,14,18,20 138:3 140:1,4,6 140:13,20 141:15 141:24 142:11,20 143:2,10,18,20,23 144:12,17,22 145:19,23 146:4,6 147:11,14 149:15 149:18,20 152:7 154:20 157:15 159:5 161:7 162:1 163:23 166:10,12 166:22 167:18 169:19 174:11 185:16 190:13 198:20 200:9 202:11,12 203:11 203:24 204:9 205:9 209:7 210:19 <b>ratios</b> 86:12 103:14 140:11,24 141:12	159:6 <b>read</b> 14:5 16:19 19:13,18 20:8,10 20:16 21:25 22:22 24:19 27:22 29:21 36:2,22,24 49:10 53:22 62:1 64:22 77:5 82:5 84:7 89:4,5 91:12 93:6 108:25 112:17 114:25 115:2 116:10 118:20 120:3,25 121:4 127:17 130:6,7 133:6 148:3,9 150:15,16 161:13 163:4 168:21 171:21,22 189:23 193:13 201:24 206:9,12,18 212:4 214:11 <b>reader</b> 161:11 163:17,18 194:2 <b>readily</b> 15:3 <b>reading</b> 18:21 23:13,14 24:3,21 28:16 83:4 84:20 110:25 131:8 162:13 168:14 171:2,8,13 179:17 179:18 185:9 189:1 190:17 192:25 194:20,22 195:18 200:21 207:21 <b>reads</b> 125:5 158:14 159:10 162:5 167:22 168:10 194:22,23 199:14 205:6 206:2 <b>ready</b> 130:15 <b>real</b> 6:23 62:25 63:6 69:9 71:24 71:24 90:13 104:1 119:15 127:5 128:11 129:9,23 130:5,11 132:10	133:13,22 134:12 134:16 135:17 145:4 152:16,17 153:23 160:12 161:24,24 163:20 163:21 165:21,25 166:3,3,13,22,24 195:6,11 198:7 <b>really</b> 22:20 37:5,6 38:4 48:4 54:24 61:7 63:14,16 64:22 65:2,4 69:9 75:4 76:24 78:22 85:5 87:15 88:8 94:19 98:4,8,12 98:14 106:14 115:15,18 116:8 116:23,25 117:2 117:19 121:19 122:21 128:13 132:13 144:6 147:13 148:21 165:20,23 170:25 171:18 173:19 174:4 175:16,24 175:25,25,25 176:12,14 180:21 186:18,23 195:3 202:12 204:18,18 204:20 209:2 <b>Realtime</b> 1:8 3:10 7:4 <b>reason</b> 27:25 38:3 41:13 83:11 104:5 113:18 129:3 139:9,20,23 140:17 141:22 144:16 155:21 174:4 186:18 193:8 208:8 213:4 213:8,12,16,20 <b>reasonable</b> 54:13 54:16 181:20 182:17 <b>recall</b> 8:9 9:8 10:2 10:20 11:9 24:12 40:12 70:2 157:9	176:25 177:5 178:4 184:11 206:20 <b>receive</b> 37:20 <b>receiver</b> 129:5 157:12 <b>receiving</b> 120:7,13 123:11 165:6 169:2 <b>recess</b> 35:17 73:15 109:15 151:1 198:25 <b>recited</b> 50:2 56:22 <b>recomputation</b> 90:2 <b>record</b> 14:5 17:24 17:25 19:13 20:10 21:25 24:19 27:22 29:21 35:6 36:2 36:24 73:14 77:5 82:5 89:5 91:12 109:14 112:17 114:25 121:4 133:6 150:16 163:4 171:22 189:23 193:13 198:24 206:10,11 209:19 <b>red</b> 88:3,6 <b>reduce</b> 157:15 <b>reduced</b> 127:12 130:9 132:7 146:8 <b>reduces</b> 162:24 <b>reducing</b> 162:18 <b>reduction</b> 119:19 <b>ref</b> 107:1 <b>refer</b> 11:1 42:7 49:7 50:24 68:21 105:10,19 113:5 117:9 124:16,17 124:24 151:24 153:6 160:18 206:11 <b>reference</b> 17:9,10 25:17 74:18 104:25 105:4 106:6,23 117:23	117:23 124:22,25 189:7 205:6 <b>referenced</b> 192:12 <b>references</b> 13:14 25:16 29:5 30:11 189:3 190:17 191:19,20 192:4 192:16,22 206:16 207:19 210:1 <b>referred</b> 19:19 23:24 27:3 28:5,6 51:13 61:5 75:5 76:9 116:18 148:13 158:23 <b>referring</b> 10:10 11:6 12:9 20:18 25:1 28:23 42:7,8 42:25 43:6 48:13 49:9 75:11 76:14 102:1,4 107:22 112:2 120:24 148:8,10 153:20 186:8 194:18 205:15 207:16,16 207:20 <b>refers</b> 43:5,10 44:19 45:12 57:21 59:12 101:14,16 107:25 114:1,15 154:1 157:5 <b>refresh</b> 13:7,20 24:13,15 43:16 76:10 <b>refuse</b> 181:6 <b>refusing</b> 181:7 <b>regarding</b> 7:4 75:18 <b>region</b> 87:20,23 176:7 <b>relate</b> 76:13 106:3 166:9 174:22 210:22 <b>related</b> 25:9 65:23 71:11 81:10 85:18 85:20 86:20 90:7 92:20 93:8 95:19 98:10 99:24
---	--	---	---	---

106:25 107:3 117:6 147:11,15 149:16,19 203:25 <b>relates</b> 38:2,4 49:11 103:2 106:15 116:11 117:5 118:21 <b>relating</b> 38:1 76:9 123:8 134:25 164:14 197:16 <b>relationship</b> 103:9 109:17,19 110:2 111:4,10 126:16 126:17 <b>relative</b> 90:25 159:3 <b>relatively</b> 78:1,3,4 78:6 114:1,2,15 119:1 124:22 125:16,18,19,21 <b>released</b> 34:25,25 51:2 169:9 <b>relevant</b> 20:16 54:24 165:10 181:18 204:4 <b>reliably</b> 111:6,13 112:6,9 <b>relies</b> 190:11 <b>rely</b> 47:2 <b>relying</b> 53:17 174:6 <b>remember</b> 7:21 51:7,23 59:11 74:18 77:11 78:15 80:14 126:15 128:17 <b>REMEMBERED</b> 5:1 <b>render</b> 12:12 29:5 29:6 30:11 31:10 189:10 192:16 <b>rendered</b> 12:18,23 28:15,21 53:17 57:8 62:19,20 75:9,16 77:8 83:11,12,18 84:18 92:1 93:1,1 94:9 94:23 115:17,18	151:20 162:15 179:16 188:24 189:4 190:19 194:24 195:21 196:18 <b>rendering</b> 80:5,8 80:17 86:14,16 128:19 190:2 <b>renders</b> 53:12 61:18 68:17 72:21 72:25 73:10 82:12 86:8 96:4 123:23 151:8,8,9,13,14 151:15 154:10 158:18,21,22 161:4 164:17 167:22 168:10 174:7 188:1 190:5 192:7 202:6 209:12 <b>repeat</b> 6:18 11:22 14:2,4 15:20 19:10,12 21:23 22:13 24:16,18 26:10 27:19,21 29:18,20 30:23 32:24 35:24 36:1 39:1 42:1 46:22 48:9 49:19 50:21 68:11 69:22 72:15 74:11 77:1,4 82:2 82:4 87:5 89:2 91:9,11 93:25 96:9 99:5,8 101:7 102:22 105:3 107:7,13 112:4,14 112:16 114:12,22 114:23 120:18,25 121:3 122:7,15 124:11,20 127:9 127:18 128:3 132:19 133:3,5 135:5 136:10 137:10 140:16 141:19 146:1 149:6 150:13 151:11 155:4,10	156:15 158:1 160:23 162:20,25 163:2 164:22 167:6 168:18 170:7 171:5,11 172:22 174:17 178:24 183:18,22 184:8 185:25 187:13,14 188:15 189:19,21 193:10 193:12 194:14 197:8 200:14 201:17 207:7 <b>repeatedly</b> 80:18 80:18 81:4 83:14 86:9,14,15 <b>repeating</b> 62:11 112:20 <b>rephrase</b> 74:22 75:24 201:19 <b>replace</b> 15:16,23 18:8 <b>replaced</b> 15:10 19:2,20 20:19 22:25 67:8 70:19 <b>replacing</b> 181:3 <b>report</b> 13:20,21 14:6 16:19,22 17:4 18:23 24:11 24:12 28:22 29:9 29:11 32:11 36:16 36:16 41:3 42:20 42:23 43:3,14,24 47:5,14 49:10 50:6,8 52:1 54:24 60:1,11 73:4 75:4 75:8,12,22 76:1,5 76:15 94:20,20 95:8 96:1,2,6,11 158:7,9 162:9 164:8,13 167:21 188:21 190:23 191:6 192:6,21 194:21 201:22 204:7 207:12 210:13,19 <b>reported</b> 1:23	214:8 <b>reporter</b> 5:5 6:17 8:7 10:5,17 12:8 14:3,23 15:4 19:11 20:8 21:22 22:8 24:17 27:20 29:19 35:25 36:22 40:19 49:6 54:7 58:24 59:2 61:24 76:3 77:3 78:7 82:3 89:3 91:1,10 112:15 114:23 121:2 124:11 131:12 133:4 144:18 149:17 150:14 151:11 158:19 163:2 171:20 180:14 189:21 193:11 195:8 214:8,25 <b>reports</b> 12:16,20 13:6,13,22 <b>reproduce</b> 78:2 125:17 145:4 <b>reproduced</b> 127:5 128:11 130:11 132:10 133:13 <b>reproduces</b> 78:5 125:20 <b>reproducibility</b> 78:3,6 125:18,21 <b>reproducing</b> 104:1 <b>requested</b> 14:5 19:13 20:10 21:25 24:19 27:22 29:21 36:2,24 77:5 82:5 89:5 91:12 112:17 114:25 121:4 133:6 150:16 163:4 171:22 189:23 193:13 <b>requesting</b> 8:15,18 <b>require</b> 34:19 99:19 167:17 176:9 <b>required</b> 154:20 <b>requirement</b> 202:1	<b>requires</b> 34:3,18 78:8,10 89:22 125:21,24 126:1,5 138:17 <b>reread</b> 82:8 <b>resolution</b> 34:3 87:25 88:2 110:16 <b>resources</b> 34:18 46:10 89:22 90:2 154:18 161:19 166:13,17 183:15 <b>respect</b> 49:3 89:14 116:3 144:11 175:9 197:15 204:19 205:2,18 <b>respective</b> 214:15 <b>respectively</b> 100:25 101:11 <b>respects</b> 80:1,2 <b>responses</b> 142:18 <b>restate</b> 68:10 137:25 <b>result</b> 38:9 116:14 175:23 <b>resulted</b> 114:6 <b>resulting</b> 78:2,5 114:1,3,15,18 118:15 119:2 124:10,14,15,23 125:17,20 133:24 143:17 <b>returning</b> 113:1 <b>review</b> 6:19,24 7:5 7:11 8:1 73:6 76:12 <b>reviewed</b> 6:11 7:24 8:3 13:25 24:14 41:18 43:18 75:4 76:11 101:5 114:21 120:24 125:3 127:17 148:20 155:9 158:6 164:13 189:18 191:5 201:23 206:1 210:7,10 <b>richer</b> 85:1
---	--	--	--	--

<b>Richter</b> 2:4 3:5 <b>right</b> 8:11 16:16 17:19 33:16,19 45:24 50:8,14 57:9 63:10 66:20 66:23 68:19 88:3 99:4 101:15,19 104:3 109:1 113:16 116:10 118:8 135:15 137:21 146:17 147:5 151:7,18 153:4 154:2,4 166:3 176:23 191:13 195:13 199:5 <b>Roman</b> 11:24 <b>roughly</b> 101:16 <b>row</b> 36:18 <b>rule</b> 170:23 206:8 <b>run</b> 33:21 34:19 87:13 108:6,17,21 108:21 109:3 113:19,21 130:21 130:22 135:15 138:12 143:10 153:16 154:17 160:1 162:5 163:22 169:22 196:10 <b>running</b> 32:3 38:10 85:5 86:15 88:17 97:20,22 119:9 <b>runs</b> 108:9 124:6 131:1 136:19 139:6 <b>run-length</b> 39:20 40:10 42:14 <b>R-A-T-E-S</b> 124:14 <hr/> <b>S</b> <hr/> <b>safe</b> 73:6 171:11 <b>sake</b> 138:22 <b>satisfied</b> 207:14 <b>satisfies</b> 145:17 <b>satisfy</b> 124:1 130:24	<b>satisfying</b> 156:10 156:14 <b>saw</b> 156:1 157:20 158:10 163:10 172:15 177:10 <b>saying</b> 19:19 21:1 27:25 31:13 37:6 64:2 67:20 79:24 84:14,18 93:14,17 99:6 102:7 106:23 117:25 129:16 130:8 137:18 138:12 140:9 142:4 163:16 171:25 173:2 179:8 <b>says</b> 11:3 14:12 21:11 22:22 23:5 27:1 31:17,24 43:24 47:21 48:24 55:11,13 56:3,21 57:10 58:19 68:20 70:12 77:15 79:16 79:16 82:22 93:3 101:20,20 102:14 105:11,18 106:18 107:21 108:15,25 113:4 114:2 118:11,25 123:6 125:4,23 129:10 132:6,12 146:17 148:3,10 149:12 150:6 184:20 193:16 194:3,4 197:1 199:11 200:22 201:24 <b>scenario</b> 110:17,24 <b>schedule</b> 66:22 78:19 79:13 97:16 146:21 <b>science</b> 42:17 <b>seal</b> 214:21 <b>seamless</b> 63:10 <b>search</b> 34:4 38:12 38:13 88:1 110:7 185:10 <b>searching</b> 110:8,14	<b>sec</b> 101:3 158:10 <b>second</b> 8:4,5 11:10 24:13 30:4 61:23 62:7 65:12 67:9 70:13,19,20 79:21 82:11 83:17,20 88:6 91:22 101:2 101:15,17 102:7 102:16,20,24 105:2,6 106:7,8 110:20 113:15 120:4 122:24 123:9 133:25 134:14 148:14,18 148:23,24,24 149:21,22 152:2,2 153:13,17,18,21 154:1,5,8,9,11,12 154:15 158:8,11 162:6,7 166:6 198:17 203:22 204:4 205:13,14 205:15 210:3 <b>secondly</b> 31:12 168:24 <b>section</b> 11:24,25 14:1,6 23:23,24 23:25 29:22 32:11 36:15 45:20 51:7 51:9,9,10 68:17 70:11 73:3 75:3,8 76:9 77:13 82:21 98:4 164:14 168:9 191:6,14 205:25 207:5,15,16 210:2 <b>sections</b> 13:12,19 23:22 36:16 51:6 51:6 54:24 73:7 98:5 <b>see</b> 12:3 21:1 27:2 31:14 39:22 40:1 53:12 62:14,15,17 66:5,10 76:10 78:21 79:22 101:1 101:9,12 103:23 117:4 134:17 137:25 151:7,13	151:19 161:13 162:13 163:15 169:12,14 174:3 179:8 181:15 186:18,22,24 192:22 199:9 202:11 206:24 <b>seeing</b> 162:13 189:7 <b>seen</b> 9:22 134:6 208:19 <b>sees</b> 25:7,9 64:21 159:10 167:24 <b>select</b> 108:7,9,10 145:16 161:8 169:15 170:19 173:12 185:3 208:17 <b>selected</b> 145:22 146:3 157:18 190:9 191:9 196:19 <b>selecting</b> 21:10 26:17 79:5 95:16 108:6 164:4 167:25 174:9 206:25 210:17 <b>selection</b> 14:15,25 25:12 83:17 84:23 86:2 123:4,4 147:2 157:4 179:8 198:8 205:23 206:4,19 208:17 <b>selector</b> 206:23 <b>selects</b> 108:5 140:25 144:12 <b>sell</b> 34:13 <b>send</b> 121:14 129:20 129:22 155:23 <b>sending</b> 128:14,15 177:21 193:15 <b>sense</b> 35:15 42:8 60:9 91:23 100:15 108:12 110:4 112:2 113:17 118:18 137:3,24 139:11,17,19	152:11 161:16 179:22 208:5 <b>sent</b> 128:24 133:25 157:11 161:16 <b>sentence</b> 20:15 22:22 55:11 56:1 56:1 <b>separately</b> 12:17 82:7 91:14 <b>sequence</b> 14:9 57:5 72:21 138:25 139:6 197:23 <b>serve</b> 74:21,21,25 <b>server</b> 146:18,20 173:19 177:8,20 183:14 193:15 194:6,7 195:24 196:16,19 <b>servers</b> 183:13 <b>Session</b> 74:1 <b>set</b> 88:23 90:19 116:5 171:25 184:21 214:20 <b>sets</b> 12:13 <b>seven</b> 209:18 211:1 <b>SHEET</b> 213:1 <b>Sheppard</b> 2:4 3:5 5:3 <b>short</b> 176:1,19 <b>shorthand</b> 5:5 214:8,25 <b>show</b> 68:19 133:17 <b>shown</b> 21:14 <b>shows</b> 18:13 20:23 25:10 31:16 32:2 63:7 93:9 100:2 157:2,6 <b>sic</b> 17:6 77:20,25 94:15 <b>signal</b> 59:9 77:16 77:24 78:3,5 125:7,15,17,20 <b>signals</b> 14:13,14 127:5 130:11 132:10 <b>signature</b> 214:13 <b>signed</b> 212:7
--	--	--	--	--

<b>significance</b> 144:7	12:11 13:8,16	38:10,11 67:8	163:11 178:14	121:12
<b>similar</b> 14:16 29:25	15:23 18:7,21	80:2,3,9 83:7	185:24 202:25	<b>specify</b> 166:9 180:6
36:17 37:8 129:19	19:6 20:2,13 21:7	87:13 88:8 95:14	<b>sort</b> 29:8 41:22	<b>specifying</b> 37:25
157:3,19 175:19	21:12 23:8 24:21	96:23 97:22 110:3	57:9 75:10 80:15	38:5 171:16
191:20 192:5,6,22	25:14,23 26:1,22	110:22 113:20	102:5 113:17	<b>speech</b> 25:11 157:6
197:17 199:16,22	27:12,16 28:16,19	122:24 136:24	118:18 121:5	186:22
199:23 205:6	29:14 30:16,20	139:6 185:5	122:22 134:17	<b>speed</b> 26:19 49:3
208:16	31:1,3,24 32:1	196:10 198:18	146:11,11 149:14	52:13 63:4,12
<b>similarities</b> 32:10	35:20 45:4,9	<b>slowly</b> 64:8 81:15	152:19 164:10	64:3,4,25 65:8,17
<b>similarity</b> 32:12	59:20,20 60:25	89:20 99:19	165:2 171:17	65:18,22 66:1
203:10,20 204:10	64:20 75:14 83:3	131:16	174:3,4,21 176:11	68:22 70:23 71:10
206:16,17	84:19 94:14 98:8	<b>small</b> 63:15 78:4	176:17,20 177:12	71:10 76:19 79:7
<b>similarly</b> 28:11,11	110:24 111:12	87:20 90:20 98:12	189:5 190:15	80:23 81:11 82:14
63:17	112:5,8 137:6,13	113:21 116:24,25	<b>sorts</b> 30:25 174:13	92:18 95:17 99:22
<b>simple</b> 175:24	138:1 139:21,24	125:19 126:18	<b>sound</b> 109:12	103:9 105:20
<b>simpler</b> 88:9	140:18 141:13,22	143:24 145:18	132:13	108:1 113:5
113:11	141:23 142:19	166:5	<b>sounds</b> 31:8 35:16	117:10,11,18
<b>simply</b> 41:19 56:21	143:1 159:1,7,9	<b>smaller</b> 113:14,20	54:20 132:24	118:14,19 120:14
81:11 88:10	159:13,22 160:18	115:11 118:24	150:25 153:25	121:24 122:12,19
128:12 134:12	161:12 162:12	119:6,9,11 126:10	184:5	124:5 128:23
139:12 181:18	164:6 166:1,19,20	126:21 127:3,13	<b>source</b> 91:5	129:3 131:1,3,8
<b>simultaneously</b>	167:3,8 168:10,14	130:9 132:8 146:8	<b>speak</b> 37:2 206:9	137:2 145:7,9
32:4	168:20 169:6,11	<b>smooth</b> 98:18	<b>speaking</b> 7:22 99:3	154:19 155:18
<b>single</b> 141:4 142:15	171:1,7,12 172:18	<b>software</b> 34:20	100:13 149:12	156:21,21,22
<b>sir</b> 75:23 120:1	172:24 174:15,20	42:5,19 95:24	177:6	158:3 167:17
<b>sitting</b> 40:12	179:7,17 180:23	139:7 153:14,16	<b>speaks</b> 54:17 161:5	190:12 198:20
139:16 176:25	184:13 185:8,22	154:18 165:16	<b>specific</b> 8:9 10:8	210:18
177:5 178:4	186:5,12,15 187:4	166:13	33:9 47:17 74:6	<b>speeds</b> 138:12
<b>situation</b> 79:11	187:9,16 188:12	<b>sold</b> 176:15	75:18 81:22,23	159:24 160:1
86:19 127:6,11,14	188:18 189:1	<b>solve</b> 64:5,7 144:21	109:20 117:24	168:7 184:16
127:19,22,25	191:2 192:21	145:3,24 146:5	<b>specifically</b> 7:21	<b>spend</b> 110:13 160:3
128:5,9 131:5,11	193:4 194:19,20	<b>solving</b> 32:13	9:15 10:9 14:18	160:6 169:25
131:15,23,25	195:5,10,17	<b>soon</b> 66:7 210:9	21:1 23:5,6 24:5	176:13
132:1,16,21 133:7	196:16 199:4,13	<b>sophisticated</b> 88:8	24:24 27:1 32:17	<b>spending</b> 85:7
135:3,8,9 136:17	200:1,21 207:19	<b>sorry</b> 15:4 17:14	39:7 40:6 47:9,24	<b>SS</b> 214:1
141:21 142:16,17	208:11 209:23	20:7 21:23 46:17	50:15 52:2 54:1,3	<b>stand</b> 9:9,11
142:25 143:12	<b>skipped</b> 58:19	51:19 53:6 58:24	55:13,14,25 65:10	<b>standalone</b> 51:14
144:2 154:22	<b>slightly</b> 38:14	61:14 62:1,10	105:11 112:20	<b>standard</b> 21:14
155:5,11 160:19	46:11 117:3	63:19,21 66:12	150:6,17 152:25	23:7,10,13,16
160:25 162:17,23	<b>slow</b> 14:23 15:4	72:13 74:4 107:7	163:15 168:5	24:22 25:3,5,22
173:7,11 174:14	54:7 61:24 78:7	107:9,13 114:9	199:15 204:22	28:7,11,12 32:6
174:19 177:20	85:5,9 104:6,9	121:25 122:5	208:22 209:14	34:12,13,21 37:18
188:3	119:11 132:1	124:11 125:6	<b>specification</b>	37:19 38:4,8,15
<b>situations</b> 163:17	145:4 154:23	131:16 139:23	105:14 152:6	38:16 42:4,5,6,20
<b>size</b> 119:19 138:17	155:6,12 157:14	141:22 148:17,19	<b>specifications</b> 6:22	43:5,7 44:24 46:8
166:7	158:20 198:14	151:12 156:6	69:8 106:3,4	46:9 47:2,4 48:23
<b>skill</b> 10:3,22 11:12	<b>slower</b> 34:19 38:9	158:10,13,19	116:11 117:4	48:25 49:2,9 51:1



51:6,14,15,17,18 51:19,20,21 52:8 52:11 58:10,12 82:20,22 83:6 84:5 86:5 88:2,12 89:15 90:24 91:4 91:6,7,15,16,16 91:19,21 92:3,4,5 92:6,24 95:4,5,15 96:14,15 97:4,5 102:5,16 103:11 103:12 105:11 106:16 115:4 148:23 151:24 152:5,5 153:3,6,7 155:3 159:17,20 160:1,5,10 163:24 165:4,8,9,12,14 165:15,24 166:2,7 166:18,21 167:11 169:17 170:12,13 170:19,20 172:6 175:6,6,7,10,13 175:18 176:9,11 177:16 184:13,15 185:13 190:9 191:21 196:4,7,9 196:10 197:2,3 200:5,6 <b>standardization</b> 26:2 <b>standards</b> 21:4,5 26:5,25 27:3 28:6 32:7 34:24,25 46:15,17,17 56:9 56:10,11,12 58:6 58:7,9 59:22 82:24 87:12,12 89:10,11,13,17,17 93:13,17 94:15,19 95:10,12,14,15 96:16,17,20 97:8 99:18 102:6 152:10,24 153:7 159:3,9,13,16,21 159:23 160:2,10 161:6,20,22,23,23	163:18,19 164:6 166:8 167:13,15 168:2 169:5,7,14 170:17,24 172:3,4 172:11,12 173:6 184:23 185:11 196:1,2,20 200:3 201:1,2,3 <b>standing</b> 12:17 <b>stands</b> 10:21 <b>start</b> 5:16,16 13:23 13:24 61:15 66:12 69:10 71:2 107:9 112:7 131:13,16 131:17 158:12 180:15 186:1 <b>started</b> 5:16 95:20 <b>starting</b> 43:15 77:10 101:24 203:9 <b>starts</b> 68:19 <b>state</b> 5:6,17 68:4,6 85:17 96:2 151:7 151:13 178:2,8 185:21 197:4,10 205:21 214:1 <b>stated</b> 9:12,16 59:7 77:22 125:12 214:7 <b>statement</b> 119:23 171:19 <b>statements</b> 9:10 <b>states</b> 1:1 44:22 45:16 58:20 74:14 100:23 <b>steady</b> 81:16 <b>step</b> 87:16 92:15 160:20 161:1 162:18,23 <b>steps</b> 33:23 <b>stipulation</b> 214:14 <b>Stonedale</b> 3:11 4:4 5:12,13 6:10 8:18 9:1 10:11,18 11:17,23 13:1 14:3 15:14,21 16:6 17:1,11,14	17:21 18:4 19:11 20:6,11 21:19,23 22:4,14 24:17 26:6,11 27:10,20 29:12,19 30:13,24 32:18 35:5,8,18 35:25 36:10,20 37:10,17 39:2 40:20 46:23 48:10 50:22 52:22 54:12 55:10,24 61:12 62:1,13 66:7,9 68:2 69:18,23 73:12 74:12 76:4 77:3 80:10 81:20 82:3 84:6 87:6 89:3 90:22 91:2 91:10 93:19 96:10 99:9 102:23 107:4 107:15 109:14,16 111:3,24 112:15 113:23 114:13,23 116:2 117:21 120:19 121:2,22 122:2,5,9,10,17 124:21 127:10 128:4 131:10,20 132:20 133:4,11 135:6 136:11 137:11 140:5 141:9,20 144:19 145:2 146:2 149:7 150:5,14,21,25 151:2 156:8,17 158:2 160:24 162:21 163:2,6 164:23 167:7 168:19 170:8 171:6,20 172:23 174:18 178:25 181:5 183:23 184:9 185:20 186:9,10 187:3,15 188:10,16 189:21 190:24 193:11 194:10,15 195:9 197:9 199:2	200:16 201:18 203:2,13 209:20 210:5 211:3 <b>stop</b> 70:9 156:6 <b>stopped</b> 49:18 <b>storage</b> 121:12 <b>store</b> 152:21 <b>Storer</b> 1:14 2:1 5:9 5:14,18 35:19 180:11,17 202:22 206:8 212:3,16 213:25 <b>straightforward</b> 100:5 <b>strange</b> 35:12 <b>stream</b> 37:21 38:1 38:2,3 165:7,10 173:5 180:6 <b>streaming</b> 1:8 3:10 152:23 153:24 <b>streams</b> 173:3 196:12,14 <b>strictly</b> 117:18 <b>strike</b> 31:1 <b>structure</b> 18:13 <b>structured</b> 15:12 19:4,21 20:20 23:2 <b>stuff</b> 51:3 85:8 128:15 180:19 <b>subject</b> 6:8 <b>submitted</b> 10:1 <b>subscribed</b> 214:13 <b>substance</b> 6:4 8:11 8:19,23 9:9,16 <b>successfully</b> 71:13 <b>suddenly</b> 123:11 <b>sufficient</b> 108:11 108:17 109:4 128:23,23 152:8,8 154:19 <b>sufficiently</b> 108:17 109:3 120:8 130:16 <b>Sugar</b> 3:12 <b>suggest</b> 66:14 <b>suggesting</b> 204:16	<b>suggests</b> 31:23 196:21 <b>suitable</b> 78:11 126:6 <b>suite</b> 3:11 88:18 90:4 92:7,10 93:2 93:11 100:20 104:20 123:1 144:10 145:8 157:17 161:14 172:1,14 173:12 185:18 186:16 190:7 191:9,23,24 194:4 <b>summarize</b> 12:21 52:15,19 67:12 102:13 103:23 <b>summarizes</b> 103:25 108:22,24 <b>summarizing</b> 67:18 129:15 <b>summary</b> 52:21 67:13,15,16 108:25 135:22 147:3 155:19 <b>super</b> 33:20,21 <b>supervision</b> 214:9 <b>supplement</b> 9:20 <b>support</b> 15:12 19:4 19:22 20:20 23:2 77:8 184:15,16 209:15 <b>supported</b> 45:7 <b>supports</b> 76:23 <b>suppose</b> 138:6 208:6 <b>supposed</b> 37:22 172:9 189:13 <b>sure</b> 7:7,14 9:13 10:16 12:19,24 13:11 18:11 19:9 19:14 21:13,19 22:18 26:14 27:4 29:7 30:8 33:3,7 35:2,3,7 36:6 39:5 43:8 47:19 53:5 53:15 56:17 61:6
---	---	--	---	--

66:16 68:3 72:9 72:23 74:19 84:12 99:7 100:14 109:7 109:24 121:21 137:2 138:5 141:7 141:18 143:5 144:6,7 156:13,23 170:1 174:22 186:14 187:12 188:20 189:19 190:14,20 193:1 193:14 194:25 200:19 207:6 208:6 <b>swapped</b> 15:3 <b>switch</b> 78:19 79:24 85:10 <b>sworn</b> 5:10 214:4 <b>syntax</b> 23:22,23 37:20,22 51:7,8,9 51:24 165:8 180:6 <b>system</b> 10:3 13:4 13:17 18:8,9 19:7 19:15 20:3,14 21:2 22:11,17 23:5 24:6,9 26:8 26:13,15,17 27:1 27:6,14,17 28:7 29:15 30:18 31:4 31:6,15 32:2,21 33:2 35:22 40:2 41:24 43:1,25 44:1,4,4 45:23 49:16,20 50:2,2 52:24 53:14,19 55:2 56:21,22,22 58:4,12 59:18 60:4,4 62:24 63:6 63:11 69:9 71:1 72:1 76:17 79:1 81:4 85:2 86:15 86:22 90:18 98:11 98:15 103:23 104:15,22 106:19 108:10,11 116:20 117:20 118:11,13 119:12,17 121:16	127:6,15,20,23 128:1,7,21 130:3 130:18 131:14 136:17 139:24 141:14 142:4,6,8 142:12 147:6,8,25 150:3,4 154:24 155:7,12 157:2 161:7 164:3 165:22 169:12 173:19 174:9 177:22 187:23 188:4,13,19,21 189:16 191:3 192:20 193:4,19 193:24 195:12 196:22 198:1,19 199:8,16 200:22 210:16,21 <b>systems</b> 10:22 29:24 32:12 51:24 191:16 208:16 <b>S-T-O-R-E-R</b> 5:19  <b>T</b> <b>table</b> 10:24 11:3 12:3 <b>take</b> 14:11 17:2 24:10,11 27:24 30:6,17 31:3,5 33:25 34:7,8 35:14 39:14 40:13 43:4,14,16 46:10 51:5 63:4 64:3 66:6 71:9 76:8 82:6 83:1,2 85:15 86:25 88:10 90:11 91:13 93:4 98:7 98:10 103:3 104:24 106:1,8,13 109:2,11 110:18 110:19 111:20,20 113:10 114:20 115:16 120:23 123:19,22 125:2 126:11 127:16 139:7 145:7,9	150:23 151:17 153:9 155:8,9 168:25 173:24 174:4 175:1,7,25 176:16,18,19 177:14 191:2,2,11 191:12 205:25 <b>taken</b> 35:17 73:15 85:17 109:15 123:15 151:1 198:25 212:5 214:6 <b>takes</b> 76:18 89:23 92:18 93:9 98:1 103:17 109:2,6 119:17,18 121:8 134:4 139:2,4 143:17 145:5,13 147:16,18 155:16 155:23,24,25 174:11 179:12 185:5 199:20 200:8 204:8 206:23 209:6 <b>talk</b> 6:3 12:17 14:8 29:13 31:21 40:24 41:4 47:6 48:21 49:8 53:13 57:5 57:13 65:12 66:1 69:1 82:22 83:1 85:19,19 92:25 93:5,7 102:5 103:8 111:21 126:15 152:1 154:6 156:22 157:24 159:19 191:15 192:23 204:11 205:11 207:5 <b>talked</b> 28:25 29:11 32:10 47:1 53:3,9 53:10 58:3 59:11 59:17 69:3 70:6 82:16 91:14 99:14 110:6 115:7 123:1 130:17 147:3 149:24 151:23	153:8 163:8 169:17,23 170:11 170:12 175:2,4 189:24,25 190:1,1 190:4 197:13 199:18 202:8 204:4 205:5 207:2 209:8 210:23 <b>talking</b> 7:8 17:15 26:16 28:23 40:6 45:24 50:25 53:2 57:6 68:16 72:20 74:3 75:21 78:21 78:25 80:16,16 84:13,18 88:13 94:13,22 95:8,9 97:7 102:3,16 105:9 112:24 115:10 117:18,19 118:23 126:8 134:3 137:16 138:6,9,10 142:2 142:3 149:12,14 151:21 152:12,15 156:18 161:4,13 164:15 177:7 187:22,25 188:2,5 188:6 189:4 190:3 195:15 200:3 207:13 208:13 209:14 <b>talks</b> 12:20 21:4,8 43:11 65:10,12 66:21 79:4 82:20 84:3 90:8 100:1 103:15 115:7 116:17,21 118:23 121:11,13 152:11 159:19,20 168:5 173:23 193:15,19 202:9 209:4 <b>target</b> 121:15 151:24 152:1,6 153:13 162:4 <b>targeted</b> 35:1 152:18 153:22 <b>task</b> 170:16	<b>taught</b> 14:25 69:24 71:9 72:17 76:21 76:24 123:23 129:25 130:1 179:16 185:17 189:2 190:6,18 195:19 196:17 198:21 205:23 206:4 209:5 <b>teach</b> 60:13,20 63:25 210:15 <b>teaches</b> 15:6 18:24 22:23 44:1,4,4,14 45:13 50:2 53:9 56:22 57:11,24 58:14 59:14 60:19 60:23 61:4 66:15 72:12 83:2 84:24 85:1,1 86:2,3,25 90:4,11 92:10,12 93:2,4 96:4 97:11 98:1,7 100:2,4,5 106:1 123:17 129:25 130:18 144:10 145:5 158:17 168:25 186:16,19 198:4,9 198:12 202:6 209:5 <b>teaching</b> 13:3 68:12 108:8,8 128:18,20 134:20 179:20 193:25 <b>teachings</b> 13:9,9,10 13:17 14:20 15:1 15:12 19:3,21 20:20 23:2 28:15 29:15 189:15 191:2,3 194:22 195:12 210:14,21 <b>team</b> 5:25,25 8:13 <b>technical</b> 58:25 99:5 <b>technically</b> 99:2 100:13 <b>techniques</b> 30:17 30:20 155:16
--	---	--	---	--

205:23 206:4,19 <b>technology</b> 87:11 92:16 99:14 104:22 129:2 159:16 165:3 170:2,25 <b>Tel</b> 3:7,12 <b>Telecommunicat...</b> 184:22 <b>tell</b> 5:10 6:4 60:18 95:2 187:2 <b>telling</b> 27:11 30:15 128:13 141:10 160:17 180:19 <b>tend</b> 111:14 <b>tends</b> 111:11 <b>ten-second</b> 176:19 <b>term</b> 27:5 45:1,14 45:24 46:3 57:25 58:1 59:15 68:20 81:1,2 105:16,18 105:24 106:11 107:18,19,20,24 108:13 111:18 112:21 113:3,4 115:3 116:4 117:5 117:8 118:2,5,21 126:16 134:6 148:15 169:20 <b>terminal</b> 146:21 <b>terminology</b> 40:11 43:10 61:7 75:6 84:13,14 115:12 115:20,21 116:15 117:3,16 157:1 <b>terms</b> 7:14 29:1 30:14 43:22 45:22 49:11 52:13 60:7 65:8 80:5,22 81:10 82:14 83:8 86:7 90:5 96:14 96:21 99:24 103:17 105:15 147:11 151:24 157:19 169:21,22 185:6 192:9 210:12,15	<b>testified</b> 5:11 <b>testify</b> 214:4 <b>testimony</b> 212:8 214:7 <b>Texas</b> 3:11,12 <b>text</b> 25:12 76:8 83:22 85:4,4,6 186:22 <b>textbooks</b> 45:10 <b>thank</b> 5:14 9:25 17:21 37:1 112:19 113:24 121:1 126:25 127:18 150:22 172:17 183:17 211:4,6 <b>Thanks</b> 14:2 186:3 <b>theme</b> 25:15 167:20 <b>thing</b> 43:22 62:2 85:13 89:23 100:18 115:7 119:8 129:24,24 144:8 152:13 155:1 176:20 189:5 192:3 196:2 206:10,12 <b>things</b> 5:15 9:7,19 18:15,18,20 25:24 26:4 32:3 33:9,11 33:23 37:24 53:2 53:10 57:15 59:23 59:25 60:24 76:20 76:24 78:20 79:25 90:6 100:7 113:12 119:17 123:17,21 129:25 134:4,19 134:24 140:25 146:25 148:25 156:20 157:14 159:8 160:18 162:10 172:13 173:21 174:12,13 180:5 185:17 196:17,23 199:22 203:22 <b>think</b> 7:13 11:1 12:15,16 16:2,8	16:16 18:21 19:16 20:6 23:13 24:20 28:13 29:2 30:4 30:14 36:3 37:3 37:12 39:6 40:11 40:13,16 41:4 43:19 45:20 47:13 48:16,18 49:10,13 52:18 53:1,23 54:17 55:13,21 56:7 58:3 60:1,6 64:9 66:7 67:12 68:16 72:7,7,9,24 73:13 74:7 84:12 95:8,25 113:11 126:20 135:9,11 139:20,23 140:17 141:21,22 142:16 142:22,24,25 144:2,8,8,16 148:21 149:1 154:25 162:12 163:5 164:7 176:16 177:8,20 178:14,17 181:14 182:11 184:1 185:8 192:20 195:3 199:6,14 202:22,23 208:24 210:8 211:3 <b>thinking</b> 29:10 <b>thorough</b> 184:3 <b>thoroughly</b> 72:9,25 110:14 202:9 203:24 <b>thought</b> 52:19 148:19 201:11 <b>thoughts</b> 35:12 <b>three</b> 7:3 15:7 23:22 37:20 38:2 51:5,6 82:23 107:21 168:16 169:4,8 206:16 208:16 <b>throughput</b> 63:9 63:10,12 64:19,23 65:14,19 66:3,19	66:25 68:23 69:2 69:5,6,10 70:25 71:2,7,25,25 76:18 79:1,7 80:25 81:1,2,16 81:16 83:1,24 85:12,14 86:1,22 86:23 90:13,13 92:22 98:18 99:24 100:1,10 103:19 103:19 104:16 105:21 108:2,13 108:13 109:4,8 113:6 116:1,20,23 117:11,12,20 119:15 121:10 123:8,14 124:1 128:22 130:14 131:19 134:5,6,7 135:16 145:20 156:3,19 157:9,10 158:5 160:21 161:1 162:18,24 167:1 190:10,10 193:23 196:24 197:25 209:8,10 <b>thumb</b> 170:23 <b>Tillotson</b> 1:24 5:5 214:24 <b>time</b> 2:3 6:5,23 21:5 24:22 25:3,5 25:22,23 26:22 32:6,7 34:7,8 39:15 42:21,24 46:10 59:21 62:25 63:6 68:25 69:9 71:16,24,24 75:14 78:18,23,23 80:7 82:24,25 83:19 84:20 85:3,8 86:7 87:16 88:20 89:25 90:1,5,7,10,19 94:14,14,15 95:11 96:21 97:13 98:9 100:7,9,17 103:7 103:15,17 104:1 105:23 106:16,24	108:4,24 109:9 110:3,14,18,19 113:8 115:6,8,13 115:23 116:17,18 116:18 117:15 118:23 122:16 123:19,20 125:5 126:11,14,18,22 127:5 128:11 129:9,23 130:5,12 132:10 133:13,22 134:12,16,21 135:17 137:20 139:2,4 141:2 143:11,16,21,21 144:11 145:4 146:19 147:2,10 150:23 152:8,16 152:17,21 153:9 153:23 155:16,23 155:24,25 160:3,6 160:9,12 161:6,12 161:24,24 162:1 162:13 163:19,20 163:21 164:7 165:21,25 166:3,3 166:4,4,10,14,21 166:22,24,25 169:7,8,19,24 174:11 175:8,9 176:13 179:12,25 180:1,1,20 185:6 185:15 195:6,11 198:7 200:3,8 201:1 202:10 209:6 214:6 <b>timeframe</b> 174:24 179:5 180:2 <b>times</b> 9:5 36:18 37:8 55:9 58:15 61:10,10 143:11 190:13 204:19 205:1 <b>time-consuming</b> 39:13 87:16 <b>timing</b> 23:8 35:13 <b>title</b> 51:8
---	---	--	---	--

<b>today</b> 5:14 7:9 35:13 190:13 201:3 211:4 <b>today's</b> 5:20 7:10 7:11 41:14 <b>topics</b> 8:23 <b>total</b> 115:25 <b>totally</b> 157:21 <b>to-the-word</b> 55:7 <b>track</b> 38:17 <b>TRADEMARK</b> 1:1 <b>tradeoff</b> 38:9 65:13 82:25 87:14 88:11 100:16 111:22 113:19 134:3,21 176:12 185:15 <b>tradeoffs</b> 46:8 56:16 84:1,4 86:6 88:20 97:12 99:15 144:12 157:19 169:19,20 174:10 177:23 198:20 200:7 <b>transcoders</b> 157:5 <b>transcribed</b> 122:4 122:8 214:10,10 <b>transcript</b> 212:5 <b>transferring</b> 146:20 <b>transform</b> 39:17,19 42:14 59:4 77:20 <b>translation</b> 4:13 16:16 17:2,4,16 17:18 18:1,1 21:17 77:14 <b>transmission</b> 44:1 44:4 49:18 50:2 56:22 62:25 71:14 104:2,5 108:25 109:7 115:8 119:13 127:2,12 128:1,6,10 129:17 130:8,10 132:7,9 132:22 135:23 142:23 146:8,19 146:24 147:4	150:7,9 157:22 185:25 191:13 <b>transmit</b> 132:2 154:24 155:7 156:23 <b>transmitting</b> 155:13 156:19 169:2 193:16 <b>travel</b> 143:24 <b>TRIAL</b> 1:2 <b>tried</b> 132:12 184:3 <b>trouble</b> 75:2 136:16 <b>true</b> 9:4,17 99:21 100:15 109:21 120:11,12 122:18 170:4,9 212:9 <b>truth</b> 5:10 214:5 <b>try</b> 36:21 142:23 144:8 171:19 207:8 <b>trying</b> 19:24 27:4 28:3 33:25 36:7 53:13 54:25 56:7 60:16 64:16,17 67:12 69:4 71:1 86:21 87:18 96:2 97:8 99:24 108:12 121:6,14 137:25 141:5 147:7 157:23 162:9,11 162:25 163:10 173:13 181:20 182:4 189:6 197:25,25 204:22 <b>TUESDAY</b> 5:2 <b>turn</b> 179:12 <b>turns</b> 30:14 <b>two</b> 5:22,23 6:12 7:16,16,23 8:13 9:2 12:4,9 13:14 25:16 28:15 29:23 29:25 31:19 32:12 33:18 34:11,12,12 34:13,13 37:25 51:25 55:9 67:21 71:12 72:25 76:20	77:15 82:6 83:6 85:16,21 88:13,17 91:19 93:8 95:15 96:16 103:3 104:13 106:15 113:13,18 122:22 125:6 134:24 136:15,21 137:6 137:13,17 138:2 139:22,24 140:18 141:7,14,23 142:19 143:1,8 144:16 148:25 173:3,3 175:6,6 179:22 187:24 188:25 190:11 191:16 192:4 196:8 199:21 <b>two-to-one</b> 149:20 <b>type</b> 14:11 21:10 25:13 26:20 65:9 65:11,15 67:3 69:12 70:24 78:20 81:6 83:16 85:3 86:13 100:9 123:21 130:20,20 130:22 133:19 138:5 140:25 143:7,8,15 144:5 144:14 145:13 147:21,22,23 157:4 161:9 168:3 168:4,7 169:2,3,3 170:18 173:11,25 177:11 186:21 191:11 196:22 197:19,20 198:11 199:10,22 206:23 207:2 <b>types</b> 26:3 67:4 100:21 145:14,15 192:1 194:9 <b>typical</b> 144:2 152:8 160:11 173:11 177:20,21 <b>typically</b> 38:17 43:6 51:21 113:14	113:20 114:8 124:4 166:11 <b>typos</b> 9:7,24 <hr/> <b>U</b> <hr/> <b>ultimate</b> 103:18 <b>ultimately</b> 104:12 <b>unclear</b> 58:16 <b>uncompressed</b> 154:6,12 <b>understand</b> 7:7 19:9 28:24 47:16 53:1,5 54:9,10,25 59:23 60:14,16,22 61:7 68:5 78:22 92:13 94:11 95:1 117:22 121:21 130:2,6 131:7 139:15,16 156:5,9 156:15 157:21 160:17 163:1 168:12 179:10 182:18 184:14 186:23 188:8 190:21 192:17 194:2 195:4,24 196:25 199:14 201:24 207:21 208:1 <b>understanding</b> 41:14 68:10 140:15 189:8,8 190:17 195:18,19 <b>understands</b> 18:22 64:20 76:20 92:13 159:23 160:10 165:13,14 179:18 195:22 196:16 <b>understood</b> 45:13 57:23 59:14 68:3 110:24 148:8 <b>Union</b> 184:22 <b>unit</b> 68:24 105:23 108:4 113:8 117:15 <b>UNITED</b> 1:1 <b>units</b> 18:14,15,17	142:21 <b>unknown</b> 104:23 136:4 <b>unnecessary</b> 85:8 <b>unsigned</b> 214:13 <b>use</b> 13:8,10 14:21 19:6 20:2,13,25 24:3,22 26:15 27:5,5 30:6 31:25 32:5,19,20 33:1 33:12 35:8 37:12 37:13,13 40:14 42:10,22 48:23 49:16,20 53:6,6,8 53:19 54:15,18 55:2 61:7 64:18 69:17 72:6,13,13 72:18 74:17 75:11 79:10 80:21 85:4 85:11 93:18 105:14 108:18 113:15 123:5,6 129:7 136:22,23 138:10,13,24 139:3,9 143:8 147:22 152:9 163:18 164:2 172:10,19,25 173:18 174:15,20 177:11,12,21 179:13,13,14,15 179:24 184:6,10 186:1 196:4,5 197:1 199:12 207:4 210:22 <b>useful</b> 16:3 84:25 192:1 194:12,17 <b>user</b> 71:22 72:3 104:23 133:15 137:22 142:15 156:3 157:16 167:14,24 169:6 173:4,8,18,21 174:1,2 177:21 185:3 187:1 188:3 190:3 192:9 193:15 194:6
--	--	---	--	--

<b>users</b> 89:24 90:3 142:14 152:9 173:3 183:15 196:3,5 <b>uses</b> 23:15 53:16 61:2 68:20 105:18 113:3,4 115:12 117:8 156:25 157:9 199:18 203:11 <b>usually</b> 12:15 88:24 125:23 166:8 <b>utilize</b> 44:10 47:9 47:24 49:23 53:25 54:1 57:2 202:4 <b>utilizes</b> 47:4 <b>U.S</b> 4:12,14 16:5,15 16:18,21 17:12,15 17:17,19,24	126:10 170:13 203:12 208:2 <b>vice</b> 97:1 117:24 <b>vicinity</b> 174:24 <b>video</b> 14:13,14,21 21:3,9,12 23:6,12 25:4,11,21 26:3,4 26:25 27:2,2 31:16,17,25 32:1 32:6 33:16,23 35:1 38:3,16,17 39:11 46:16,16,16 51:10,18,21,22,25 59:19,22,24,24,24 61:14,22 62:6 70:8,9,11,13 79:20 85:6 89:11 95:12 96:7,12,19 97:20 98:17 99:18 133:15,16,17,23 134:19 151:8,9,9 151:14,14,15,20 153:17 154:10,12 157:6 158:18,22 158:22 159:3 162:3,6 166:6 169:4,4,5 174:15 174:20 175:1,16 176:16,19,20,22 176:24 177:4,11 177:11,12,24,25 178:3 179:21 186:22 193:17 194:4 197:1,2 198:6,10 199:4,5 199:12 200:23,23 200:24,25 201:14 201:20 203:4,17 204:16 <b>videos</b> 176:1,18 <b>video's</b> 23:25 <b>view</b> 11:5 12:1 28:21 32:14 72:3 75:9,13 98:17 103:5 134:9,11 146:17 147:14 148:4,11 188:23	188:24,24 189:9 194:23 198:6 202:5 <b>viewed</b> 42:16 51:20 71:6,6 81:18 90:16 <b>viewer</b> 63:2 79:2 98:16,22 103:22 193:17 <b>viewing</b> 13:10 104:19 129:9,23 133:15 134:18 <b>views</b> 105:11 170:17 <b>VIII</b> 11:25 <b>voice</b> 78:12 126:7 <b>vs</b> 1:7	<b>warn</b> 6:3 <b>wasn't</b> 22:1 63:23 178:16 206:12 <b>watch</b> 133:18 193:22 <b>watching</b> 133:17 <b>way</b> 11:15 12:12 13:12 18:3,11 29:2 33:10 34:7,7 34:8,8 36:25 39:11 42:22 48:16 48:17,18,20 49:12 49:14,15 57:14 64:23,24 71:2 72:8,23 75:3,11 75:25 76:18 79:2 79:25 82:15 85:7 85:9 86:23 87:9 89:8,9,21 92:22 98:18 100:22 102:15 103:19 105:9 108:6 109:8 109:25 112:22 116:15 117:3 119:21 135:14 138:14,19,20 139:5,13,18,20 146:12 147:2 148:22,23 149:1 150:2 152:14,22 154:25 155:2 156:10 157:3 160:12 164:10 165:2 166:24 167:25 177:8,9,10 177:11,12 178:6 192:8 195:2 197:17 202:8 210:19 214:18 <b>ways</b> 30:1 38:7 56:15 102:5 115:4 128:18 139:13 <b>weak</b> 129:4 <b>weeks</b> 6:12 8:13 <b>well-known</b> 18:25 23:12 24:22 25:4 25:4,21,22 26:23	26:23 27:13 28:8 32:5,7 42:12,12 45:2,8,8 46:15 56:9 57:18 58:6 59:1,21 71:8 93:15 95:10,13 96:17 100:15 159:2,13 166:1 167:13 168:1 169:11,14 179:3 185:1,4,5 196:1 200:3 201:1 <b>went</b> 175:3 191:6 <b>weren't</b> 68:8 181:13 <b>We'll</b> 16:13 <b>we're</b> 40:11 41:4 62:11 70:3 85:5 92:25 112:23 158:7 174:6 200:2 205:15 209:13 211:1 <b>we've</b> 22:19 26:16 47:1,19 50:4 53:1 53:10 57:6 58:3 66:4 72:20 75:4 82:16 83:22 84:17 85:4 94:21 109:10 116:18 130:17 134:3,5 146:25 147:9 150:24 164:15 175:2 190:1,1,22 198:22 199:18 202:8 204:4,7,18 205:17 207:2 <b>WHEREOF</b> 214:20 <b>widely</b> 159:2 <b>wire</b> 161:18 <b>wired</b> 155:18 161:17 168:6 <b>wireless</b> 161:18 168:6 <b>wished</b> 174:2 <b>withdraw</b> 63:24 64:12 178:15
---	--	---	---	--

<b>withdrawing</b> 63:22 64:11 178:18 180:12 181:2,9,12 181:19,21,24 182:1,3,15,21 183:2	167:6 168:18 170:7 171:5,23 172:22 174:17 178:23 181:1 183:22 184:8,19 187:12,21 188:15 189:18,18,24 191:5 193:10,14 194:14 197:8 200:14 201:17,23 202:25 203:8 206:1 210:7,10 211:6 214:3,7,11 214:12,13,20	<b>working</b> 51:16 52:6 52:11 89:18,19,21 99:1 110:4 116:20 117:20 121:17 142:13 160:10 164:4	22:24 23:16,18 25:1 28:11 31:23 32:8 41:20,20,23 43:17,21,25 45:21 47:10,25 50:3,5 50:11,15,24 51:4 51:23 52:2 53:4 53:18 54:3 55:14 56:3,19,23 59:3 59:24 60:10 62:15 62:17 72:20 74:9 74:16 75:1,20 76:7,23 77:19 80:12 81:25 84:11 89:14 90:8 99:25 100:1 115:14,15 115:17 118:11 119:22 121:23 122:22 125:11 129:16 146:18 147:12,13 159:18 161:4 162:14 164:15,17 167:23 168:11 174:7 188:2,23 189:3,10 190:19 192:16 194:24 197:6 202:1,6,9 203:10 203:21,23 204:20 205:2,6,7 209:12	<b>117</b> 47:5,21 49:10 49:21 50:11 52:1 53:22 54:14,17 55:11 57:6 210:4 <b>124</b> 73:8 77:10 85:18 95:20 105:15 107:19 113:2 117:7 118:6 <b>128</b> 119:23,25 <b>13th</b> 214:21 <b>13627</b> 1:24 5:6 214:24 <b>140</b> 77:11 <b>145</b> 126:25 127:1 127:11,19 128:5 131:25 144:20 146:10,14 148:9 148:10,12,20 150:2 <b>146</b> 146:15,17 148:3,9,12,13,17 149:8 <b>147</b> 73:8,8 <b>16</b> 18:16 25:9 33:13 199:9 <b>17</b> 4:11,12 <b>176</b> 151:3,5 158:13 158:13,14 <b>180</b> 103:24 <b>1990s</b> 177:13 180:2 <b>1992</b> 23:19 159:18 <b>1994</b> 23:21 25:5 159:15 169:9,9
<b>within-entitled</b> 214:5	<b>witness</b> 6:6 8:16,24 10:8 11:20 12:15 13:25 14:6,25 15:6,20 16:2,18 17:25 19:9,14 22:1,13 24:14,20 26:10 27:19,23 29:18,22 30:23 31:8 32:24 35:7 35:10,16,24 36:3 36:14 37:16 39:1 41:18 43:18 46:22 48:9 50:21 52:18 54:9 55:5,21 59:1 59:3 60:22 67:23 68:16 69:22 74:11 76:11 77:6 78:8 80:14 82:2,6 87:5 89:2,6 91:9,13 93:25 96:9 99:1 101:5 102:22 105:8 107:13 109:11,24 111:18 112:14,18 114:12 114:20 115:1 116:8 120:18,24 121:5 122:14 124:20 125:2 127:9,16 128:3 131:7 132:19 133:7 135:5 136:10 137:10 140:3,23 141:18 144:24 146:1 148:20 149:6 150:13,17 155:8 156:13 158:1,6 160:23 162:20 163:5 164:22	<b>works</b> 64:17 72:2 150:4 165:5 196:24 <b>world</b> 113:10 141:12 165:5 195:6,11 <b>worry</b> 89:25 92:2 141:5 <b>worse</b> 89:19,19 153:10,11 160:7 169:25 <b>wouldn't</b> 38:18 67:23 102:13 108:7 129:11 139:12,14 152:13 152:14 173:9 186:25 187:18 194:12,17 <b>wraps</b> 211:3 <b>wrong</b> 36:3,8 55:7 89:9 91:23 126:21 <b>wrote</b> 9:12	<b>1,000</b> 149:21 <b>1.5</b> 151:9,15 153:2 153:13,20,25 154:7 158:22 <b>1 b</b> 72:20 75:6 76:10,14 80:17,19 82:13 84:15 91:25 94:9,21,22 96:5 <b>10</b> 4:9 <b>1005</b> 17:4,15 21:17 <b>11</b> 4:10 <b>11:05</b> 2:3 5:3 <b>112</b> 43:24 <b>113</b> 57:10 <b>114</b> 44:21 57:14 58:19,19 <b>115</b> 44:25 57:16	<b>2</b> <b>2</b> 11:2 15:8,9 19:1,1 22:11,16,24,24 23:16,17,19,22 24:25 25:1 31:22 32:8 33:18 34:14 34:22 45:16 47:10 47:10,25,25 50:11 50:12,15,16,25 51:4,5,10,12,25 52:2,3 54:3,4 55:14,15 56:3,4 59:3,5,24 77:19
<b>woman</b> 78:16	<b>wondering</b> 8:19 68:4,9 74:6 114:7 114:17 204:15	<b>Y</b>		
<b>word</b> 19:15 22:19 26:15 37:12,13 39:6 44:7,11 57:3 60:3,4 69:3 71:25 74:17,20 117:12 119:5 155:1 157:9 161:10 184:6,10 185:9	<b>worded</b> 72:24 75:3 149:11	<b>yeah</b> 13:2 16:13 21:11 41:16 63:24 66:7 93:20 94:24 109:11 117:16 122:9 125:25 150:25 156:18 162:4 163:21 186:3 194:2 208:8		
<b>wording</b> 70:2	<b>words</b> 13:11 36:9 40:14 41:21 42:22 42:25 43:20 53:8 56:8 60:5 68:23 105:21 108:2 110:20 113:6 117:11 119:10 161:25 163:9 209:9,9	<b>years</b> 23:19,20 25:25 26:24 59:22 61:1 179:5 201:4 201:5		
<b>work</b> 40:18 60:24 85:21 90:18 98:11 99:16,18 117:1 119:12 160:11 162:6 175:11 193:24 196:11 197:17 207:1 210:16,16,20	<b>worked</b> 96:25	<b>yesterday</b> 6:9 <b>you-all</b> 8:20 35:5 73:13		
		<b>1</b> <b>1</b> 11:2,3 15:9 19:1		

77:21 87:3,8	51:11,25 52:2,7	<b>64</b> 100:25 101:10		
88:25 93:22 94:3	52:16 54:3 55:12	101:16,18,24		
101:22 119:3	55:15,18 56:2,3	102:15,20,24		
125:11,11 130:9	59:3 77:19 87:2,8	103:1,4 104:7,8		
150:8,9 151:9,10	88:24 93:21 94:2	104:25 105:4		
151:15,16 152:25	119:3 125:11	106:8,9,20 107:6		
153:23 154:9,9,11	157:2,20 159:10	107:10,17,20		
154:14,14 158:22	159:12 172:15	108:15,18,20		
159:5,15 165:6	185:2 186:22	<b>64,000</b> 101:17		
168:15,21 175:18	191:17 199:23	102:9,17		
184:24 201:25	<b>3-6</b> 11:3	<b>650</b> 3:7,8		
<b>2,000</b> 149:22	<b>30-second</b> 176:20	<b>6507611</b> 17:24		
<b>2.0</b> 158:23 159:22	<b>300</b> 3:11	<b>67</b> 77:14 84:8		
<b>2:04</b> 74:1	<b>310</b> 3:12	118:23 124:8,22		
<b>20</b> 150:24 201:15	<b>32</b> 100:25 101:11	<b>68</b> 113:25 114:14		
201:21,25 202:11	104:7,25 105:4	116:6 118:22		
203:5,11,11,18	<b>33</b> 101:4,6 114:14	<b>69</b> 86:5 100:23		
204:17,21 205:7,7	<b>379</b> 2:4 3:6 5:3	101:9 105:4		
209:16		107:16		
<b>2000/2001</b> 174:23	<b>4</b>	<b>690</b> 89:14		
<b>20181187</b> 10:13	<b>4</b> 18:12 20:23 25:8			
<b>2019</b> 1:15 2:2 5:2	33:13 191:18	<b>7</b>		
212:5,11 214:22	199:9,24,24	<b>7</b> 1:15 2:2 5:2 159:6		
<b>206</b> 207:17	<b>41</b> 4:14	191:18 212:5		
<b>207</b> 207:17	<b>477</b> 8:6 9:3 10:1	<b>77479</b> 3:12		
<b>208</b> 207:17	11:4,10 68:20			
<b>209</b> 207:17	105:18 112:24	<b>8</b>		
<b>21</b> 4:13	113:4 117:8	<b>8</b> 11:24		
<b>210</b> 207:17	164:18	<b>8-24</b> 151:8,14		
<b>211</b> 14:19 18:23	<b>48</b> 12:2	158:18,21		
207:17		<b>815-2601</b> 3:8		
<b>212</b> 205:13,14,21	<b>5</b>	<b>815-2673</b> 3:7		
206:1,11 207:16	<b>5</b> 4:4 16:7 18:16,19			
207:17	20:25 25:9 33:13	<b>9</b>		
<b>219</b> 210:6	44:16 61:6 66:18	<b>9</b> 159:6		
<b>2245</b> 3:11	158:17 191:18,19	<b>9,769,477</b> 1:7,9		
<b>230</b> 201:24	199:9,24,24	4:14		
<b>24</b> 100:25 101:11	<b>51</b> 44:15,17 57:12	<b>9-14</b> 11:4		
104:25 105:5	59:8 77:15,23	<b>94301</b> 2:5 3:7		
<b>25212</b> 1:25	101:21 125:5,13	<b>975-7074</b> 3:12		
	<b>53</b> 44:15,18 57:12			
<b>3</b>	59:8 77:23 101:21			
<b>3</b> 9:25 10:9 11:2	125:5,6,13			
15:9 19:1 22:24	<b>53N</b> 77:15			
25:10,20 33:12				
45:16 47:10,25	<b>6</b>			
50:12,16,19,23,25	<b>6,507,611</b> 4:12			
	<b>6:46</b> 211:7			