

Conducted on August 7, 2018

<p>1 UNITED STATES INTERNATIONAL TRADE COMMISSION</p> <p>2 WASHINGTON, D.C.</p> <p>3 x</p> <p>4 In The Matter of :</p> <p>5 CERTAIN DIGITAL VIDEO : Investigation</p> <p>6 RECEIVERS AND RELATED : No. 337 TA 03</p> <p>7 HARDWARE AND SOFTWARE :</p> <p>8 COMPONENTS :</p> <p>9 x</p> <p>0 HIGHLY CONFIDENTIAL SOURCE CODE ATTORNEYS EYES ONLY</p> <p>2 CONFIDENTIAL BUSINESS INFORMATION SUBJECT TO PROTECTIVE ORDER</p> <p>3</p> <p>4 Deposition of</p> <p>5 ALAN C. BOVIK, Ph.D.</p> <p>6 Austin, Texas</p> <p>7 Tuesday, August 7, 2018</p> <p>8 9: 5 a.m.</p> <p>9</p> <p>20 Job No.: 200880</p> <p>2 Pages: 309</p> <p>22 Reported by: Micheal A. Johnson, RDR, CRR</p>	<p>3 APPEARANCES</p> <p>2 OR COMPLAINANT:</p> <p>3 Alan P. Block</p> <p>4 Lawrence M. Hadley</p> <p>5 McKOOL SMITH HENNIGAN PC</p> <p>6 300 South Grande Avenue, Suite 2900</p> <p>7 Los Angeles, California 9007</p> <p>8 (213) 694 054</p> <p>9</p> <p>0 ON BEHALF OF RESPONDENT:</p> <p>1 Micah G. Block</p> <p>2 DAVIS POLK &amp; WARDWELL LLP</p> <p>3 600 El Camino Real</p> <p>4 Menlo Park, California 94025</p> <p>5 (650) 752 2023</p> <p>6</p> <p>7 VIDEOGRAPHER:</p> <p>8 Leyhbert Sharp</p> <p>9</p> <p>20</p> <p>2</p> <p>22</p>
<p>2 Deposition of ALAN C. BOVIK, Ph.D., held</p> <p>3 at the location of:</p> <p>4 McKool Smith</p> <p>5 300 West 6th Street, Suite 700</p> <p>6 Austin, Texas 7870</p> <p>7 (512) 692 8700</p> <p>8</p> <p>9</p> <p>0 Pursuant to Agreement, before Micheal A.</p> <p>1 Johnson, Registered Diplomate Reporter and</p> <p>2 Certified Realtime Reporter.</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>20</p> <p>2</p> <p>22</p>	<p>4 INDEX</p> <p>2 ALAN C. BOVIK, Ph.D. August 7, 2018</p> <p>3 APPEARANCES 3</p> <p>4 PROCEEDINGS 7</p> <p>5</p> <p>6 EXAMINATION OF ALAN C. BOVIK, Ph.D.:</p> <p>7 BY MR. M. BLOCK 8</p> <p>8</p> <p>9 ACKNOWLEDGMENT OF DEPONENT 308</p> <p>0 REPORTER'S CERTIFICATION 309</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>20</p> <p>2</p> <p>22</p>

Conducted on August 7, 2018

<p>1 [REDACTED] 65</p> <p>2 [REDACTED]</p> <p>3 [REDACTED]</p> <p>4 [REDACTED]</p> <p>5 [REDACTED]</p> <p>6 [REDACTED]</p> <p>7 [REDACTED]</p> <p>8 [REDACTED]</p> <p>9 [REDACTED]</p> <p>10 [REDACTED]</p> <p>11 [REDACTED]</p> <p>12 [REDACTED]</p> <p>13 [REDACTED]</p> <p>14 [REDACTED]</p> <p>15 [REDACTED]</p> <p>16 [REDACTED]</p> <p>17 [REDACTED]</p> <p>18 [REDACTED]</p> <p>19 [REDACTED]</p> <p>20 [REDACTED]</p> <p>21 [REDACTED]</p> <p>22 [REDACTED]</p>	<p>1 on page 16. Fair?</p> <p>2 <b>A. This is some of my opinion regarding the</b></p> <p>3 <b>'011 patent.</b></p> <p>4 Q. So for example, in paragraph 59, after</p> <p>5 describing some problems that existed at the time</p> <p>6 of the invention, you state your opinion that,</p> <p>7 "The methods and systems described and claimed by</p> <p>8 the '011 and '394 patents solve these problems by</p> <p>9 allowing the user to enter a search query for an</p> <p>10 item, where each item has a name comprising one or</p> <p>11 more words."</p> <p>12 Correct?</p> <p>13 <b>A. Yes, it certainly says that. Yes.</b></p> <p>14 Q. And in paragraph 60, you give opinions</p> <p>15 regarding how an index is created using the</p> <p>16 claimed invention, correct?</p> <p>17 <b>A. I mean, this is part of my opinion</b></p> <p>18 <b>regarding index, yeah.</b></p> <p>19 Q. And in paragraph 62, you provide part of</p> <p>20 your opinions regarding an example search using</p> <p>21 the claimed invention, correct?</p> <p>22 <b>A. Fair enough. Again, this isn't my</b></p>
<p>1 [REDACTED] 66</p> <p>2 [REDACTED]</p> <p>3 [REDACTED]</p> <p>4 [REDACTED]</p> <p>5 [REDACTED]</p> <p>6 [REDACTED]</p> <p>7 [REDACTED]</p> <p>8 [REDACTED]</p> <p>9 [REDACTED]</p> <p>10 [REDACTED]</p> <p>11 [REDACTED]</p> <p>12 [REDACTED]</p> <p>13 [REDACTED]</p> <p>14 [REDACTED]</p> <p>15 Q. Let me refer you to page 16 of your</p> <p>16 infringement report. You have a heading No. 4</p> <p>17 that says, "Invention of the '011 Patent,"</p> <p>18 correct?</p> <p>19 <b>A. That is correct.</b></p> <p>20 Q. And you set forth some opinions regarding</p> <p>21 the invention of the '011 patent in the section of</p> <p>22 your infringement report that follows that heading</p>	<p>1 <b>complete opinion, but yeah.</b></p> <p>2 Q. And specifically referring to paragraph 62</p> <p>3 of your infringement report, it's your opinion,</p> <p>4 Dr. Bovik, that in the invention of the</p> <p>5 '011 patent, "Users search for items by</p> <p>6 incrementally inputting unresolved overloaded keys</p> <p>7 (e.g., inputting one overloaded key at a time)</p> <p>8 which are intended when disambiguated, to</p> <p>9 represent a prefix substring of at least one word</p> <p>10 in the name of the item."</p> <p>11 Correct?</p> <p>12 <b>A. That is indeed expressed in my report.</b></p> <p>13 Q. Okay. And that's your opinion, correct?</p> <p>14 <b>A. This is my written opinion. It's my</b></p> <p>15 <b>opinion.</b></p> <p>16 Q. In paragraph 64 of your infringement</p> <p>17 report, you reproduce Figures 6A and 6B of the</p> <p>18 '011 patent, correct?</p> <p>19 <b>A. I did.</b></p> <p>20 Q. And in Figures 6A and 6B of the</p> <p>21 '011 patent, the user has entered the numbers 866</p> <p>22 using the keypad in Figure 6A, and highlighted</p>

Conducted on August 7, 2018

<p style="text-align: right;">69</p> <p>1 search results for that user input appear in  2 Figure 6B; is that fair?  3 <b>A. I think that -- yeah. I don't see any</b>  4 <b>problem with that.</b>  5 Q. And your opinion is that the search  6 depicted in Figures 6A and 6B is an example of a  7 search that's within the scope of at least the  8 independent claims of the '011 and '394 patents,  9 correct?  10 <b>A. I mean, it's part of the specification,</b>  11 <b>and, you know, the purpose of the specification is</b>  12 <b>to instruct somebody who may try to practice the</b>  13 <b>claims and I think that these can be used for a</b>  14 <b>person of ordinary skill in the art to try to</b>  15 <b>practice those claims, sure.</b>  16 Q. But you don't have an opinion that  17 Figure 6A and 6B depict an unclaimed embodiment or  18 something outside the scope, correct?  19 <b>A. I wasn't -- I haven't expressed such an</b>  20 <b>opinion.</b>  21 Q. Can we start with the first result in  22 Figure 6B of the '011 patent. My question is, why</p>	<p style="text-align: right;">7</p> <p>1 Q. So as you state in paragraph 66, the "TOO"  2 in the word "TOON" is highlighted because the  3 letters "TOO" are one alphanumeric translation of  4 the unresolved key stroke entry 866; is that fair?  5 <b>A. I think you're saying, did I say that</b>  6 <b>exactly.</b>  7 Q. No.  8 <b>A. You didn't read --</b>  9 Q. I was not reading from --  10 <b>A. Sounds like you were going to read --</b>  11 Q. With reference to 866, but let me just ask  12 you a question. Is it fair to say that in  13 Figure 6B of the '011 patent, the letters "TOO" in  14 the word "TOON" are highlighted because TOO is one  15 alphanumeric translation of the unresolved key  16 stroke entry 866?  17 <b>A. I would say that, you know, it's part of</b>  18 <b>the reason why it's highlighted. I mean, sure.</b>  19 Q. Right. And the letters "TOO" are letters  20 that correspond to the numeric search query 866 in  21 the examples shown with Figure 6A and 6B, correct?  22 <b>A. I mean, in this hypothetical system, sure.</b></p>
<p style="text-align: right;">70</p> <p>1 is the "TOO" in the word "TOON" highlighted there?  2 <b>A. So again, this is a teaching. I'm not</b>  3 <b>trying to say anything about the claim language or</b>  4 <b>anything else, but if you refer to the -- 6A,</b>  5 <b>which shows the overloaded keypad, you can see</b>  6 <b>that the system saw that an 8 was entered, you</b>  7 <b>know, in some hypothetical system that does this,</b>  8 <b>which is an overloaded key and has TUV on it, and,</b>  9 <b>you know, I -- keep in mind that this isn't trying</b>  10 <b>to show every part of a claim. It's not trying to</b>  11 <b>show necessarily, you know -- when I look at this</b>  12 <b>figure, I'm not trying to do any mapping to every</b>  13 <b>limitation of the claim, like ordering or</b>  14 <b>whatever, but what I can say is, that -- keeping</b>  15 <b>that in mind, that, you know, T was on the</b>  16 <b>overloaded 8 key, O was on the overloaded 6 key</b>  17 <b>and O was on the overloaded 6 key of some, you</b>  18 <b>know, stored information. And so the system had a</b>  19 <b>way of determining, you know, which way to, you</b>  20 <b>know, perform a mapping from the overloaded keys</b>  21 <b>to, you know, prefix substrings and highlighting</b>  22 <b>them.</b></p>	<p style="text-align: right;">72</p> <p>1 Q. The letters "TOO" appear a second time in  2 the search result TOON:Cartoon Network, correct?  3 <b>A. Yeah, sure.</b>  4 Q. Specifically the letters "TOO" appear not  5 only in the word "TOON" but also in the word  6 "Cartoon" in the search result "TOON:Cartoon  7 Network" figure depicted in 6B, correct?  8 <b>A. Yeah.</b>  9 Q. But in Figure 6B of the '011 patent, the  10 second instance of the letters "TOO" in the search  11 result "TOON:Cartoon Network" are not highlighted,  12 correct?  13 <b>A. You know, there's a lot of ways you can</b>  14 <b>implement the claim language, and even if you</b>  15 <b>interpret, you know, this embodiment with this</b>  16 <b>figure as, you know, possibly an -- you know, an</b>  17 <b>implementation of the claim language, the second</b>  18 <b>limitation of the claim talks about, you know,</b>  19 <b>determining which letters and numbers, et cetera,</b>  20 <b>et cetera, are associated with keystrokes and, you</b>  21 <b>know, you can follow different rules of which ones</b>  22 <b>you associate. You might just associate -- you</b></p>

Conducted on August 7, 2018

<p style="text-align: right;">73</p> <p>1 may be in some system, and it doesn't have to be  2 any particular system and I'm not talking about  3 the accused system, it may be that, you know, the  4 method -- you see in the preamble, method and then  5 the second limitation, determining which, the  6 method determining may do that in a certain way.  7 Okay.  8 And then so if you look at the claim with  9 highlighting -- you know, and again this is just a  10 teaching, there's a lot of different ways you can  11 implement this, you know, that method determining  12 which and then subsequently highlighting -- that  13 method only highlights the instance in the first  14 word, because all the characters were in the first  15 word maybe. Okay.  16 MR. M. BLOCK: Move to strike as  17 nonresponsive.  18 BY MR. M. BLOCK:  19 Q. Dr. Bovik, my question is this: In  20 Figure 6B of the '011 patent, the second instance  21 of the letters "TOO" in the search result  22 "TOON:Cartoon Network," are not highlighted,</p>	<p style="text-align: right;">75</p> <p>1 are highlighted are the same characters that are  2 determined to have caused the association  3 according to the claims, in your opinion, correct?  4 A. You know, my reading of that, if I look  5 at, you know, the -- I'll say column 7 and my  6 reading of, you know, the associated specification  7 related to Figures 6 and 7, there is a method  8 which determines which characters to map and  9 ostensibly, I mean, you can tell by looking at  10 this example, you can -- it's clear that, you  11 know, the first word is, you know, addressed  12 first, shall we say, and it found all the  13 characters there and it highlighted them. Okay.  14 And, you know, you could have a method that, you  15 know, does something different, but this is the  16 method that is explained here. And I think it's  17 pretty clear.  18 Q. Okay. And so referring again to Figure 6B  19 of the '011 patent, you can infer from Figure 6B,  20 that the letters "TOO" in "Cartoon" are not  21 letters that caused the item for the search result  22 "TOON:Cartoon Network" to be associated with the</p>
<p style="text-align: right;">74</p> <p>1 correct?  2 A. That's a different question. I agree,  3 yeah, that's a yes. You asked me something else.  4 Q. Why isn't the "TOO" in the word "Cartoon  5 Network" -- strike that.  6 Why isn't the "TOO" in the word "Cartoon"  7 highlighted in the search result for "TOON:Cartoon  8 Network" in Figure 6B of the '011 patent?  9 A. I think that's the question you asked me  10 previously. So I mean, I've already answered  11 that. You said it was unresponsive. But I  12 said -- let me just say, the method determining  13 which characters are mapped did it that way.  14 Q. So the highlighting is done according to  15 the method that determined which characters are  16 mapped to the numeric user input in the claim of  17 the '011 patent. Is that your testimony?  18 A. Well, it's the same method. Okay. So  19 it's a method determining which and a method  20 highlighting, and I think they're related. Okay.  21 So I do think those are related.  22 Q. The highlighting -- the characters that</p>	<p style="text-align: right;">76</p> <p>1 number 866, because if they were, they would be  2 highlighted, correct?  3 A. I just said there's a relationship between  4 the determining which and the highlighting. Okay.  5 I mean, if -- you know, the entire limitation I  6 could read out and take time. I'm not going to do  7 that. I'm going to say that this is a -- comes  8 from a spec, which is a teaching. So given that  9 it's a spec, and my understanding by law, the spec  10 need not infringe the claim language, for example,  11 you know, I would infer that the method -- if you  12 did take some claim language to understand it, you  13 know, the method determining which identifies  14 those first three characters, it could conceivably  15 identify the next ones and then only highlight the  16 first three. You know, I think both would be okay  17 as far as the claim language.  18 Q. So your understanding of the claim  19 language --  20 A. Because -- I'm not quite finished. I'll  21 step back a little bit, because in the  22 limitation -- if I map to the limitation, okay,</p>



Conducted on August 7, 2018

<p style="text-align: right;">77</p> <p>1 and keep in mind I've got this dichotomy that the  2 specification is generally teaching and not a  3 mapping necessarily to the claim language, just an  4 instruction, given that, you know, the  5 "highlighting letters and numbers" -- this is from  6 column 9, lines, you know, 4 and onward --  7 "present in the one or more words in said  8 information describing the identified items that  9 were determined to have caused the displayed items  10 to be associated with the strings of unresolved  11 keystrokes that are directly mapped to said items  12 received so as to illustrate to the user how the  13 unresolved keystrokes entered match the  14 information associated with the displayed items."  15 I think if you highlight, you know, just  16 those first three, whether or not the other ones  17 were matched or not, I don't see -- it's not clear  18 to me that there's any conflict with the claim  19 language.  20 Q. Are the letters "TOO" a prefix substring  21 for the word "Cartoon" in "TOON:Cartoon Network"?  22 A. I mean, I don't view those -- let me go</p>	<p style="text-align: right;">79</p> <p>1 know, I mean, I think you would still be, you  2 know, highlighting -- I mean, these are long  3 limitations. You'd still be -- you know, in such  4 a system that -- let's just put it this way. If a  5 system was determining which letters and,  6 et cetera, in the second limitation and in the  7 third limitation these were -- I'm trying to  8 paraphrase very long limitations, I'm just going  9 to say, suppose that the limitations were met with  10 respect to the first three characters. If you  11 highlighted the other ones, you know, I haven't  12 thought about that, but, you know, it's kind of  13 immaterial to me in terms of infringement. I  14 don't think that affects infringement if you do  15 something extra.  16 BY MR. M. BLOCK:  17 Q. And my question is slightly different.  18 It's that the limitations are met with respect to  19 the first three characters, but in addition, the  20 "TOO" in "Cartoon" are letters that caused the  21 item to be associated with the user input 866 and  22 yet are not highlighted, would that be within the</p>
<p style="text-align: right;">78</p> <p>1 back to -- what page was that on? There. I don't  2 view, you know, the "TOO" in "Cartoon" as a  3 prefix, but, again, I'm not talking about  4 Figure 6B infringing. I'm just saying you could  5 have a system -- you could have a method that, you  6 know, finds that prefix, but whether or not it  7 finds something in the middle of a word is --  8 doesn't change whether that first infringement is  9 occurring.  10 Q. So in your opinion, you could have a  11 method that -- in which both the "TOO" in "TOON"  12 and the "TOO" in "Cartoon Network" caused the item  13 for "TOON:Cartoon Network" to be associated with  14 the numeric string 866 and the search results  15 highlight only the "TOO" in "TOON," and that would  16 not necessarily be outside the scope of the claims  17 as you read them?  18 MR. A. BLOCK: Object to the form.  19 A. I haven't really thought about that. You  20 know, I would have to think about this  21 highlighting of, you know -- I mean, if a system  22 does something extra and then highlights it, you</p>	<p style="text-align: right;">80</p> <p>1 scope of the claims, according to your opinion?  2 MR. A. BLOCK: Object to form.  3 A. Actually you asked me a different question  4 than that. You asked me about those being  5 highlighted, et cetera, et cetera, et cetera.  6 BY MR. M. BLOCK:  7 Q. Well, my question now is, if the  8 limitations are met with respect to the first  9 three characters, but in addition, the "TOO" in  10 "Cartoon" are letters that caused the item to be  11 associated with the user input 866 and yet are not  12 highlighted, would that be within the scope of the  13 claims, according to your opinion?  14 MR. A. BLOCK: Object to form.  15 A. I mean, I think you're using the word  16 "caused" here improperly. "Caused" is a word  17 that's in the second limitation. Okay. And I  18 think, you know, the method which determining  19 causes things to happen. I don't think letters  20 cause anything to happen. I mean, they may be  21 involved in a happening, so to speak. So I mean I  22 reject your premise in terms of how to read the</p>

Conducted on August 7, 2018

<p>8</p> <p>1 claim language.</p> <p>2 <b>BY MR. M. BLOCK:</b></p> <p>3 Q. It would be inaccurate to say that letters</p> <p>4 caused the association of an item to a numeric</p> <p>5 string, as a technical matter?</p> <p>6 MR. A. BLOCK: Object to form.</p> <p>7 <b>A. Who knows in some other environment than</b></p> <p>8 <b>what we're talking about. But when I read the</b></p> <p>9 <b>claim language, I see, you know, said method</b></p> <p>10 <b>determining which letters and -- let's see. Yeah,</b></p> <p>11 <b>I mean, the "which determining" clearly is what</b></p> <p>12 <b>caused said items to be associated with the</b></p> <p>13 <b>strings of one or more unresolved keystrokes. The</b></p> <p>14 <b>method which -- I just want to point out for the</b></p> <p>15 <b>record, I'm sure it's already all on the record,</b></p> <p>16 <b>but in this deposition, that in limitation 2, the</b></p> <p>17 <b>words "which" and "determining" are transposed.</b></p> <p>18 <b>So the method determining which caused said items</b></p> <p>19 <b>to be associated with the strings of one or more</b></p> <p>20 <b>unresolved keystrokes that are directly mapped to</b></p> <p>21 <b>said subset. I mean, that is the correct reading</b></p> <p>22 <b>of the claim language.</b></p>	<p>83</p> <p>1 <b>A. It's the method determining which that</b></p> <p>2 <b>does the causing. Clearly.</b></p> <p>3 Q. Will you turn to page 49 of your</p> <p>4 infringement report --</p> <p>5 <b>A. Sure.</b></p> <p>6 [REDACTED]</p> <p>7 [REDACTED]</p> <p>8 [REDACTED]</p> <p>9 [REDACTED]</p> <p>10 [REDACTED]</p> <p>11 [REDACTED]</p> <p>12 [REDACTED]</p> <p>13 [REDACTED]</p> <p>14 [REDACTED]</p> <p>15 [REDACTED]</p> <p>16 [REDACTED]</p> <p>17 [REDACTED]</p> <p>18 [REDACTED]</p> <p>19 [REDACTED]</p> <p>20 [REDACTED]</p> <p>21 [REDACTED]</p> <p>22 [REDACTED]</p>
<p>82</p> <p>1 <b>BY MR. M. BLOCK:</b></p> <p>2 Q. The correct reading is determining which</p> <p>3 "letters and numbers present in the information</p> <p>4 associated with and describing the indexed items</p> <p>5 of said subset caused said items to be associated</p> <p>6 with the strings of one or more unresolved</p> <p>7 keystrokes that are directly mapped to said</p> <p>8 subset."</p> <p>9 Correct?</p> <p>10 <b>A. Well, I was correct and you were correct</b></p> <p>11 <b>in reading -- you know, you read the limitation</b></p> <p>12 <b>just from beginning to end. I read the</b></p> <p>13 <b>limitation, as well as part of the preamble to</b></p> <p>14 <b>explain, you know, how the word "caused" is used</b></p> <p>15 <b>and what does the causing in caused, so to speak.</b></p> <p>16 Q. And your --</p> <p>17 <b>A. And so I left out some stuff that isn't</b></p> <p>18 <b>causing it.</b></p> <p>19 Q. Your opinion is that the letters don't do</p> <p>20 the causing. Is that correct or incorrect?</p> <p>21 <b>A. Correct.</b></p> <p>22 Q. Okay.</p>	<p>84</p> <p>1 [REDACTED]</p> <p>2 [REDACTED]</p> <p>3 [REDACTED]</p> <p>4 [REDACTED]</p> <p>5 [REDACTED]</p> <p>6 [REDACTED]</p> <p>7 [REDACTED]</p> <p>8 [REDACTED]</p> <p>9 [REDACTED]</p> <p>10 [REDACTED]</p> <p>11 [REDACTED]</p> <p>12 [REDACTED]</p> <p>13 [REDACTED]</p> <p>14 [REDACTED]</p> <p>15 [REDACTED]</p> <p>16 [REDACTED]</p> <p>17 [REDACTED]</p> <p>18 [REDACTED]</p> <p>19 [REDACTED]</p> <p>20 [REDACTED]</p> <p>21 [REDACTED]</p> <p>22 [REDACTED]</p>

Conducted on August 7, 2018

<p>57</p> <p>1 [REDACTED] 2 [REDACTED] 3 [REDACTED] 4 [REDACTED] 5 [REDACTED]</p> <p>6 Q. Would you turn to paragraph 187 of your 7 report. Here you're providing opinions about the 8 determining limitation of claim 1 of the 9 '011 patent, correct?</p> <p>10 A. Well, not only the determining but the 11 direct mapping aspect.</p> <p>12 Q. And just so we're on the same page, when I 13 refer to the determining limitation, I'm referring 14 to the entire limitation that you reproduced with 15 the label "Claim 1b" on page 75 of your report. 16 Okay?</p> <p>17 A. I mean, 187 is about "claim 1a," not "1b." 18 I think that maybe that is a -- no, we're fine. I 19 take it back. I just confused myself. Yeah, 20 we're talking about claim 1b.</p> <p>21 Q. And I'm going to refer to that as a 22 determining limitation and I have been referring</p>	<p>59</p> <p>1 library, determining which letters and numbers, 2 meaning characters, in the information associated 3 with the index items, meaning, as I've already 4 described, words, in other words, letters and 5 numbers in the words of the title, whatever, the 6 method determining, which causes those items to be 7 associated with the strings of one or more 8 unresolved keystrokes that are directly mapped to 9 at least one of those subsets.</p> <p>10 So you know, in some sense that -- I mean, 11 to put it another way, the method -- you're not 12 going to believe this, I'm reading from claim 17. 13 I turned to the wrong page.</p> <p>14 Anyways, very similar. The method 15 comprising could be a lot of things, but in -- for 16 example, [REDACTED] [REDACTED] [REDACTED] [REDACTED]</p> <p>21 Q. How does the determining limitation limit 22 the scope of the claims in a way that they aren't</p>
<p>58</p> <p>1 to that as a determining limitation. Okay?</p> <p>2 A. Yeah, I have no problem with that.</p> <p>3 Q. And you say in paragraph 187, that the 4 determining limitation, quote, "further defines 5 the index of claim 1a," correct?</p> <p>6 A. Where are you pointing to that?</p> <p>7 Q. The first sentence of paragraph 187 of 8 your infringement report.</p> <p>9 A. This says, "This limitation further 10 defines" -- yes. Okay. Yeah.</p> <p>11 Q. Okay. And when you say, in paragraph 187, 12 "This limitation further defines the index of 13 claim 1a," you're referring to the determining 14 limitation, correct?</p> <p>15 A. Yes. Yeah.</p> <p>16 Q. What do you mean by the statement that 17 "the determining limitation further defines the 18 index of claim 1a"?</p> <p>19 A. Well, I mean, right from the claim 20 language, the method -- you have to consider the 21 whole limitation. That for at least one subset of 22 items, which ostensibly would be stored in a</p>	<p>60</p> <p>1 already limited by the indexing limitation, if at 2 all?</p> <p>3 MR. A. BLOCK: Object to form.</p> <p>4 A. Because it affects the process of search. 5 You have items somewhere in a library or something 6 and -- so the way in which you accomplish that -- 7 I'll use the word "matching" -- matching of these 8 indices to, I'll just say "strings," in, you know, 9 the items that -- subset of items, the method 10 determining which can be varied so that the way in 11 which the search is conducted may vary.</p> <p>12 BY MR. M. BLOCK:</p> <p>13 Q. Dr. Bovik, what does the determining 14 limitation require that's not already required by 15 the indexing limitation, in your opinion?</p> <p>16 MR. A. BLOCK: Object to form.</p> <p>17 A. Well, as I state, it requires that for at 18 least one -- I mean, this is just in my report and 19 I've reworded it in a different way for you with 20 more detail. It requires that for at least one of 21 the subsets of items in the index, the letters and 22 numbers present in the title of the item that</p>



Conducted on August 7, 2018

<p style="text-align: right;">6</p> <p>1 caused the item to be directly mapped to the</p> <p>2 unresolved keystrokes is determined.</p> <p>3 Okay. And so I'm not sure what else</p> <p>4 you're looking for beyond what I just read and</p> <p>5 what I said in my previous answer.</p> <p>6 <b>BY MR. M. BLOCK:</b></p> <p>7 Q. I'm trying to figure out --</p> <p>8 A. It answers the question.</p> <p>9 Q. I'm trying to figure out what it adds.</p> <p>10 Because I think you've said that the indexing is</p> <p>11 the determining, in Comcast's system at least.</p> <p>12 MR. A. BLOCK: Object to form.</p> <p>13 A. I haven't said -- I haven't made that</p> <p>14 statement.</p> <p>15 <b>BY MR. M. BLOCK:</b></p> <p>16 Q. That's not your opinion, that the indexing</p> <p>17 in Comcast's system satisfies the determining</p> <p>18 limitation?</p> <p>19 A. I think the index is required. Okay. I</p> <p>20 mean, you know, I'm not a lawyer. I think -- I'm</p> <p>21 guessing that when you say "satisfied," you mean</p> <p>22 like nothing else in the universe is needed but</p>	<p style="text-align: right;">63</p> <p>1 characters that were 'determined' or 'identified'</p> <p>2 in the prior determining step (claim b)."</p> <p>3 Did I read that portion of your report</p> <p>4 correctly?</p> <p>5 A. Yes.</p> <p>6 MR. A. BLOCK: You left out 1b. You said</p> <p>7 just "claim b."</p> <p>8 A. Oh, yeah, I understood it to be claim 1b,</p> <p>9 but yeah.</p> <p>10 <b>BY MR. M. BLOCK:</b></p> <p>11 Q. And is it your opinion that the claims do</p> <p>12 not require that the highlighting be of the same</p> <p>13 characters that were determined or identified in</p> <p>14 the prior determining step, which you've labeled</p> <p>15 "claim 1b"?</p> <p>16 MR. A. BLOCK: Object to form.</p> <p>17 (Witness reviews document.)</p> <p>18 A. So I mean, what the claim language states</p> <p>19 is highlighting the letters and numbers present in</p> <p>20 the one or more words in said information. Okay.</p> <p>21 A number with the information describing the</p> <p>22 identified item. So the information is basically</p>
<p style="text-align: right;">62</p> <p>1 that index, and I'm not saying that.</p> <p>2 Q. Okay. And so the determining limitation</p> <p>3 requires something more than just the Comcast</p> <p>4 index itself as you read the claims on the Comcast</p> <p>5 system?</p> <p>6 MR. A. BLOCK: Object to form.</p> <p>7 A. Well, it needs a lot more. I mean,</p> <p>8 specifically, I mean, when we say "index," we have</p> <p>9 to understand what kind of index it is and where</p> <p>10 it comes from, and the fact that unresolved</p> <p>11 keystrokes of, you know, keys that are overloaded.</p> <p>12 So there's an awful lot. You need the whole claim</p> <p>13 to understand this really, because the various</p> <p>14 elements, the various limitations of the claim</p> <p>15 are -- affect one another and come along with one</p> <p>16 another. So I mean, my answer is yes, you need</p> <p>17 more. I forget the exact question, but you need</p> <p>18 more.</p> <p>19 <b>BY MR. M. BLOCK:</b></p> <p>20 Q. In paragraph 228 of your infringement</p> <p>21 report you say, "Comcast misreads the claim as</p> <p>22 requiring that the highlighting be of the same</p>	<p style="text-align: right;">64</p> <p>1 a title, that were determined to have caused the</p> <p>2 displayed items to be associated with the strings</p> <p>3 of unresolved keystrokes that are directly mapped</p> <p>4 to said items received so as to illustrate to the</p> <p>5 user how the unresolved keystrokes match the</p> <p>6 information associated with the displayed items.</p> <p>7 I mean, the first thing I'll say is, that</p> <p>8 in regards to Comcast, I think that Comcast meets</p> <p>9 the limitation, but it also highlights the matched</p> <p>10 letters, but I don't think the claim requires that</p> <p>11 those be the only things highlighted or that there</p> <p>12 can't be other things highlighted as well. I</p> <p>13 think -- I think Comcast is trying to collapse and</p> <p>14 misinterpret the claim language here, whereas the</p> <p>15 claim language reads plainly.</p> <p>16 <b>BY MR. M. BLOCK:</b></p> <p>17 Q. But you stand by the opinion, Dr. Bovik,</p> <p>18 that it is a misreading of the claim to understand</p> <p>19 it as, "requiring that the highlighting be of the</p> <p>20 same characters that were determined or identified</p> <p>21 in the prior determining step," correct?</p> <p>22 A. I don't think that the claim language</p>



Conducted on August 7, 2018

<p>65</p> <p>1 precludes highlighting something else as well.</p> <p>2 Q. But does it require at least highlighting</p> <p>3 the same characters that were determined or</p> <p>4 identified in the prior determining step, as you</p> <p>5 read it?</p> <p>6 A. That's not what the sentence in my report</p> <p>7 says.</p> <p>8 Q. But that's my question.</p> <p>9 A. Let me finish my answer. In my report, it</p> <p>10 says, misreads the claim as requiring that the</p> <p>11 highlight be of the same characters. Okay. And</p> <p>12 that is -- that kind of language, to me, means</p> <p>13 those and only those characters, for example. So</p> <p>14 your follow-on question, I just am pointing out</p> <p>15 that it's not the same question and it's not</p> <p>16 addressing the same sentence. So if you want to</p> <p>17 ask your question again, I'm fine with that.</p> <p>18 Q. In your reading of the claims, is it</p> <p>19 necessary to highlight at least the same</p> <p>20 characters that were determined or identified in</p> <p>21 the prior determining step?</p> <p>22 Dr. Bovik, the videographer is going to</p>	<p>67</p> <p>1 minimal, but as I express in paragraph 219, and</p> <p>2 I'm just describing the context of Comcast, but</p> <p>3 this is what the claim teaches, highlighting --</p> <p>4 "Comcast, in response to each unresolved</p> <p>5 keystroke, as the identified items are displayed,</p> <p>6 highlights the letters and numbers present in the</p> <p>7 one or more words in said information describing</p> <p>8 the identified items that were determined to have</p> <p>9 caused the displayed items to be associated with</p> <p>10 the strings of unresolved keystrokes that are</p> <p>11 directly mapped to said items so as to illustrate</p> <p>12 to the user how the unresolved keystrokes entered</p> <p>13 matched the information associated with the</p> <p>14 displayed items."</p> <p>15 So I am pointing out what is required and</p> <p>16 what Comcast meets. And that's important because,</p> <p>17 for example, I'm pointing out that, you know, the</p> <p>18 letters and numbers are present in the one or more</p> <p>19 words in said information, describing the</p> <p>20 identified items such as, you know, the title, for</p> <p>21 example.</p> <p>22 So I think that rather than, you know, an</p>
<p>66</p> <p>1 give you a break to consider my question while he</p> <p>2 changes the media.</p> <p>3 A. Oh, are we at the end of the tape? Oh,</p> <p>4 I'm sorry.</p> <p>5 THE VIDEOGRAPHER: This marks the end of</p> <p>6 the media No. 2 in the videotaped deposition of</p> <p>7 Alan Bovik. We are going off the record at 1427.</p> <p>8 (Recess taken from 2:27 p.m. to 2:34 p.m.)</p> <p>9 THE VIDEOGRAPHER: Here begins the media</p> <p>10 No. 3 in the videotaped deposition of Alan Bovik.</p> <p>11 We are going back on the record at 1434.</p> <p>12 BY MR. M. BLOCK:</p> <p>13 Q. I'll just restate the question that was</p> <p>14 pending when we had to break to change the media.</p> <p>15 Is that all right with you, Dr. Bovik?</p> <p>16 A. Yeah, sure.</p> <p>17 Q. In your reading of the claims, is it</p> <p>18 necessary to highlight at least the same</p> <p>19 characters that were determined or identified in</p> <p>20 the prior determining step?</p> <p>21 (Witness reviews document.)</p> <p>22 A. So I mean, your language is a little bit</p>	<p>68</p> <p>1 excerpt of a requirement, you need to -- it needs</p> <p>2 to be understood the overall requirement. So I go</p> <p>3 on in paragraph 228, I think it's the last</p> <p>4 sentence, it's a long one, "But, because the</p> <p>5 user's numeric search query matched the letters in</p> <p>6 the title, as Comcast determined, and Comcast</p> <p>7 highlights those matching letters, Comcast</p> <p>8 necessarily highlighted the same letters that were</p> <p>9 determined to cause the items to be associated</p> <p>10 with the strings of unresolved keystrokes and thus</p> <p>11 caused to be in the subset of items in the index."</p> <p>12 And I realize I'm answering your question</p> <p>13 in the context of Comcast, but I would just like</p> <p>14 to point to something that explains what I think</p> <p>15 is required by the claim, and it requires, you</p> <p>16 know -- requires what you said, but more than</p> <p>17 that, so I think that, you know, we need to be a</p> <p>18 little bit more precise and complete.</p> <p>19 BY MR. M. BLOCK:</p> <p>20 Q. Your testimony is that the claims require</p> <p>21 highlighting at least the same characters that</p> <p>22 were determined or identified in the prior</p>



7



Conducted on August 7, 2018

<p style="text-align: right;">225</p> <p>1 Exhibit 10 between now and trial?</p> <p>2 <b>A. I don't know. I'd have to think about</b></p> <p>3 <b>that.</b></p> <p>4 Q. Okay. But anything else you had to say</p> <p>5 about this at trial would be based on new</p> <p>6 information?</p> <p>7 MR. A. BLOCK: Object to form.</p> <p>8 <b>A. Probably. I mean, I –</b></p> <p>9 <b>BY MR. M. BLOCK:</b></p> <p>10 Q. Let's look at paragraph –</p> <p>11 <b>A. I'm not going to – I'm not going to limit</b></p> <p>12 <b>myself. I mean, what if I find old information</b></p> <p>13 <b>that resolves this. I'm just not finding it right</b></p> <p>14 <b>now.</b></p> <p>15 Q. Well, this is my chance to get your</p> <p>16 opinion based on that old information. So if you</p> <p>17 haven't done that analysis and you don't have an</p> <p>18 opinion to provide, that's fine. But if you do</p> <p>19 have an opinion, I want to know what it is so you</p> <p>20 don't ambush me at trial.</p> <p>21 <b>A. I don't have an intention to ambush you.</b></p> <p>22 Q. I appreciate that.</p>	<p style="text-align: right;">227</p> <p>1 subsets of items, and information associated</p> <p>2 therewith."</p> <p>3 So as I explained before, the items are</p> <p>4 selectable information that can be displayed.</p> <p>5 Okay. So that implies something you can select,</p> <p>6 and information associated therewith, which is</p> <p>7 words in the title. So I think that – in this</p> <p>8 case there's also, you know, channel collection,</p> <p>9 that is also information associated with the item.</p> <p>10 Q. So I'm just focused on the title right</p> <p>11 now. And are you accusing the display of the</p> <p>12 title as display of the item, or only as display</p> <p>13 of the information associated therewith?</p> <p>14 <b>A. I think the display is – you know, it's</b></p> <p>15 <b>an active display. Okay. So part of that is the</b></p> <p>16 <b>fact that you can select this. It's a selectable</b></p> <p>17 <b>item. So that's part of what's displayed.</b></p> <p>18 So you know, you can – I think it's fair</p> <p>19 to say the words in the title can play a dual role</p> <p>20 of being part of that link, say, or connection, as</p> <p>21 well as being part of the title. The claim</p> <p>22 language certainly doesn't disallow that.</p>
<p style="text-align: right;">226</p> <p>1 <b>A. All I'll just say right now, you know,</b></p> <p>2 <b>I – with what's given me, I don't really have an</b></p> <p>3 <b>opinion.</b></p> <p>4 Q. Okay. Let's turn to paragraph 212 of your</p> <p>5 infringement report. You say, "The titles and</p> <p>6 names of the items are displayed, as shown above."</p> <p>7 And then, "Further, the item is also displayed in</p> <p>8 at least two ways."</p> <p>9 Do you see that?</p> <p>10 <b>A. 212?</b></p> <p>11 Q. Paragraph 212 of your infringement report.</p> <p>12 <b>A. Oh, third line. Uh-huh.</b></p> <p>13 Q. Okay. My question is whether you're</p> <p>14 giving the opinion that the display of the title</p> <p>15 meets the claim limitations that require</p> <p>16 displaying the item? Basically, I know you're</p> <p>17 pointing to the title for the information</p> <p>18 associated therewith. I can't tell whether you're</p> <p>19 also pointing to the title as the item.</p> <p>20 <b>A. Rather than that, I would say that claim</b></p> <p>21 <b>language in Claim 1d, we would call it, you're</b></p> <p>22 <b>referring to, is "identifying and displaying the</b></p>	<p style="text-align: right;">228</p> <p>1 Q. The claim language allows display of the</p> <p>2 same thing to be display of the items and display</p> <p>3 of the information associated therewith, as you</p> <p>4 read the claims, correct?</p> <p>5 <b>A. That's not what I said.</b></p> <p>6 Q. Okay. Is it your view that it is within</p> <p>7 the scope of the claims for the same thing to meet</p> <p>8 the requirement of displaying subsets of items and</p> <p>9 the requirement of displaying the information</p> <p>10 associated therewith?</p> <p>11 MR. A. BLOCK: Object to form.</p> <p>12 <b>A. Again, those aren't my words and I didn't</b></p> <p>13 <b>say "same thing" nor intended in the way I think</b></p> <p>14 <b>you're intending it.</b></p> <p>15 <b>BY MR. M. BLOCK:</b></p> <p>16 Q. My question is whether that's just your</p> <p>17 reading of the claims. Is it your view that it's</p> <p>18 within the scope of the claims for the same thing</p> <p>19 to meet the requirement of displaying the subsets</p> <p>20 of items and the requirement of displaying the</p> <p>21 information associated therewith?</p> <p>22 <b>A. I haven't encountered a situation where a</b></p>



Conducted on August 7, 2018

<p style="text-align: right;">229</p> <p>1 same thing has happened. And it's not what I said  2 about this example either.  3 Q. So you're not rendering an opinion in  4 which you find infringement of the limitation that  5 required displaying the items and information  6 associated therewith, where you accuse the same  7 thing as the item and as the associated  8 information; is that fair?  9 A. That's, again, not what I said.  10 Q. It's just my question.  11 A. I think your question mischaracterized  12 what I said.  13 Q. I didn't even characterize what you said,  14 Dr. Bovik. I just asked you a question. Let me  15 just ask it again.  16 Is it true that you are not rendering an  17 opinion in which you find infringement of the  18 limitations that require displaying the items and  19 information associated therewith, where you accuse  20 the same thing as the item and as the associated  21 information?  22 MR. A. BLOCK: Object to form.</p>	<p style="text-align: right;">23</p> <p>1 display of the item and display of the information  2 therewith, as you understand the claims asserted?  3 A. In this example, it wouldn't be just a  4 display of just a title. As I already mentioned,  5 part of that display are the corresponding link or  6 pointer or whatever you want to call it. It's  7 interactive. I mean, if you depress the  8 appropriate button, then you go somewhere. So  9 there's another -- it's not just the title  10 displayed, but something that the title is  11 associated with or part of. And I'm just pointing  12 out the title plays a role of being associated  13 with selectable, what is a selectable --  14 Q. What's the --  15 A. -- part of the item. I just said  16 selectable part of the item.  17 Q. What's the visual indication that you're  18 pointing to for the display of a link?  19 A. I don't think you need a visual indication  20 for something to be part of a display. I mean,  21 certainly there are two -- there's two horizontal  22 lines, which indicate that, you know, the user</p>
<p style="text-align: right;">230</p> <p>1 A. I don't have any opinion on that because I  2 haven't thought about it because it's not what's  3 happening here. Instead, there's a link and maybe  4 the words, when I said they play a dual role, you  5 know, I said, well, the words are associated with  6 the link, they -- but the link itself is part of  7 the display, as I already said.  8 So you know, this same thing isn't -- the  9 reason I keep going back to what I had said  10 earlier, is that it's not connected to what I said  11 earlier. I didn't say anything about a same. I  12 don't know what you mean by "same." You know,  13 give me an example of same that I'll agree with it  14 that it's same and I'll render an opinion on that.  15 BY MR. M. BLOCK:  16 Q. Sure. The title. The title, for example,  17 "Disney Channel" on the top of page 87, if the  18 display had the title "Disney Channel" and it  19 didn't have information under that, like channel  20 collection, it just had the title "Disney  21 Channel," is it possible to -- for a display of  22 just a title, like that example, to be both</p>	<p style="text-align: right;">232</p> <p>1 has, say, scrolled to something they can link to.  2 That's -- you know, that's kind of an indication.  3 But I think a user of the system knows that when  4 he's scrolled to something, that there's a link  5 there he can select. It's part of the display.  6 It's the intention of the display. It's --  7 without it, you know, you couldn't use X1.  8 Q. And the horizontal lines you just referred  9 to, appear only with respect to the item that's in  10 the focus state, correct?  11 MR. A. BLOCK: Object to form.  12 A. Well, no, I mean if you scroll somewhere  13 else, then, you know, something else will have the  14 lines around it. And again, I was only giving,  15 you know, an example, that the display is -- has  16 an interactivity. I -- you know, I think that the  17 fact that the titles are there is part of the --  18 you know, it's -- the user knows that the titles  19 are selectable.  20 BY MR. M. BLOCK:  21 Q. In the second sentence of paragraph 212  22 you say, "As discussed above the item's title or</p>



Conducted on August 7, 2018

<p style="text-align: right;">28</p> <p>1 [REDACTED]</p> <p>2 [REDACTED] - [REDACTED] - [REDACTED]</p> <p>3 [REDACTED]</p> <p>4 Q. Let's set that aside.</p> <p>5 Earlier today we marked your validity</p> <p>6 report as Exhibit 4.</p> <p>7 A. Yeah.</p> <p>8 Q. Do you have that in front of you?</p> <p>9 A. I probably do. It's probably on the</p> <p>10 bottom at this point.</p> <p>11 MR. A. BLOCK: There it is.</p> <p>12 A. Got it.</p> <p>13 MR. M. BLOCK: Let's go off the record for</p> <p>14 a minute.</p> <p>15 THE VIDEOGRAPHER: We're going off the</p> <p>16 record at 1834.</p> <p>17 (Recess taken from 6:34 p.m. to 6:35 p.m.)</p> <p>18 THE VIDEOGRAPHER: We're going back on the</p> <p>19 record and the time is 1835.</p> <p>20 BY MR. M. BLOCK:</p> <p>21 Q. Dr. Bovik, in paragraph 34 of your</p> <p>22 validity report, you say, "Using the claimed</p>	<p style="text-align: right;">283</p> <p>1 you?</p> <p>2 A. I do, but I haven't gone to those</p> <p>3 sections.</p> <p>4 Q. Would you pull it up and flip to column 3.</p> <p>5 Starting at line 43, the '011 patent specification</p> <p>6 says, "In accordance with one or more embodiments</p> <p>7 of the invention, the search space containing the</p> <p>8 searchable items is initially indexed by</p> <p>9 performing a many-to-many mapping from the</p> <p>10 alphanumeric space of terms to numeric strings</p> <p>11 corresponding to the various prefixes of each</p> <p>12 alphanumeric term constituting the query string."</p> <p>13 Did I read that correctly?</p> <p>14 A. Yeah.</p> <p>15 Q. So you agree, Dr. Bovik, that the language</p> <p>16 in the specification describes mapping quote "to</p> <p>17 the various prefixes of each alphanumeric term</p> <p>18 constituting the query string"?</p> <p>19 A. Well, I mean, it doesn't say that -- hold</p> <p>20 on. So understand that in the sentence beginning</p> <p>21 at line 43 of column 3, "In accordance with one or</p> <p>22 more embodiments of the invention, the search</p>
<p style="text-align: right;">282</p> <p>1 invention of the '011 and '394 patents, an index</p> <p>2 is created before the user ever enters any search</p> <p>3 query using unresolved keystrokes."</p> <p>4 Correct?</p> <p>5 A. Yes.</p> <p>6 Q. And you cited to the '011 patent at</p> <p>7 column 3, lines 43 to 55.</p> <p>8 A. Uh-huh. Yes.</p> <p>9 Q. And then you say, "In this index, a</p> <p>10 many-to-many mapping is performed mapping the</p> <p>11 alphanumeric space of terms, e.g., the names of</p> <p>12 the items, to numeric strings corresponding to the</p> <p>13 various prefixes of each alphanumeric term, based</p> <p>14 on the arrangement of characters on the overloaded</p> <p>15 keypad, like the one shown above."</p> <p>16 Correct?</p> <p>17 A. Yes.</p> <p>18 Q. And here you cite to the '011 patent at</p> <p>19 column 3, lines 49 to 53 and column 3, lines 27 to</p> <p>20 29, correct?</p> <p>21 A. Yes.</p> <p>22 Q. Do you have the '011 patent in front of</p>	<p style="text-align: right;">284</p> <p>1 space containing the searchable items is initially</p> <p>2 indexed by performing a many-to-many mapping from</p> <p>3 the alphanumeric space of terms to numeric strings</p> <p>4 corresponding to the various prefixes of each</p> <p>5 alphanumeric term constituting the query string."</p> <p>6 So you know, it's -- this is done before</p> <p>7 there's any query. So in other words, you know,</p> <p>8 the query string here, you know, is anticipating</p> <p>9 query strings that may be entered.</p> <p>10 Q. And that's your understanding of how --</p> <p>11 well, strike that.</p> <p>12 Would you turn to column 7 of the</p> <p>13 specification of the '011 patent, please.</p> <p>14 A. Yes.</p> <p>15 Q. At line 41 and following, the</p> <p>16 specification of the '011 patent in column 7 says,</p> <p>17 "This relationship between the overloaded</p> <p>18 characters entered by the user and the match</p> <p>19 results is complicated and not necessarily</p> <p>20 intuitive to the user."</p> <p>21 Correct?</p> <p>22 A. Yeah.</p>



Conducted on August 7, 2018

<p>285</p> <p>1 Q. And it's fair to say, the complicated 2 relationship that the '011 patent specification is 3 referring to as this relationship at column 7, 4 line 41, is the relationship described above in 5 column 7, lines 4 through 41. Yes?</p> <p>6 A. I think it's speaking more generally. I 7 mean, there's an example happening, but I think 8 that the patent is writing more generally, that 9 this relationship is complicated, not necessarily 10 intuitive to the user. I realize it's an ongoing 11 example, but in my view the — you know, I mean, 12 the user doesn't understand search and how it's 13 done, especially with inverted indices and so on.</p> <p>14 Q. And at a minimum, the example given above 15 is an example of the complicated relationship, 16 according to the teaching of the specification. 17 Fair?</p> <p>18 A. I mean, that's just an example of entering 19 characters. So I mean, I think that the — you 20 know, relationship referred to is a general 21 statement.</p> <p>22 Q. And the numeric query in the example is</p>	<p>287</p> <p>1 starting to fall apart a little bit for me, 2 because we've been going at this for a long time.</p> <p>3 Q. And the example —</p> <p>4 A. The exercise I did for you there was just 5 to affirm that what you read is what's there. 6 That's what I was asked and was anticipating.</p> <p>7 Q. And that part of the specification is 8 giving an explanation in relation to Figures 6A 9 and 6B, as indicated by the text "Figure 6A" and 10 "6B," illustrate an example in column 7, line 4, 11 right?</p> <p>12 A. I think it's associated with Figure 6A and 13 6B, yeah.</p> <p>14 Q. Okay. So looking at Figure 6B of the 15 '011 patent, the user input is 866 and one of the 16 results is "Twelve Monkeys," right?</p> <p>17 A. Yeah.</p> <p>18 Q. According to your understanding of the 19 Comcast system, is the Comcast system able to 20 return "Twelve Monkeys" for user input 866?</p> <p>21 MR. A. BLOCK: Object to form, assumes 22 facts.</p>
<p>286</p> <p>1 866. Do you see that, for example, at column 7, 2 line 9?</p> <p>3 A. Line 9. Yeah, sure. Uh-huh.</p> <p>4 Q. And then if you look down to line 23, it's 5 describing the situation where an 8 has already 6 been entered and then a 6 is entered. Fair?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. And the specification says, "The 9 '6' character next entered by the user limits 10 these search results only to items containing 11 words that begin with the alphanumeric characters 12 '8', 'T', 'U' or 'V', and whose second character 13 is one of the alphanumeric characters '6', 'M', 14 'N' or 'O' or to items containing words that begin 15 with the alphanumeric characters '8', 'T', 'U' or 16 'V' and that also contain subsequent words that 17 begin with the alphanumeric characters '6', 'M', 18 'N' or 'O'."</p> <p>19 Did I read that correctly?</p> <p>20 A. I think that's what it says.</p> <p>21 Q. Do you understand that example?</p> <p>22 A. Well, I confess I'm — long sentences are</p>	<p>288</p> <p>1 A. Well, the first thing I'll say is that, 2 you know, the claims teach a method, right, a 3 method specifically of determining which indexing 4 and so on. And the, you know, example that we're 5 going through and the associated Figure 6B, I 6 mean, this is an embodiment. I'm not — I don't 7 in any way say that this embodiment represents the 8 Comcast embodiment. There's a variety of 9 embodiments that can infringe the claim language. 10 So I think I would have to go think about that for 11 a while. I'm a little tired so I'm not sure I 12 want to be able to trust anything I say.</p> <p>13 BY MR. M. BLOCK:</p> <p>14 Q. Well, if you can no longer give truthful 15 testimony, we should stop and restart when you're 16 able. Are you able to give truthful testimony to 17 my questions, Dr. Bovik?</p> <p>18 A. Well, everything I've said is truthful.</p> <p>19 Q. Okay. If at any time you feel so tired 20 that you think your testimony is no longer 21 trustworthy or truthful, will you let me know?</p> <p>22 A. Oh, sure, yeah.</p>



Conducted on August 7, 2018

<p>1 Q. Thank you. [REDACTED]</p> <p>2 [REDACTED]</p> <p>3 [REDACTED]</p> <p>4 [REDACTED]</p> <p>5 [REDACTED]</p> <p>6 [REDACTED]</p> <p>7 [REDACTED]</p> <p>8 [REDACTED]</p> <p>9 [REDACTED]</p> <p>10 [REDACTED]</p> <p>11 [REDACTED]</p> <p>12 [REDACTED]</p> <p>13 [REDACTED]</p> <p>14 [REDACTED]</p> <p>15 [REDACTED]</p> <p>16 [REDACTED]</p> <p>17 [REDACTED]</p> <p>18 [REDACTED]</p> <p>19 [REDACTED]</p> <p>20 [REDACTED]</p> <p>21 [REDACTED]</p> <p>22 [REDACTED]</p>	<p>289</p> <p>1 of one skill in the art, you understand the word</p> <p>2 "prefix" as used in the '011 and '394 patents, to</p> <p>3 mean characters running from the first character</p> <p>4 of a word?</p> <p>5 MR. A. BLOCK: Object to form.</p> <p>6 A. I mean, this construction that's agreed</p> <p>7 upon doesn't say that. So I'll just say, you</p> <p>8 know, that's what – that's the construction</p> <p>9 that's agreed upon.</p> <p>10 BY MR. M. BLOCK:</p> <p>11 Q. Of prefix substring?</p> <p>12 A. Of prefix substring.</p> <p>13 Q. Right. And so do you have a view one way</p> <p>14 or another whether, for example, "art" is a prefix</p> <p>15 of the word "cartoon," setting aside whether or</p> <p>16 not it's a prefix substring?</p> <p>17 MR. A. BLOCK: Object to form.</p> <p>18 A. I think what matters here is what the</p> <p>19 parties agree upon with regard to things that are</p> <p>20 in the patent. So you know, out in the real –</p> <p>21 out in the other world, I don't think art is a</p> <p>22 prefix of whatever other word you said.</p> <p>29</p>
<p>1 Q. Let me refer you to page 17 of your</p> <p>2 validity report. On page 17 you have a header for</p> <p>3 "Claim Construction" and a table with claim terms</p> <p>4 that have been raised for construction in the</p> <p>5 investigation.</p> <p>6 A. Yes.</p> <p>7 Q. And the stand-alone term "prefix" has not</p> <p>8 been raised for claim construction in this</p> <p>9 investigation, correct?</p> <p>10 A. I mean, it's not one of the ones that are</p> <p>11 in this table.</p> <p>12 Q. Right. Prefix substring has an agreed</p> <p>13 construction here, but at least according to the</p> <p>14 table in your validity report, the stand-alone</p> <p>15 term "prefix" is not a term with competing</p> <p>16 constructions?</p> <p>17 A. No. I mean, as I state in paragraph 52,</p> <p>18 parties have agreed to mean a – quote, "a</p> <p>19 variable length string of characters that contains</p> <p>20 fewer than all of the characters making up the</p> <p>21 word."</p> <p>22 Q. And my question for you is whether as one</p> <p>290</p>	<p>1 BY MR. M. BLOCK:</p> <p>2 Q. But the word "prefix" shows up in the</p> <p>3 patent, right?</p> <p>4 A. Yeah. Yeah.</p> <p>5 Q. And do you -- well, let me ask you with</p> <p>6 respect to prefix substring. As you understand</p> <p>7 the claims of the '011 and '394 patents, is "art,"</p> <p>8 a-r-t, a prefix substring of "cartoon"?</p> <p>9 MR. A. BLOCK: Object to form.</p> <p>10 A. You know, again, I mean, you're – in some</p> <p>11 sense, you're asking me to weigh in on claim</p> <p>12 construction that the parties have already agreed.</p> <p>13 So I'm not going to try to color what's already</p> <p>14 been said. I mean...</p> <p>15 BY MR. M. BLOCK:</p> <p>16 Q. In applying that agreed construction, is</p> <p>17 "art" a prefix substring of "cartoon" according to</p> <p>18 the understanding that you used to develop your</p> <p>19 opinions in this case?</p> <p>20 A. If I do – if I do a matching of these</p> <p>21 words, okay, a variable linked string of</p> <p>22 characters that contains fewer or all of the</p> <p>292</p>



Conducted on August 7, 2018

<p style="text-align: right;">293</p> <p>1 characters making up the word, art satisfies that.</p> <p>2 Art is a string of characters that contains fewer</p> <p>3 than all the characters making up the word. I</p> <p>4 mean...</p> <p>5 Q. And is "atn" a prefix substring of</p> <p>6 "cartoon" as you apply the agreed construction in</p> <p>7 this case?</p> <p>8 (Witness reviews document.)</p> <p>9 A. I mean, what I can tell you is that -- I</p> <p>10 forget your example that you asked about. What is</p> <p>11 it again?</p> <p>12 BY MR. M. BLOCK:</p> <p>13 Q. Is "atn" a prefix substring of "cartoon"</p> <p>14 as you apply the agreed construction of prefix</p> <p>15 substring in this case?</p> <p>16 A. You know, I don't really think that atn is</p> <p>17 a string of characters as -- you know, I mean, not</p> <p>18 unless you take them out of cartoon and then</p> <p>19 string them together on your own.</p> <p>20 (Deposition Exhibit 12 marked for</p> <p>21 identification.)</p> <p>22</p>	<p style="text-align: right;">295</p> <p>1 provide truthful, accurate testimony today, at</p> <p>2 which case we can hold the deposition over and</p> <p>3 continue another day.</p> <p>4 MR. A. BLOCK: We re not holding anything</p> <p>5 over and I disagree with that characterization.</p> <p>6 You ve deposed Dr. Bovik before. You know his</p> <p>7 style. You know he s careful. Okay. So you had</p> <p>8 to take that into account when you were asking</p> <p>9 your questions, but go ahead with Exhibit 12 and</p> <p>10 when we re done with Exhibit 12, I think this</p> <p>11 deposition s over.</p> <p>12 MR. M. BLOCK: If you insist on shutting</p> <p>13 us down, I will reserve rights and we will</p> <p>14 continue another day.</p> <p>15 MR. A. BLOCK: You may reserve your</p> <p>16 rights, but I disagree that we will continue</p> <p>17 another day.</p> <p>18 MR. M. BLOCK: Okay.</p> <p>19 BY MR. M. BLOCK:</p> <p>20 Q. At paragraph 241 of your invalidity</p> <p>21 report, Dr. Bovik --</p> <p>22 MR. A. BLOCK: So you re not using</p>
<p style="text-align: right;">294</p> <p>1 BY MR. M. BLOCK:</p> <p>2 Q. Dr. Bovik, I m handing you Exhibit 12.</p> <p>3 MR. A. BLOCK: Counsel, we ve been going</p> <p>4 for over seven hours and you re starting another</p> <p>5 line of questioning. I just want to know how much</p> <p>6 longer we have, and the witness has already said</p> <p>7 he s getting tired. I think we ve maybe hit a</p> <p>8 wall here. But if you want to finish this line,</p> <p>9 that s fine.</p> <p>10 MR. M. BLOCK: I m going to go through</p> <p>11 some questions that I have on prior art. I think</p> <p>12 the reason we ve been here so long is that the</p> <p>13 witness has not been adequately prepared on his</p> <p>14 reports or to provide his opinions. I think the</p> <p>15 record will reflect that there were long periods</p> <p>16 of the day when he took minute after minute to</p> <p>17 read through his reports in between question and</p> <p>18 answer, when I had to ask questions over and over</p> <p>19 again, even simple questions, that didn t get</p> <p>20 reasonable answers. So I intend to continue</p> <p>21 asking my questions until I m done with them or</p> <p>22 until the witness tells me he s no longer able to</p>	<p style="text-align: right;">296</p> <p>1 exhibit --</p> <p>2 MR. M. BLOCK: Oh, I am using Exhibit 12.</p> <p>3 MR. A. BLOCK: I don't have a copy.</p> <p>4 MR. M. BLOCK: Here it is.</p> <p>5 MR. A. BLOCK: Thank you.</p> <p>6 A. 241 of which report?</p> <p>7 BY MR. M. BLOCK:</p> <p>8 Q. Your validity report. About halfway down,</p> <p>9 you say, "The determination is always present in</p> <p>10 the index." Do you see that?</p> <p>11 A. Yes.</p> <p>12 Q. What do you mean by that, Dr. Bovik? Or</p> <p>13 let me ask it this way: Is it your opinion that</p> <p>14 in the asserted claims of the '011 and</p> <p>15 '394 patents, the determining limitation is</p> <p>16 necessarily present whenever the indexing</p> <p>17 limitation is present?</p> <p>18 A. I'm a little confused by that. Could you</p> <p>19 restate it one more time?</p> <p>20 Q. Sure. Is it your opinion that in the</p> <p>21 asserted claims of the '011 and '394 patents, the</p> <p>22 determining limitation is necessarily present</p>



Conducted on August 7, 2018

<p style="text-align: right;">297</p> <p>1 whenever the indexing limitation is present?</p> <p>2 <b>A. I mean, as I've said before in all – in</b></p> <p>3 <b>these claims, the limitations affect and depend on</b></p> <p>4 <b>each other and include shared terms and so on. So</b></p> <p>5 <b>I mean, when you're – I mean, this is one claim.</b></p> <p>6 <b>I don't know if you're asking me a legal question</b></p> <p>7 <b>or what.</b></p> <p>8 Q. I'm just asking your opinion. Is it your</p> <p>9 opinion that in the asserted claims of the '011</p> <p>10 and '394 patents, the determining limitation is</p> <p>11 necessarily present whenever the indexing</p> <p>12 limitation is present?</p> <p>13 MR. A. BLOCK: Object to form.</p> <p>14 <b>A. Well, I mean, indexing appears in claim 2,</b></p> <p>15 <b>which is the determining limitation. So I mean, I</b></p> <p>16 <b>can't see how they can exist apart.</b></p> <p>17 <b>BY MR. M. BLOCK:</b></p> <p>18 Q. You don't understand that the claims</p> <p>19 recite both an indexing limitation and a</p> <p>20 determining limitation?</p> <p>21 <b>A. Well, we've chosen to label them that way,</b></p> <p>22 <b>but the indexing – the so-called 1a indexing</b></p>	<p style="text-align: right;">299</p> <p>1 BY MR. M. BLOCK:</p> <p>2 Q. And is that determination that you</p> <p>3 describe as being always present in the index, the</p> <p>4 determination that's required by the determining</p> <p>5 limitation?</p> <p>6 <b>A. Well, I mean, the claim language is, you</b></p> <p>7 <b>know, determining which letters and numbers</b></p> <p>8 <b>present in the information associated with it</b></p> <p>9 <b>describing the indexed items. So you know, the</b></p> <p>10 <b>determining interacts with the index.</b></p> <p>11 Q. And is it always present in the index?</p> <p>12 <b>A. A determining is an act. Okay. So the</b></p> <p>13 <b>index doesn't contain an act. The method</b></p> <p>14 <b>determines letters. Okay. So the determining is</b></p> <p>15 <b>an act. But it's related to, it's in the same</b></p> <p>16 <b>limitation, they don't – the process can't exist</b></p> <p>17 <b>one without the other. You know, I don't really</b></p> <p>18 <b>see what you're getting at here.</b></p> <p>19 Q. The system claim calls for instructions.</p> <p>20 Are the instructions for the determining</p> <p>21 limitation present in the instructions for the</p> <p>22 indexing limitation always, as you understand the</p>
<p style="text-align: right;">298</p> <p>1 limitation, that indexing is, you know, part of</p> <p>2 claim 1b, which you're choosing to call the</p> <p>3 determining limitation. I mean, I call them</p> <p>4 limitation a, b, c, d, et cetera.</p> <p>5 Q. And your understanding of those two</p> <p>6 limitations is that the determination is always</p> <p>7 present in the index. True or not true?</p> <p>8 <b>A. I mean, without the – I mean, this is all</b></p> <p>9 <b>in the context of paragraph 241.</b></p> <p>10 (Witness reviews document.)</p> <p>11 <b>A. I mean, as I state above, you know, the</b></p> <p>12 <b>determining -- rather than read the whole phrase,</b></p> <p>13 <b>with the third line, because of the "T" in the</b></p> <p>14 <b>word "Twelve" and the "Mo" in the word "Monkeys,"</b></p> <p>15 <b>it has been determined that such letters caused</b></p> <p>16 <b>Twelve Monkeys to be associated with a string of</b></p> <p>17 <b>unresolved overloaded keys.</b></p> <p>18 So you know, that determination is always</p> <p>19 relevant to the process of the claims. And, you</p> <p>20 know, the indexing is relevant to the determining</p> <p>21 and the determining is relevant to the indexing.</p> <p>22</p>	<p style="text-align: right;">300</p> <p>1 claims?</p> <p>2 <b>A. I wasn't saying anything like that.</b></p> <p>3 Q. That's my question for you. Are the</p> <p>4 instructions for the determining limitation always</p> <p>5 present in the instructions for the indexing</p> <p>6 limitation, as you understand the claims?</p> <p>7 <b>A. No, I wouldn't think so. No. I mean,</b></p> <p>8 <b>it's a separate question.</b></p> <p>9 Q. You've given opinions in this</p> <p>10 investigation regarding Gross, which was marked as</p> <p>11 Exhibit 12, correct?</p> <p>12 <b>A. Yes.</b></p> <p>13 Q. If I refer to Exhibit 12 as Gross, will</p> <p>14 you understand what I mean?</p> <p>15 <b>A. Yes.</b></p> <p>16 Q. In paragraph 63 of your validity report,</p> <p>17 you say, "Because Gross" -- I'll wait for you to</p> <p>18 get there. Let me know when you're there.</p> <p>19 <b>A. I'm there.</b></p> <p>20 Q. You say, "Because Gross" -- this is the</p> <p>21 last sentence of paragraph 63 of your validity</p> <p>22 report. You say, "Because Gross does not disclose</p>