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IN THE UNITED STATES DISTRICT COURT

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FOR THE DISTRICT OF DELAWARE

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VB ASSETS, LLC,) VOLUME 2

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Plaintiff,)

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C.A. No. 19-1410 (MN)

6

v.)

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7

AMAZON.COM SERVICES LLC,)

)

8

Defendant.)

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10

Tuesday, November 3, 2023

11

8:35 a.m.

Jury Trial

12

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844 King Street

Wilmington, Delaware

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BEFORE: THE HONORABLE MARYELLEN NOREIKA

United States District Court Judge

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APPEARANCES:

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WILSON SONSINI GOODRICH & ROSATI PC

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THE COURT: All right, everyone. Please be seated. So we have some objections. I know you guys gave some stuff to Mr. Buckson, but I haven't looked at it, you can do that all on the clock. Okay. What do we have?

MR. YOON: Your Honor, there are some issues that have been made, but we did want to report to the court that the parties did work through all the issues with Dr. Polish.

THE COURT: We're wasting the jury's time, I do

08:35:02 1 appreciate that and thank you, but let's not waste time.

08:35:06 2 MR. SALMASTLIAN: Good morning, Your Honor,
08:35:09 3 Vigen Salmastlian. There is an issue with a source code
08:35:14 4 exhibit that --

08:35:15 5 THE COURT: I have this, this is the only
08:35:16 6 document that I have right now. So do you have an objection
08:35:19 7 to this?

08:35:21 8 MR. WARE: Yes.

08:35:22 9 THE COURT: Let's deal with it.

08:35:24 10 That was the one that was actually timely made,
08:35:29 11 so let's deal with that first.

08:35:30 12 MR. WARE: Jeffrey Ware for defendant.

08:35:31 13 And here Amazon is using -- sorry, let me just
08:35:39 14 put this -- Your Honor, may I put this on the Elmo?

08:35:41 15 THE COURT: Yes.

08:35:46 16 MR. WARE: So we are re-raising Amazon's Daubert
08:35:51 17 to the portion of the Daubert motion that was denied with
08:35:56 18 leave to re-raise at trial. It may be appropriate, or more
08:36:01 19 appropriate for this Court to consider this issue after the
08:36:06 20 damages experts have testified and the Court has gotten more
08:36:11 21 information regarding the specifics of the methodology
08:36:16 22 Amazon is objecting to, and so for the appreciating the
08:36:21 23 issue of time here, Amazon simply re-raises--

08:36:25 24 THE COURT: No. No. You're not re-raising
08:36:28 25 something. Tell me what the objection is.

08:36:31 1 MR. WARE: Okay.

08:36:31 2 THE COURT: All you're going to do is say I
08:36:37 3 re-raise what I did, you know, weeks ago or even a week ago,
08:36:40 4 I have no idea what that is, okay? So if you want to make
08:36:44 5 an objection, you're -- it's worth your time and you make
08:36:48 6 it. Because I don't know what the problem is with it.

08:36:51 7 MR. WARE: Your Honor, so in the -- in Your
08:36:53 8 Honor's Daubert order, you granted the motion partially with
08:36:58 9 respect to Mr. Reed's math error with respect to his growth
08:37:05 10 input that he used as the basis for his hundred -- at that
08:37:10 11 time about \$150 million damages opinion. Now it is down to
08:37:15 12 46.7 million. Amazon objects, though, to -- and that was
08:37:21 13 part of his cost savings methodology or so-called cost
08:37:25 14 savings methodology.

08:37:27 15 Amazon still objects to the underlying cost
08:37:31 16 savings methodology as raised in the motion and specifically
08:37:35 17 --

08:37:35 18 THE COURT: You have to tell me what it is, I
08:37:37 19 don't remember. I have no idea what that basis was. So
08:37:41 20 rather than recap and waste that time, how about you just
08:37:45 21 start a new -- what did he do, what's objectionable?

08:37:51 22 MR. WARE: Your Honor, his cost saving
08:37:53 23 methodology compares Alexa's turn rate, versus for dialogs,
08:38:00 24 a turn rate is you speak to Alexa, Alexa provides a
08:38:02 25 response, that's one turn. He took Alexa's turn rate and

08:38:13 1 compared it -- which right now they accuse the '681 patent
08:38:19 2 of infringing, and then he took Alexa Shopping's turn rate
08:38:26 3 which plaintiff accuses the remaining patents of infringe --
08:38:32 4 or Amazon of infringing the remaining patents, and because
08:38:36 5 at one point in time in 2018, there was a 1.5 turn
08:38:41 6 difference, and he further opines that there was a certain
08:38:47 7 thing that happened with Amazon Shopping, a simple CX
08:38:52 8 program that, at that time, made it so that he could support
08:38:57 9 the valuation for his 1.5 turns benefit analysis he compared
08:39:05 10 Alexa Shopping with Alexa active customers and so the basis
08:39:09 11 of his calculation if you look here on this -- on the
08:39:15 12 demonstrative is that he said because Alexa Shopping had
08:39:21 13 poor customer experience prior to this time, you can see
08:39:27 14 when Alexa Shopping, which is in red, goes way up in late
08:39:32 15 2018, that the benefit of 1.5 turns could be calculated
08:39:37 16 based on the difference here pre the September 18 of Alexa
08:39:43 17 and Alexa Shopping user growth.

08:39:46 18 So Amazon's first objection to cost saving
08:39:52 19 methodologies is no cost saving methodology at all except by
08:39:58 20 the Federal Circuit, because here at this time, plaintiffs
08:40:04 21 have accused Amazon of infringing both Alexa, and Alexa
08:40:09 22 Shopping, you can't take the difference of growth rates in
08:40:15 23 both to determine the cost savings of using either the '681
08:40:21 24 patent for Alexa, or the remaining asserted patents for
08:40:26 25 Alexa Shopping.

08:40:23 1 So that is the first basis of Amazon's objection
08:40:29 2 that cost savings is supposed to be as recognized by the
08:40:32 3 Federal Circuit, the difference between infringing and a
08:40:40 4 non-infringing use, usually a non-infringing alternative or
08:40:44 5 sometimes the alternative of actually doing nothing. In
08:40:48 6 this case, they're comparing two infringing products --

08:40:51 7 THE COURT: But infringing of different patents,
08:40:53 8 so it's an infringing of the '681, and non-infringing of the
08:40:57 9 '681, but infringing of the others?

08:41:00 10 MR. WARE: Well they accused '681 actually of
08:41:04 11 infringing all -- or they accused both Alexa and Alexa
08:41:08 12 Shopping of infringing all of the asserted patents, but only
08:41:12 13 specifically Alexa Shopping for infringing the other
08:41:16 14 asserted patents.

08:41:20 15 THE COURT: So they're comparing the red line is
08:41:24 16 alleged infringing '681, and the blue line is a different
08:41:28 17 product that also is alleged to infringe the '681?

08:41:32 18 MR. WARE: Yes, it's the Alexa Shopping growth
08:41:36 19 rate. I'm sorry, the blue is Alexa, and red is Alexa
08:41:40 20 Shopping.

08:41:44 21 THE COURT: Okay. What's your next basis?

08:41:48 22 MR. WARE: The next basis is it's an apples to
08:41:52 23 oranges comparison, and in order to effectively assert that
08:41:56 24 because Alexa worked well at the time because of the
08:42:00 25 patents, and even though Alexa Shopping wasn't working well

08:42:06 1 before this change in 2018, even though again it was using
08:42:10 2 -- it was practicing the other patents, that the 1.5 turn
08:42:14 3 rate --

08:42:15 4 THE COURT: You keep saying the other patents.
08:42:17 5 So --

08:42:22 6 MR. WARE: So the voice ad patents and the '703
08:42:26 7 patent.

08:42:26 8 THE COURT: Yes, I know. Where I'm getting
08:42:29 9 confused is what is -- you just -- when I thought that's
08:42:31 10 what you were talking about before, '681 versus the other
08:42:31 11 patents, you said no, no, everything infringes, is alleged
08:42:41 12 the infringe the '681, so now we're talking about something
08:42:41 13 different, right? Now you're saying one thing is the '681
08:42:47 14 and another thing is the other patents?

08:42:49 15 MR. WARE: Well, Your Honor, the '681 patent
08:42:51 16 claims the more -- just most generally may call it
08:43:00 17 contextual understanding using short and long-term
08:43:01 18 knowledge. And so, they assert that all Alexa interactions
08:43:01 19 infringe the '681 based on that, whether it's in the Alexa
08:43:10 20 Shopping domain, or in any other Alexa domain.

08:43:17 21 With respect to the voice ad patents and the
08:43:20 22 '703 patent, they only accuse Alexa Shopping functionality
08:43:27 23 of infringing those patents.

08:43:30 24 THE COURT: Okay. So with that understanding,
08:43:32 25 can you tell me your second basis again?

08:43:35 1 MR. WARE: So the second basis is that to use
08:43:40 2 the different turns between Alexa and Alexa Shopping, is
08:43:46 3 completely baseless and erroneous because the context for
08:43:50 4 Alexa and using Alexa more generally and Alexa Shopping are
08:43:55 5 very different, or quite often very different. 95 percent
08:43:58 6 of Alexa interactions are just one shot interactions, where
08:44:03 7 you may ask her "Alexa, turn on the lights," or "please play
08:44:10 8 me my play list," or please do any number of things, where
08:44:16 9 it doesn't require an extra dialogue turn to do anything
08:44:19 10 because it's Alexa just automatically does it. Where Alexa
08:44:25 11 Shopping is often a more by-design, involves multiple turns.
08:44:30 12 So you may ask for a product and then you may then, want to
08:44:36 13 put that product in the shopping cart and then ultimately
08:44:39 14 you may want to purchase that product. And you can do that
08:44:42 15 using voice or any number of -- or screen or anything else,
08:44:45 16 but that can be a multiple turn dialogue. And really by
08:44:51 17 design by just the specifics of the whole purpose of the
08:44:57 18 Alexa Shopping app.

08:44:59 19 So to compare turn differences and attribute
08:45:04 20 that to the benefits of the patent while ignoring the true
08:45:08 21 difference of Alexa and Alexa Shopping, is an erroneous
08:45:12 22 comparison and it's comparing apples and oranges, not
08:45:20 23 actually comparing anything that reflects the value of the
08:45:22 24 patents to the accused product.

08:45:25 25 THE COURT: Okay. Any other grounds?

08:45:27 1 MR. WARE: And the third ground is that he is
08:45:30 2 pointing to a single Alexa Shopping document, OP1 and the
08:45:35 3 purported improvement of Alexa Shopping after certain
08:45:40 4 improvements were made, but he's applying the value of those
08:45:45 5 improvements to Alexa overall. Where again, specifics of
08:45:51 6 Alexa Shopping and Alexa are very different. And on top of
08:45:58 7 that, he fails to show that even when you see the red line
08:46:03 8 moving up, he fails to show that the red line moving up is
08:46:07 9 actually caused by reduction of turns in the patent, or
08:46:10 10 reduction of turns in dialogue which is the purported
08:46:15 11 benefit that Mr. Reed claims, and is trying to monetize for
08:46:20 12 plaintiff.

08:46:21 13 And so again, that's -- it makes no logical
08:46:26 14 sense, and we would object under Rule 702 and Daubert for
08:46:31 15 that.

08:46:31 16 THE COURT: Now, when you said before that this
08:46:36 17 might make more sense to raise after the experts testify,
08:46:41 18 wouldn't the expert already have testified about this, so
08:46:44 19 doesn't that suggest that this is not really a reliability
08:46:48 20 issue if you're willing to let the expert talk about this
08:46:50 21 before I rule on it?

08:46:52 22 MR. WARE: Well, Your Honor, we believe that you
08:46:56 23 already considered this issue when you did rule on the
08:46:58 24 initial Daubert motion, and you had suggested that this may
08:47:00 25 be an issue for cross-examination. But you granted Amazon

08:47:06 1 leave to re-raise it at trial. We think and know that if a
08:47:11 2 damages verdict issues by the jury in this Court, that the
08:47:17 3 Federal Circuit will overturn because again, this makes no
08:47:23 4 -- first of all makes no logical sense, and it also fails to
08:47:27 5 follow any recognized cost savings methodology that's ever
08:47:31 6 been accepted by the Federal Circuit.

08:47:35 7 THE COURT: I guess we'll have to find out.
08:47:38 8 Let's hear. And I really want to hear mostly on the first
08:47:44 9 ground which is how can this -- how can this have anything
08:47:49 10 to do with infringing the benefits of the patent when you
08:47:51 11 are comparing infringing versus infringing.

08:48:01 12 MR. MACDONALD: Thank you, Your Honor. Matt
08:48:11 13 Macdonald on behalf of VB Assets. Let me just get straight
08:48:14 14 to Your Honor's question.

08:48:15 15 THE COURT: That would be good without even the
08:48:17 16 present preface of telling me, just get there.

08:48:19 17 MR. MACDONALD: The answer is, we cannot run an
08:48:21 18 experiment inside Alexa that compare what would happen in
08:48:25 19 the but for world, where there is infringement and
08:48:27 20 non-infringement. We can't do that, we don't have that
08:48:29 21 ability because our position is that Amazon continuously
08:48:31 22 infringes, and we don't control their system.

08:48:33 23 So what our expert did was look through Amazon
08:48:36 24 data and Amazon documents to attempt to find evidence that
08:48:41 25 would allow him to proxy for the effect of the infringing

08:48:45 1 alternative.

08:48:46 2 Mr. Polish -- starting here, the benefit of the
08:48:50 3 patent is that it simplifies interaction with Alexa. He
08:48:54 4 looked for evidence that would help him measure that. What
08:48:57 5 he found is basically three things that I will highlight.
08:49:00 6 Number one is an internal Amazon document that is not up on
08:49:03 7 the screen, even though I was looking there, that Amazon
08:49:06 8 itself looked at a comparison between Amazon -- or excuse
08:49:11 9 me, between Alexa and Alexa Shopping and it itself made that
08:49:15 10 comparison as a way to look at the effect of additional
08:49:19 11 complexity on user growth. In effect, Amazon in that
08:49:23 12 document says we see a lot more turns on Alexa Shopping than
08:49:27 13 on Alexa and then connects that to a ten percent growth
08:49:31 14 differential between the two.

08:49:35 15 The second piece of evidence --

08:49:39 16 THE COURT: Why does that have anything to do
08:49:43 17 with the patents? Apportioning to the patents, that's what
08:49:47 18 I'm not understanding. As opposed to some other value use.

08:49:51 19 MR. MACDONALD: What happens is Amazon in this
08:49:55 20 document equates a 1, 1-and-a-half I believe turn
08:49:59 21 differential in Amazon Shopping and attributes that to a ten
08:50:03 22 percent growth differential.

08:49:57 23 THE COURT: Yes, but you're not telling me what
08:50:01 24 that one-and-a-half turns has to do with the patents versus
08:50:05 25 -- I mean, both things that are supposed to be using the

08:50:11 1 patent, right?

08:50:12 2 MR. MACDONALD: Yes, Your Honor.

08:50:13 3 THE COURT: The one-and-a-half turn, is that a
08:50:15 4 patented feature?

08:50:16 5 MR. MACDONALD: No, the one-and-a-half turns is
08:50:20 6 what Dr. Polish will testify is the consequence of using the
08:50:22 7 patent.

08:50:23 8 THE COURT: But using which patent?

08:50:25 9 MR. MACDONALD: All of the patented technology.

08:50:27 10 THE COURT: Okay. So that's where I'm missing
08:50:29 11 this. You get the benefit of the one-and-a-half turns from
08:50:31 12 that, then how -- don't the blue things also have the
08:50:33 13 benefit of the patents because you're accusing them of
08:50:35 14 infringement?

08:50:37 15 MR. MACDONALD: They absolutely do. So the
08:50:39 16 question that Dr. Reed -- excuse me, that Mr. Reed attempted
08:50:41 17 to answer was what evidence in Amazon's files that I have,
08:50:43 18 that would allow me to quantify the impact of this 1.5
08:50:45 19 turns. And we can't run an experiment --

08:50:47 20 THE COURT: I don't understand how you can say
08:50:49 21 the effect of infringing the patents is you get this benefit
08:50:51 22 when you're accusing things of infringing the patents that
08:50:53 23 don't apparently have that benefit.

08:50:55 24 MR. MACDONALD: I think the answer is that we
08:50:57 25 don't have -- we don't have -- we don't have real world

08:51:16 1 evidence of what would happen in the but for world --

08:51:18 2 THE COURT: Are you saying the blue things use
08:51:20 3 the patents?

08:51:21 4 MR. YOON: Yes, the blue things use the patents.

08:51:23 5 THE COURT: How is Dr. Polish saying that that
08:51:25 6 gives you the one-and-a-half turns, that's what I'm missing.
08:51:28 7 And stop with this double teaming. Then he's done and
08:51:31 8 you're making the argument.

08:51:33 9 MR. YOON: Yes, Your Honor, I apologize.

08:51:34 10 THE COURT: Fine. One time and that's it.

08:51:36 11 MR. YOON: I apologize, Your Honor, just to be
08:51:38 12 efficient.

08:51:39 13 THE COURT: I hate this lurking in the
08:51:41 14 background, very distracting, I can't pay attention to
08:51:43 15 what's being said because I got this lurking.

08:51:45 16 MR. YOON: My apologies, Your Honor. Your
08:51:47 17 Honor, in this case, Amazon's own expert, Mr. Johnson,
08:51:49 18 indicated that a non-infringing alternative to the patent
08:51:51 19 would add one -- at least one turn to each of the Amazon
08:52:01 20 devices that would infringe. So what you have here, Your
08:52:03 21 Honor, is you want to tie it to the patent is Amazon's
08:52:05 22 expert --

08:52:07 23 THE COURT: I don't want to tie it to the
08:52:09 24 patent, I think you have to tie it to the patent if you want
08:52:11 25 to use it, right?

08:52:17 1 MR. YOON: I am tying it to the patent, Your
08:52:19 2 Honor, I understand. Amazon's expert had indicated that you
08:52:22 3 can have a non-infringing alternative by asking more
08:52:26 4 questions that would add turns. Also Dr. Polish indicated
08:52:29 5 that as well in response to Amazon's expert. So you have a
08:52:33 6 situation where both experts on the technical side agree
08:52:36 7 that a non-infringing alternative to the patented technology
08:52:39 8 would add turns.

08:52:43 9 And then the next step is, okay, what is the
08:52:45 10 consequence of adding turns? We have an Amazon document
08:52:49 11 that shows adding 1.5 turns reduced growth by ten percent.
08:52:51 12 And then this was the issue with the math error, Your Honor,
08:52:54 13 this was the point, we have technical expert testimony that
08:53:00 14 shows the patents reduced turns, and that the non-infringing
08:53:04 15 alternative to the patents adds a turn. Then we have --
08:53:10 16 when we then have to quantify the economic impact of what
08:53:15 17 adding a turn would mean, we then go to the Amazon
08:53:19 18 documents, Amazon's own study which shows that when you
08:53:22 19 added 1.5 turns, it reduced growth by ten percent.

08:53:26 20 And so, that is the patents reduce the number of
08:53:30 21 turns, all the patents reduced the number of turns by at
08:53:34 22 least one --

08:53:38 23 THE COURT: Why do you have apportioning value
08:53:42 24 to the patents at the top, that's why I'm getting confused,
08:53:45 25 it makes it sound like you're comparing patented to

08:53:44 1 non-patented in this slide, and you're not.

08:53:46 2 MR. YOON: We can remove that title.

08:53:47 3 THE COURT: I understand what you're saying is
08:53:49 4 everybody agrees a non-infringing alternative has an extra
08:53:52 5 turn, and we're just trying to approximate what value not
08:53:57 6 having that extra turn gives.

08:53:59 7 MR. YOON: Exactly, we have Amazon's own
08:54:02 8 internal study as to the consequence of having more turns,
08:54:05 9 and Amazon's own document shows that it reduced growth by
08:54:09 10 ten percent, so the rest of this would go to the weight,
08:54:12 11 Your Honor, and it was addressed earlier.

08:54:14 12 THE COURT: All right. Let me hear the response
08:54:17 13 on that.

08:54:19 14 MR. WARE: Your Honor, regardless of whether the
08:54:22 15 patented benefit is 1.5 turns for Alexa, and 1.5 turns for
08:54:25 16 Alexa Shopping --

08:54:28 17 THE COURT: That's not the question. The
08:54:31 18 question is, respond to his argument. His argument is you
08:54:34 19 all say there is a non-infringing alternative, is that
08:54:37 20 right?

08:54:40 21 MR. WARE: Yes.

08:54:43 22 THE COURT: And the non-infringing alternative,
08:54:46 23 he says, that it would have at least an additional turn.
08:54:49 24 And you guys can disagree as to whether that's true, but
08:54:52 25 that's his understanding. He's saying look -- he's not

08:54:58 1 going to put that title up there, because I don't think this
08:55:00 2 is apportioning value to the patents. He's saying all this
08:55:03 3 is doing is approximating how much value you lose or gain by
08:55:12 4 having an additional turn, or one less turn, so that's what
08:55:15 5 I need you to respond to.

08:55:17 6 MR. WARE: Well, in the lines before
08:55:20 7 September 18th, the blue line has 1.5 less turns because
08:55:27 8 they're infringing the patents according to them, and the
08:55:29 9 red line has 1.5 less turns because they are accused of
08:55:34 10 infringing the patent.

08:55:35 11 THE COURT: That's not the question. You're not
08:55:37 12 responding to his argument. His argument is this is trying
08:55:50 13 -- forget the patents for one minute. He's saying all this
08:55:53 14 is doing is showing one thing has fewer turns, and it has
08:55:57 15 more value, and we're trying to approximate how much value
08:56:02 16 having one fewer turns is.

08:56:04 17 MR. WARE: Your Honor, that's what Mr. Reed is
08:56:06 18 attempting to correct, but the issue with cost savings is
08:56:10 19 then he is trying to compare one thing that enjoys the
08:56:13 20 benefit with another thing that enjoys the benefit of the
08:56:16 21 patented technology, as opposed to cost savings methodology
08:56:21 22 which is where he fails, which is supposed to compare
08:56:23 23 infringing versus non-infringing, and here they're comparing
08:56:28 24 I think --

08:56:29 25 THE COURT: Yes, but he's trying to compare as I

08:56:32 1 understand it, is infringing versus non-infringing. He says
08:56:35 2 the infringing has one-and-a-half fewer turns, and the
08:56:39 3 non-infringing alternative that you all say would be out
08:56:42 4 there has 1.5 more turns. And so he's comparing infringing
08:56:47 5 and non-infringing, and what he's trying to do here is to
08:56:51 6 say well, Amazon doesn't have a product because there is no
08:56:56 7 non-infringing product, so we have to come up with a
08:56:58 8 hypothetical or some way to evaluate what that amount would
08:57:02 9 be.

08:57:03 10 So we try and figure out what the value of that
08:57:05 11 extra turn for the infringing versus non-infringing is.

08:57:10 12 MR. WARE: Well, Your Honor, then they could
08:57:12 13 have performed a survey where they compared the benefit of
08:57:15 14 the patent compared to not -- to implementing the specifics
08:57:21 15 that Dr. Johnson included for non-alternatives in --

08:57:27 16 THE COURT: You're saying that's the only way
08:57:29 17 they could do it is a survey, there is no other way, they
08:57:32 18 can't just compare things that we know what one value is,
08:57:34 19 and we see -- we see what the value of that thing is.

08:57:40 20 MR. WARE: That's not necessarily correct, Your
08:57:42 21 Honor, that is one way to do it.

08:57:47 22 THE COURT: Okay. Well they have a different
08:57:49 23 way of doing it, and you're saying well this is just wrong,
08:57:52 24 but you're not really responding -- you're more saying well
08:57:54 25 they're comparing patented to patented. And what I

08:57:59 1 understand him to be saying is no, we're comparing patented
08:58:02 2 to unpatented, and what we're trying to do on this graph is
08:58:09 3 estimate the value that is given between the alleged
08:58:15 4 non-infringing alternative and the value of the patent.

08:58:23 5 MR. WARE: That's what is claimed, you're
08:58:26 6 correct, Your Honor.

08:58:27 7 THE COURT: All you're telling me is that's not
08:58:29 8 right and I don't understand what you're telling me.

08:58:32 9 MR. WARE: Because for cost savings, he is not
08:58:35 10 again -- each one of these lines, the whole time, both of
08:58:38 11 those lines are enjoying the benefit of the 1.5 turn in a
08:58:41 12 different context. But rather than him comparing the
08:58:44 13 benefit of the 1.5 turns in that context versus not --
08:58:51 14 versus doing these non-infringing alternatives, what he's
08:58:54 15 doing is he's comparing one way of receiving 1.5 turn
08:59:01 16 benefit to another way of receiving a 1.5 turn benefit.

08:59:04 17 THE COURT: All right. You guys aren't going to
08:59:07 18 have any time left to try your case at the rate you're
08:59:10 19 going. What I am going to do is deny this motion again. I
08:59:13 20 think that he is comparing based on the representation I
08:59:16 21 have gotten, he's comparing non-infringing to infringing,
08:59:19 22 and trying to estimate based on the information that they
08:59:22 23 have the value that the patent gives. So I am going to
08:59:25 24 allow that. I also think the fact that when we started this
08:59:28 25 that counsel said look, you can just decide this after the

08:59:38 1 jury has already heard this, also lends credence to the fact
08:59:43 2 that this is an issue for cross rather than an issue of
08:59:46 3 reliability.

08:59:46 4 All right. So what's the next issue that we
08:59:49 5 have?

08:59:55 6 MR. SALMASTLIAN: Your Honor, the issue, the
08:59:57 7 next issue is related to the document AMZ_VB_SCPRINT 74 to
09:00:05 8 77, and the issue here is this is a source code document
09:00:12 9 that Mr. Peck raised for the first time in his reply report,
09:00:14 10 but it was not for any issue related to any patent that's
09:00:20 11 currently at issue in this case. He restricted his opinion
09:00:25 12 to be a response to paragraph 459 of Mr. Johnson
09:00:29 13 non-infringement report. And that part of Mr. Johnson's
09:00:33 14 opinion relates to '536 patent, Claim 3. That claim has
09:00:38 15 been long dropped, and that patent has been dropped from
09:00:41 16 this case. And so we have no idea what Mr. Peck is going to
09:00:44 17 say about this source code document with respect to any
09:00:48 18 patent that's currently at issue in this case.

09:00:51 19 MR. SMITH: Your Honor, Mr. Peck is a source
09:00:55 20 code expert and all he did was opine about the operation of
09:00:58 21 the source code. His opinion is agnostic with respect to
09:01:02 22 any particular patents --

09:01:05 23 THE COURT: So where did he say he's going to
09:01:08 24 rely on this document with respect to any issue that is
09:01:12 25 currently in the case?

09:01:11 1 MR. SMITH: In his reply report --

09:01:14 2 THE COURT: Show me where, because he's saying
09:01:17 3 it's not relevant to any patent left in this case.

09:01:20 4 MR. SMITH: So in his reply report on page --
09:01:25 5 towards the bottom of page 10, if we can put that on the
09:01:29 6 screen. It's exactly -- probably 20 percent of his report
09:01:37 7 is just on this particular file. So of the ten page report,
09:01:41 8 two pages are about this file. And all he's going to
09:01:44 9 testify to is exactly what he says in his report. It's not
09:01:48 10 agnostic as to any particular patent, it's just Dr. Johnson
09:01:52 11 is saying that the Amazon Alexa works in a certain way, and
09:01:56 12 he was disputing based on code.

09:01:59 13 THE COURT: But when you said it's agnostic, he
09:02:03 14 said this is response to '459. What was '459?

09:02:07 15 MR. SMITH: So if we go to '459, this was about,
09:02:11 16 then I'll quote, '459, Johnson says "Polish also accuses "a
09:02:15 17 dialog management feature that determines a context by
09:02:19 18 passing." And he goes on from there. And then he talks
09:02:23 19 about the context interpreter. And the context interpreter
09:02:27 20 comes up again and again and again with respect to all of
09:02:31 21 the VoiceBox patents that are being asserted. So
09:02:35 22 Dr. Johnson has a particular paragraph. I'll say that his
09:02:39 23 report was 500 pages, and every single argument incorporates
09:02:43 24 everything else. So it's basically a spiderweb of opinions
09:02:47 25 that cover everything seemingly.

09:02:50 1 THE COURT: So a Section 459 addresses all the
09:02:53 2 patents and incorporates everything else he said?

09:02:57 3 MR. SMITH: He said it addresses a feature which
09:02:59 4 is the context interpreter, which comes up again and again
09:03:02 5 and again through the allegations of VoiceBox in the
09:03:05 6 different patents he talks about this particular argument,
09:03:08 7 the file in this part of his report, but he's really also
09:03:13 8 just responding to something that Dr. Polish said about the
09:03:16 9 operation of Alexa, a dialogue management feature that
09:03:21 10 determines.

09:03:21 11 THE COURT: How is he going to use this now
09:03:24 12 because it wasn't important for his infringement analysis,
09:03:26 13 he had to do it on reply, how is he going to use this?

09:03:30 14 MR. SMITH: He's going to use it in the same way
09:03:32 15 that he had in his report where he's just --

09:03:34 16 THE COURT: You're holding an iPad, it's really
09:03:37 17 not helpful to me to see what's on it.

09:03:40 18 MR. SMITH: He's going to say exactly what he
09:03:43 19 said in his expert report, he's pointed out there a source
09:03:46 20 file for the rules-based context interpreter, and the fact
09:03:50 21 that Amazon is saying they don't use manual rules and they
09:03:52 22 have two pages in effect where they're saying they do, and
09:03:55 23 that is specifically dead on, it's the context interpreter
09:04:00 24 which is the heart of the infringement allegations for
09:04:03 25 several of these patents. He's pointing out that he uses

09:04:07 1 source code analysis is inconsistent with what Amazon is
09:04:10 2 saying.

09:04:17 3 MR. SALMASTLIAN: Your Honor, the opinion that
09:04:18 4 Mr. Peck provided has nothing to do with whether or not
09:04:21 5 Amazon uses rules, it was specifically in response to --

09:04:25 6 THE COURT: Yes, but Amazon is now saying they
09:04:27 7 don't use rules, right? And so why can't he say, well they
09:04:32 8 have rules. They do have files that are relevant to rules.

09:04:36 9 MR. SALMASTLIAN: I think the issue here, Your
09:04:37 10 Honor, is that he didn't provide an opinion on that with
09:04:40 11 respect to this code. And we didn't have a chance --

09:04:43 12 THE COURT: He did -- he did have an opinion but
09:04:46 13 you're saying he didn't with respect to one patent.

09:04:50 14 MR. SALMASTLIAN: This is all with respect to
09:04:52 15 the '563 patent that has been dropped in this case.

09:04:55 16 THE COURT: What about the fact that he said
09:04:57 17 your guy, this context, whatever interpreter comes up in all
09:05:00 18 the different patents, and everything was incorporated by
09:05:02 19 reference to everything else, so --

09:05:10 20 MR. SALMASTLIAN: So there was no incorporation
09:05:12 21 by reference to other things, Your Honor, and the fact that
09:05:14 22 there is a module in Alexa called context interpreter does
09:05:20 23 not tell us what the opinion is about that context
09:05:24 24 interpreter with respect to any other patent where the
09:05:25 25 claims have different requirement. So here, Dr. Polish only

09:05:31 1 addressed it with claim 3 of '536.

09:05:35 2 THE COURT: I am going to let this go, to the
09:05:37 3 extent that it's just saying look, there is this rules-based
09:05:40 4 context interpreter, if he starts getting into much more
09:05:44 5 specifics that weren't disclosed, then you can object again
09:05:48 6 and I'll reconsider. But I think it's fair to say that with
09:05:52 7 respect to the source code, it was disclosed that he was
09:05:55 8 going to note that there is a rules-based context
09:06:00 9 interpreter in the device.

09:06:02 10 All right. Anything else we need to talk about?

09:06:04 11 MR. SALMASTLIAN: There is just one other issue
09:06:07 12 Your Honor, and it might be resolved at this point, but
09:06:10 13 there was a late add source code exhibit this morning which
09:06:14 14 is Amazon -- go ahead.

09:06:16 15 MR. SMITH: We'll withdraw that in light of your
09:06:19 16 ruling.

09:06:21 17 THE COURT: All right.

09:06:23 18 MR. SALMASTLIAN: Thank you.

09:06:25 19 THE COURT: All right. Mr. Buckson, do you want
09:06:28 20 to get the jury.

09:06:30 21 MR. YOON: Your Honor, just one procedural point
09:06:32 22 just to let you know Your Honor, we're going to be starting
09:06:34 23 with Mr. Freeman. The parties agreed to add some additional
09:06:36 24 testimony to Mr. DiCristo, so we'll start with Mr. Freeman
09:06:38 25 right away. And we'll play DiCristo's testimony a little

Freeman - direct

09:06:43 1 bit later today.

09:06:44 2 THE COURT: All right. So I'm sorry, is Freeman
09:06:48 3 live?

09:06:48 4 MR. YOON: Yes, he's coming live.

09:06:50 5 THE COURT: And what was the agreement -- oh, to
09:06:52 6 Mr. DiCristo, so then you have to update the times.

09:06:56 7 MR. YOON: They had asked us, there is no
09:06:57 8 dispute, we just have to get it done Your Honor, so to not
09:07:01 9 delay anything, we'll start with Mr. Freeman.

09:09:01 10 (Jury entering the courtroom at 9:09 a.m.)

09:09:15 11 THE COURT: All right, everyone. Welcome back.
09:09:24 12 Thank you for being here. Everyone else can please be
09:09:26 13 seated.

09:09:27 14 What's next?

09:09:32 15 MR. SMITH: Your Honor, plaintiff calls Tom
09:09:36 16 Freeman to the stand.

09:09:41 17 COURTROOM DEPUTY: Please raise your right hand.
09:09:53 18 Please state and spell your full name for the record.

09:09:59 19 THE WITNESS: My name is Thomas Edward Freeman,
09:10:02 20 F-R-E-E-M-A-N.

09:10:07 21 THOMAS EDWARD FREEMAN, having been duly sworn,
09:10:13 22 was examined and testified as follows:

09:10:16 23 DIRECT EXAMINATION

09:10:17 24 BY MR. SMITH:

09:10:22 25 Q. Good morning, Mr. Freeman.

Freeman - direct

09:10:31 1 A. Yes, I am.

09:10:33 2 Q. Sorry, I said, can you hear me, Mr. Freeman?

09:10:36 3 A. Oh, can I hear you, I can indeed, thank you.

09:10:39 4 Q. Good morning sir, how are you?

09:10:41 5 A. I'm quite well, thank you.

09:10:42 6 Q. Mr. Freeman, could you briefly introduce yourself to
09:10:45 7 the jury?

09:10:46 8 A. Sure. My name is Tom Freeman, I was born in Seattle
09:10:50 9 Washington, that's the other Washington, and that I lived
09:10:54 10 there my entire life with a short stint in Anchorage,
09:11:00 11 Alaska. I was a co-founder of VoiceBox technologies. And I
09:11:05 12 worked there for nine years. And the reason I am here
09:11:09 13 today, I guess, is that I was responsible for the invention
09:11:14 14 of some of the important patents in this particular case.

09:11:19 15 Q. Mr. Freeman, if we could just go over your background
09:11:23 16 briefly. Did you attend college?

09:11:25 17 A. Both graduate and undergraduate.

09:11:27 18 Q. Where did you go?

09:11:28 19 A. I went to the University of Washington.

09:11:30 20 Q. Where is that?

09:11:30 21 A. That's in Seattle, Washington.

09:11:32 22 Q. What did you do professionally after college?

09:11:32 23 A. I was in a technology world in which interpreting the
09:11:41 24 value of the technology to the customer was extremely
09:11:44 25 important, so I think you would call this technical sales

Freeman - direct

09:11:49 1 and technical product management.

09:11:51 2 Q. And just generally, what sort of products were you
09:11:53 3 selling back then?

09:11:54 4 A. Everything from database publishing to relational
09:12:01 5 databases, to holographic beam forming metamaterial
09:12:07 6 techniques, it was quite a broad world of technologies.

09:12:11 7 Q. Do you have any formal engineering training?

09:12:14 8 A. Oh, no, I do not, sir.

09:12:15 9 Q. Did you learn technology on the job?

09:12:17 10 A. I did indeed, sir, to be able to interpret it is
09:12:21 11 extremely important.

09:12:22 12 Q. And Mr. Freeman, do you know the Kennewick brothers?

09:12:24 13 A. I do know the Kennewick brothers, I know them well.

09:12:30 14 Q. How did you first come to meet them?

09:12:32 15 A. Rich and I worked together in a company called
09:12:35 16 Interleaf, which produced technical publishing software for
09:12:41 17 the '757, '767, and eventually the '787, and in that he
09:12:44 18 worked for me, and eventually I worked for him at VoiceBox.

09:12:51 19 Q. And you mentioned VoiceBox. How did it come about
09:12:52 20 that you guys founded that company?

09:12:52 21 A. So the idea of being able to talk to your computer,
09:13:00 22 talk to the internet, be able to do information retrieval I
09:13:02 23 found extraordinarily compelling. And so much so that when
09:13:10 24 we eventually began to form the company, it became clear
09:13:12 25 that, you know, early money is like yeast, and you have to

Freeman - direct

09:13:23 1 be able to, be able to address the marketplace, and in such
09:13:31 2 I invested the first \$400,000, which I might add caused a
09:13:37 3 little distress in the marriage.

09:13:39 4 Q. For you was that a lot of money?

09:13:41 5 A. That was a significant amount of money.

09:13:43 6 Q. And when you were going to decide to found VoiceBox
09:13:48 7 with the Kennewick brothers, and put all that money in of
09:13:53 8 your own money, were you aware of any other voice-based
09:13:56 9 computer solutions that were out there?

09:13:59 10 A. There were a lot of people attempting there, there
09:14:02 11 was command and control systems, they would follow the menu
09:14:05 12 and say exactly the right words or nothing good would
09:14:08 13 happen.

09:14:09 14 Q. What do you mean by command and control?

09:14:11 15 A. So if I wanted to talk to a pharmacist, you had to be
09:14:17 16 able to say the exact words on the menu tree in order to get
09:14:24 17 to that particular destination. As opposed to just saying
09:14:28 18 one shot and be able to say I would like to talk to a
09:14:32 19 pharmacist about my -- about the drugs that are being
09:14:36 20 assigned to me.

09:14:37 21 Q. When you're saying talk to a pharmacist, is this
09:14:40 22 something on a computer or something like a phone?

09:14:43 23 A. I'm sorry, this would be a telephone tree, the
09:14:46 24 primary form that this took was a telephone, telephone based
09:14:50 25 systems.

Freeman - direct

09:14:56 1 Q. Okay. After you founded VoiceBox with the Kennewick
09:15:00 2 brothers, did you make any sort of a product or service
09:15:05 3 initially?

09:15:06 4 A. So, the whole notion became to develop this way that
09:15:11 5 one could talk to the internet, and talk to your computer.
09:15:14 6 And that's what the creation of Cybermind was all about.

09:15:18 7 Q. And what was your responsibility with Cybermind back
09:15:24 8 in the early days of VoiceBox?

09:15:26 9 A. I wore a lot of hats, but primarily what we're
09:15:30 10 talking about is, is the technology useful. There is lots
09:15:34 11 of people creating lots of technology in which you wouldn't
09:15:37 12 cross the street in order to use. And so the notion is that
09:15:40 13 okay, you're talking to the internet. Why are you talking
09:15:44 14 to the Internet? How is that useful? How does that bring
09:15:48 15 value and make it compelling to the customer to use.

09:15:54 16 Q. And were you responsible for any aspect of the
09:16:00 17 physical design of the Cybermind product?

09:16:04 18 A. Yeah. So I also wore the hat of creating the
09:16:07 19 physical head itself, the array microphones, the voice
09:16:11 20 cancelling system, the beam forming system that was inside
09:16:15 21 there because the whole system works if you have a robust
09:16:20 22 utterance that has a lot of detail in it. And that is what
09:16:23 23 the Bluetooth implementation brought for us.

09:16:27 24 Q. And could we -- I would like to show a video file,
09:16:32 25 543, to the witness on his screen, if we could do that?

Freeman - direct

09:16:39 1 A. Yes, I'm seeing it.

09:16:40 2 Q. Okay. Well before we play this. Mr. Freeman, are
09:16:46 3 you familiar with the video of PTX-543?

09:16:50 4 A. I am indeed, sir.

09:16:52 5 Q. Did you participate in the filming of that video?

09:16:56 6 A. I was what they call in the business a talking head,
09:16:59 7 yes, sir.

09:17:01 8 MR. SMITH: Your Honor, at this point plaintiff
09:17:02 9 would like to introduce into evidence PTX-543.

09:17:04 10 MR. HADDEN: No objection.

09:17:06 11 THE COURT: Thank you. It is admitted.

09:17:08 12 (PTX Exhibit No. 543 was admitted into
09:17:09 13 evidence.)

09:17:11 14 MR. SMITH: Mr. Smith, could you start playing
09:17:15 15 543, please?

09:17:18 16 (PTX-543 video played.)

09:17:31 17 MR. SMITH: Can you pause that?

09:17:40 18 So Mr. Freeman, who is that individual talking
09:17:44 19 there in the video?

09:17:46 20 A. That individual would be me, sir.

09:17:48 21 Q. And here in this -- in the video, what were you
09:17:52 22 talking to?

09:17:54 23 A. So that was the Cybermind, what we call the head, the
09:18:02 24 whole system together was called Cybermind because it
09:18:04 25 included the software, but that was the Bluetooth speaker

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09:18:07 1 and mic.

09:18:09 2 Q. Do you recall approximately when this video of you
09:18:13 3 and the Cybermind head was taken?

09:18:14 4 A. Yeah, it was about 2006 that the NBC affiliate
09:18:20 5 approached us and said this would be useful to do.

09:18:23 6 MR. SMITH: Mr. Smith, if you could continue
09:18:26 7 playing this.

09:18:27 8 (Video played.)

09:19:21 9 BY MR. SMITH:

09:20:01 10 Q. So Mr. Freeman, I think at the end of that video, the
09:20:11 11 newscaster mentioned that there was going to be the hand
09:20:14 12 held thing out by Christmas. And what was -- was VoiceBox
09:20:18 13 able to do that?

09:20:24 14 A. We were not at the time.

09:20:26 15 Q. Why not?

09:20:26 16 A. There were compliments of issues, one was what's
09:20:31 17 called the bottom, the buildable materials to build that
09:20:36 18 thing, was expensive. Number two, there wasn't like a post
09:20:41 19 sales revenue model to be able to bring it down. And three,
09:20:45 20 Toyota, wonderful amazing company, approached us with a \$5
09:20:49 21 million deal and said we want that technology in our cars,
09:20:52 22 so would you please defer your resources in order to do it.
09:20:56 23 Very difficult to turn down that kind of offer.

09:20:59 24 Q. What did VoiceBox do then?

09:21:00 25 A. What we did was, we said all right, the NLU and the

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09:21:04 1 core technology we will continue to develop over time, and
09:21:07 2 we will make better but we will figure out how to shrink
09:21:11 3 this, in order to fit it into what's called the head unit of
09:21:14 4 an automobile which is the navigation unit, the infotainment
09:21:20 5 unit, the radio, heater, all that kind of stuff.

09:21:22 6 Q. At this point, when you had decided to work with
09:21:25 7 Toyota and put the Cybermind technology into the Toyota
09:21:29 8 cars, at that point, did you give up on Cybermind?

09:21:31 9 A. No. Cybermind was the, the image that we were
09:21:41 10 chasing, the notion of why this would be compelling, again,
09:21:44 11 why would you cross the street. We can make it this good in
09:21:48 12 an automobile, but we can make it this good in a living
09:21:51 13 room.

09:21:52 14 Q. Did you work on any technical improvements for
09:21:56 15 Cybermind in that time period?

09:21:59 16 A. The way software works, as you well know, is you just
09:22:03 17 don't put a formula into -- into software, instead you
09:22:06 18 iterate, and you iterate, and you get better, and you get
09:22:10 19 better, they're called drops, they're called -- they're
09:22:13 20 called release candidates, but yes, to answer your question,
09:22:17 21 completely.

09:22:20 22 Q. Did you work on any potential patents at that point?

09:22:24 23 A. We were working on ways, we believe very much in the
09:22:27 24 patent process, so we were working on ways of improving our
09:22:31 25 technology both from a recognition point of view, from an

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09:22:38 1 audio path point of view, from a usefulness point of view so
09:22:43 2 that, we would patent that and be able to incorporate that
09:22:46 3 in our technology.

09:22:47 4 Q. And Mr. Smith, I believe we can -- this has been
09:22:51 5 admitted. Could you show JTX-001, which is the '681 patent
09:22:55 6 on the screen.

09:22:55 7 And Mr. Freeman, if you could take a look at
09:23:02 8 JTX-1, which is on the screen, and particularly in the upper
09:23:07 9 right-hand corner, do you see the last three digits of this
09:23:10 10 patent?

09:23:10 11 A. I do, indeed.

09:23:11 12 Q. Is this what we have been referring to as the '681
09:23:14 13 patent?

09:23:14 14 A. This is indeed.

09:23:15 15 Q. Are you one of the co-inventors of the '681 patent?

09:23:18 16 A. Along with looks like 5, 4 others, yes, correct.

09:23:21 17 Q. And what was the motivation for you and the other
09:23:24 18 co-inventors of the '681 patent to develop this?

09:23:31 19 A. Cooperative conversation. Voice is interesting,
09:23:34 20 right, it's like you talk, I talk, you talk, I talk. But if
09:23:41 21 there is no purpose, if there is no goal, if we're not
09:23:44 22 trying to actually get somewhere, it's kind of jaded idol in
09:23:51 23 the garden of knowledge. Why not be able to sharpen the
09:23:54 24 conversation, so that you're focused on actually achieving a
09:24:01 25 goal between the machine and the human. And that's a

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09:24:03 1 primary idea here.

09:24:06 2 Q. Do you see here on the Item 22, there it says
09:24:11 3 October 16, 2006, do you see that?

09:24:13 4 A. I do.

09:24:14 5 Q. And is that consistent with your recollection of when
09:24:17 6 you filed for this patent?

09:24:18 7 A. It's consistent with the video that we were listening
09:24:25 8 to.

09:24:27 9 Q. And at this time, had you thought about the idea of
09:24:29 10 using long-term shared knowledge?

09:24:31 11 A. Absolutely. It turns out that when you and I have a
09:24:33 12 conversation, two things happen. One is we understand
09:24:41 13 what's happening in the conversation right now. But
09:24:43 14 secondly, and importantly, you have a basis of past
09:24:45 15 experience with me that makes a lot more sense. You say I
09:24:51 16 need to get to the freeway, what freeway are you talking
09:24:53 17 about, are you talking about I95, or Interstate 5, there is
09:25:01 18 a big difference between those two. And that by having a
09:25:03 19 long-term memory, we understand what freeway means in this
09:25:10 20 particular context.

09:25:12 21 Q. At the time that you filed the patent, were you aware
09:25:14 22 of any other voice system that had that kind of long-term
09:25:16 23 memory?

09:25:18 24 A. Not to my knowledge, sir.

09:25:20 25 Q. And what was your contribution for the '681 patent,

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09:25:24 1 what role did you play?

09:25:26 2 A. So my role was to sit there and give it the litmus
09:25:31 3 test, would this be used, why would it be used. Are we just
09:25:34 4 having a technology chasing an idea, or is this actually
09:25:38 5 useful in the different use cases that we were talking
09:25:42 6 about, in the car, in the living room and different places.

09:25:45 7 Q. And Mr. Smith, if could go to column 11, start around
09:25:51 8 line 10, please.

09:25:55 9 And Mr. Freeman, I moved to a section of the
09:25:58 10 patent, the '681 patent. Do you see that on your screen
09:26:01 11 there?

09:26:02 12 A. I do.

09:26:03 13 Q. And in this section of the patent, it says, for
09:26:07 14 example, a user utterance of quote, what about traffic?
09:26:12 15 Close quote, may have a distinct meaning in various
09:26:18 16 contexts. Do you see that?

09:26:18 17 A. I do.

09:26:18 18 Q. Is this part of the patent that you worked on?

09:26:20 19 A. Yes, it is.

09:26:21 20 Q. And what was the idea behind this example about
09:26:25 21 traffic?

09:26:26 22 A. Well, if you were to look at me and say completely
09:26:29 23 cold, what about traffic, I would look at you and say I
09:26:32 24 think you're crazy. But to be able to establish a context
09:26:35 25 about what traffic means, are we talking about music, are we

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09:26:41 1 talking about a movie, did this request come from a movie
09:26:45 2 agent, did this request come from a smart television, did
09:26:50 3 this request come from a navigation system, that helps
09:26:53 4 narrow down what traffic means. It doesn't mean you
09:26:57 5 wouldn't have a follow-up question because follow-up
09:26:59 6 questions are useful -- humans do this all the time. But
09:27:03 7 you can make certain assumptions based on where it's coming
09:27:07 8 from, and what the user is doing, what "traffic" means in
09:27:12 9 this situation.

09:27:12 10 Q. And would the long-term shared knowledge be helpful
09:27:14 11 for the system to figure out what was meant by traffic?

09:27:20 12 A. Oh, yes, very much so. How have you used this word
09:27:24 13 before, and how were you using this word before. And so you
09:27:28 14 have not only the history of those -- of the usage of the
09:27:32 15 word traffic, but also of the different elements within
09:27:35 16 traffic itself.

09:27:38 17 Q. And at that time when you invented the '681 patent,
09:27:42 18 what was it going to do for Cybermind in your view?

09:27:45 19 A. It was -- so the power of the Cybermind was to make
09:27:51 20 -- to take the friction out of a conversation with a human.
09:27:56 21 So it's -- a lot of this user interface stuff is, I don't
09:28:02 22 want to repeat everything I just said, I want you to be
09:28:06 23 smart enough to understand what traffic means. What is
09:28:10 24 traffic like on the way to the hospital? Well if it
09:28:14 25 understands me, it understands the hospital I go to, every,

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09:28:18 1 couple times a month, and it understands the route I take
09:28:23 2 every time. Instead of saying gosh, I'm looking for traffic
09:28:26 3 information on the 520 going to Interstate 5 at the
09:28:29 4 interchange of Interstate 90, blah, blah, blah, sorry.

09:28:33 5 Q. No, thank you. I appreciate that.

09:28:36 6 Why don't we move to, Mr. Smith, if you could
09:28:39 7 pull up JTX-003.

09:28:44 8 And Mr. Freeman, do you see on the screen a
09:28:48 9 patent which ends in the numbers '176?

09:28:51 10 A. I do indeed, sir.

09:28:53 11 Q. And do you see in the left hand portion Item 75
09:28:56 12 there, you're listed as one of the inventors with Mike
09:29:00 13 Kennewick, do you see that?

09:29:03 14 A. I do.

09:29:04 15 Q. Did you work with Mike Kennewick on an invention that
09:29:08 16 turned into the '176 patent?

09:29:10 17 A. I did.

09:29:11 18 Q. And at a general level, what was the '176 about?

09:29:14 19 A. The '176 was to start thinking of those agents, the
09:29:18 20 agents, the music agent and a movie agent and the other
09:29:21 21 kinds of things that Cybermind could do, adding to that an
09:29:24 22 advertising aspect. So it would be like gosh, that is a
09:29:27 23 great tune, take some of you back to ring tone land, that I
09:29:30 24 would like a ring tone for that -- for Brown Eyed Girl and
09:29:33 25 be able to download that. The world has moved on of course

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09:29:49 1 since that particular technology. But the aspect is
09:29:53 2 completely the same.

09:29:55 3 Q. And so and what was -- so you're saying as an
09:30:02 4 example, you could tell Cybermind to play a song, and then
09:30:06 5 Cybermind might suggest that you might want to buy the ring
09:30:10 6 tone?

09:30:11 7 A. Or I could ask it, right? So one of the key notions
09:30:15 8 here, and how advertising expanded in the course of the time
09:30:19 9 that we were dealing with this, was that instead of it being
09:30:23 10 a one-way flow from the source -- from the radio, if you
09:30:27 11 will, into the consumer, if the world switches around where
09:30:31 12 I could say gosh, could I get a ring tone, that would be
09:30:35 13 pretty cool, and that advertising becomes interactive.

09:30:40 14 Q. Why don't we now pull up JTX-005, please, Mr. Smith.
09:30:54 15 And Mr. Freeman, do you see that JTX-005, the upper
09:30:58 16 right-hand corner has the last three digits '097?

09:31:02 17 A. I do.

09:31:06 18 Q. And this one also lists you as a co-inventor with
09:31:10 19 Mike Kennewick, do you see that?

09:31:02 20 A. I do.

09:31:10 21 Q. What was the '097 patent about?

09:31:14 22 A. The '097 was an -- there is a term of art you folks
09:31:18 23 use, an expansion, no, it was an expansion of our patents
09:31:22 24 that we had in the earlier ones, so it's a continuation,
09:31:26 25 that was the word I was looking for, it was a continuation

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09:31:33 1 of the previous patents that we had in this advertising
09:31:38 2 space.

09:31:39 3 Q. And when you say the previous patent we had, are you
09:31:41 4 talking about the '176 patent?

09:31:43 5 A. I am talking about the '176.

09:31:46 6 Q. Okay. And one question I had for you is with respect
09:31:51 7 to the '097 patent, the '176 patent, with advertising, did
09:31:57 8 the idea of pronouns ever play a role in what you were
09:32:00 9 thinking about at the time?

09:32:02 10 A. Yeah, if I could take you back to that part of the
09:32:04 11 conversation about removing the friction from the human to
09:32:06 12 machine interaction, part of that is as straightforward, but
09:32:11 13 technically not completely easy, of being able to substitute
09:32:20 14 a pronoun for a very long product name, a very long music
09:32:27 15 name, a very long artist, and which one doesn't want to risk
09:32:32 16 misrecognition, if you will. So buy it, get it for me, ship
09:32:37 17 it, and these are words that add a lot of value in the
09:32:44 18 human/machine interface.

09:32:46 19 Q. Okay. Now, I believe that-strike that.

09:32:52 20 What was the '176 and '097 patents intended to
09:32:58 21 do for the Cybermind product?

09:33:01 22 A. So, as I mentioned before, we had this challenge, and
09:33:04 23 that was that when you are a company, and you are trying to
09:33:09 24 produce something new and you're manufacturing it, you have
09:33:12 25 this bill of materials. And the bill of materials are all

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of the elements that go into Bluetooth, and all the elements that go into the head, and all of the elements that you have to require in terms of your R & D, and we were looking at what is called a BOM cost, building and materials cost, that once we put it in the channels was going to make it prohibitively expensive for your average consumer, for your above average consumer to be able to purchase. So the notion of being able to subsidize that by being able to have an ad-free, or an ad-based system, being able to have people be able to buy products in which we would get a percentage of the opportunity, allowed us to have a post-sales business model that would allow us to sell for less money than we were currently thinking about doing.

Q. So would the version of Cybermind that had ads on it be less expensive, or more expensive than the version of Cybermind without the ads?

A. It would be less expensive. And consumers became used to this kind of model for this time period that you can buy yourself down to a non-ad environment.

Q. When did you leave VoiceBox?

A. 2010.

Q. And when you left VoiceBox in 2010, had you been able to implement the '681 patent with the long-term memory that we talked about, and the '176 and '097 patents with the advertising in a physical product at that point when you

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09:34:59 1 left?

09:35:00 2 A. Okay. I'll respond carefully, because you said in a
09:35:04 3 physical product to be released. The answer to that is no.
09:35:08 4 But the answer is, did we have point releases in engineering
09:35:12 5 that was getting us there, that software development is not
09:35:19 6 magic, sir, it is a lot of I wonder if that worked, let's
09:35:23 7 try this and you do it again and you do it again. And
09:35:26 8 that's -- that iterative process is the process by which
09:35:32 9 software is realized.

09:35:35 10 MR. SMITH: Thank you, Mr. Freeman. Appreciate
09:35:38 11 your time. I'll pass the witness.

09:35:40 12 THE WITNESS: Thank you.

09:35:41 13 THE COURT: Cross-exam.

09:35:43 14 CROSS-EXAMINATION

09:35:45 15 BY MR. HADDEN:

09:35:49 16 Q. Good morning, Mr. Freeman.

09:35:51 17 A. Good morning.

09:35:51 18 Q. Just to go back a little to your background, I
09:35:55 19 understand you went to the University of Washington. What
09:35:58 20 was your degree in?

09:35:59 21 A. So I had a liberal arts degree as an undergraduate,
09:36:02 22 and a masters of business administration from the Foster
09:36:04 23 School which is a prestige school at the University of
09:36:10 24 Washington.

09:36:12 25 Q. And just to be clear, so you quit VoiceBox in May of

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09:36:15 1 2010; is that correct?

09:36:18 2 A. That is correct.

09:36:18 3 Q. And over the ten years you spent at VoiceBox before
09:36:23 4 you quit, it's correct that VoiceBox spent more money than
09:36:28 5 it received; correct?

09:36:30 6 A. I think it -- I'm not a subject matter expert in this
09:36:35 7 field, but I would say -- I'm not a subject matter expert in
09:36:40 8 that field.

09:36:40 9 Q. So you don't know?

09:36:42 10 A. It would -- I would answer yes to your question.

09:36:48 11 Q. Now, when you left VoiceBox in 2010, VoiceBox didn't
09:36:55 12 have -- had never enabled eCommerce transactions through
09:37:01 13 voice, correct?

09:37:04 14 A. Not true.

09:37:06 15 Q. Excuse me?

09:37:07 16 A. Not true.

09:37:09 17 Q. So can --

09:37:10 18 A. It depends what you mean, was it commercialized,
09:37:13 19 absolutely true, it was never commercialized.

09:37:16 20 Q. Do you have a copy of your deposition, it should be
09:37:19 21 that binder there, do you remember when you were deposed in
09:37:22 22 this case, sir? Were you able to find it there?

09:37:23 23 A. Deposition transcript? Sure.

09:37:32 24 Q. I would ask you to look at page 47, lines 9
09:37:37 25 through 18.

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09:37:42 1 A. Page 47, lines 9 through?

09:37:46 2 Q. 18?

09:37:47 3 A. 18.

09:37:48 4 Q. Do you see that?

09:37:53 5 A. And that statement is accurate in that we never

09:37:58 6 enabled eCommerce transactions through voice, and I

09:38:03 7 interpreted your previous question is, were we actually

09:38:07 8 working on that and developing it.

09:38:08 9 Q. So just to be clear, my question was:

09:38:11 10 Did you ever actually do it, were you ever able

09:38:15 11 to actually do it before you left in 2010, and your answer

09:38:20 12 was, you could not, right?

09:38:21 13 A. Do it is a very uncomfortable word. In that were we
09:38:27 14 able to demonstrate it? Yes. Were we able to commercialize
09:38:32 15 it? No.

09:38:34 16 Q. Now, could we see JTX-003, Mr. Patterson?

09:38:41 17 Now, this is one of the voice ad patents that
09:38:50 18 you're an inventor on, right, sir?

09:38:53 19 A. Yes, sir.

09:38:53 20 Q. And you didn't make any technical contributions to
09:38:57 21 this patent, did you?

09:39:02 22 A. So the answer to your question is technical
09:39:10 23 contributions of -- well, did I develop an algorithm by
09:39:18 24 which engineers would at some point take and build a typical
09:39:22 25 solution, the answer is yes. Was I an engineer who built a

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09:39:26 1 technical solution, the answer is no.

09:39:29 2 Q. So in February of 2007, when VoiceBox filed this
09:39:35 3 patent, did VoiceBox have a system that provided spoken
09:39:39 4 advertisements based on a user's utterance?

09:39:42 5 A. In 2007 when we filed for this patent?

09:39:45 6 Q. Correct.

09:39:46 7 A. So in 2007 when we filed for this patent, we were
09:39:50 8 developing concept software that was certainly not ready for
09:39:57 9 the customer facing, but was proving out of thought.

09:40:02 10 Q. Let's look at your deposition again, sir, this time
09:40:05 11 at page 174, lines 22 through 175, line 4?

09:40:18 12 A. Page 74?

09:40:19 13 Q. 174, sir.

09:40:24 14 A. 174. Okay, 174, what line, sir?

09:40:34 15 Q. Do you see the question begins on line 22, and your
09:40:38 16 answer ends on line 4. Do you see that? Can we put up that
09:40:45 17 testimony, Mr. Patterson?

09:40:58 18 And you testified in 2007, VoiceBox did not have
09:41:25 19 such an implementation; correct?

09:41:28 20 A. Certainly one that was not commercially available.

09:41:32 21 Q. You didn't say anything about commercially available
09:41:34 22 in your sworn testimony, did you sir?

09:41:38 23 A. I did not. Implementation is a vague word.

09:41:42 24 Q. I'm sorry, I didn't hear you?

09:41:44 25 A. I was just saying that implementation is a very broad

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09:41:48 1 word.

09:41:48 2 Q. Let's look at the patent again, please,
09:41:51 3 Mr. Patterson, JTX-003. And let's look at Claim 40.

09:42:05 4 Did you invent a conversational language
09:42:10 5 processor?

09:42:12 6 A. Did I invent a conversational language processor?

09:42:15 7 Q. Yes, sir.

09:42:15 8 A. I did not.

09:42:16 9 Q. Did you invent an adaptive misrecognition engine,
09:42:21 10 sir?

09:42:29 11 A. So did I outline what the algorithm would be to make
09:42:32 12 it useful. The answer is yes. Did I write the code, the
09:42:35 13 answer is no.

09:42:37 14 Q. Can you describe for me what the algorithm is that
09:42:42 15 you developed for an adaptive misrecognition engine?

09:42:45 16 A. So it is about where the utterance comes from and
09:42:49 17 what the purpose of the utterance is. For instance, if
09:42:51 18 you're in a distributed environment, and you have a
09:42:55 19 navigation system and that you're picking up the words about
09:43:00 20 traffic from a navigation system, that's telling you in an
09:43:02 21 enormous amount of information about what the word traffic
09:43:04 22 means in that particular context, poison IV and Poison Ivy
09:43:10 23 are phenetically extremely close to each other, but one
09:43:12 24 comes from medical, and one comes from a gardening app, then
09:43:20 25 you have a clue as to what that information means. So even

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09:43:25 1 though it might be misrecognized originally, that because of
09:43:30 2 the source of the information you're able to say, that's
09:43:35 3 probably about a medical situation, and not about a
09:43:39 4 gardening situation.

09:43:40 5 Q. And that's the algorithm that is in this patent?

09:43:48 6 A. So that -- so the algorithm in this patent is about
09:43:51 7 what it is that the engineers are going to be sent off in
09:43:57 8 order to build, in order to make the rest of the situation
09:44:00 9 compelling.

09:44:01 10 Q. And what you told the engineers to build is what you
09:44:06 11 just described to the jury?

09:44:07 12 A. Say again?

09:44:08 13 Q. What you told the engineers to build is what you just
09:44:12 14 described to the jury?

09:44:13 15 A. Yes, sir.

09:44:13 16 Q. Thank you.

09:44:14 17 Let's look at DTX -- I'm sorry, JTX-005, please,
09:44:21 18 Mr. Patterson. And this is the '097 patent that you were
09:44:27 19 asked about by your counsel, do you recall that, sir?

09:44:30 20 A. Yes.

09:44:30 21 Q. And could we go to Claim 23, please, Mr. Patterson?

09:44:35 22 And this is the claim that talks about pronouns.
09:44:42 23 Do you remember being asked about pronouns by your counsel,
09:44:47 24 sir?

09:44:49 25 A. I do.

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09:44:49 1 Q. Did you invent a way for a computer to understand the
09:44:52 2 meaning of a pronoun?

09:44:56 3 A. So what I did was to say we have a requirement here
09:45:01 4 for pronouns to be able to take -- to be able to substitute
09:45:07 5 for the actual nouns in this situation. How you do it in
09:45:11 6 engineering, I don't have a dog in this fight, I don't care,
09:45:14 7 but you need to be able to do this. Engineering in
09:45:16 8 response, of course, will come up with 5, 10, 15, 20
09:45:21 9 different ways of doing this, and we'll evaluate them
09:45:24 10 accordingly.

09:45:25 11 Q. Just to be clear, you didn't invent a way for a
09:45:27 12 computer to understand the meaning of a pronoun, correct?

09:45:31 13 A. I said, sure, I agree.

09:45:37 14 Q. Let's look at -- there is a document in your binder,
09:45:41 15 sir, DTX-102, it's in the binder that we gave you.

09:45:47 16 A. DTX-102?

09:45:50 17 Q. Yes, sir.

09:45:51 18 A. Yes.

09:45:53 19 Q. Okay. Do you recognize that document, sir?

09:45:55 20 A. I do.

09:45:58 21 MR. HADDEN: Move DTX-102 into evidence, Your
09:46:02 22 Honor.

09:46:02 23 MR. SMITH: No objection.

09:46:04 24 THE COURT: Thank you. It is admitted.

09:46:04 25 (DTX Exhibit No. 102 was admitted into

Freeman - cross

09:46:08 1 evidence.)

09:46:08 2 BY MR. HADDEN:

09:46:09 3 Q. So this is a paper that you wrote with Mr. Baldwin,
09:46:14 4 another inventor on the '681 patent. Is that correct?

09:46:17 5 A. That is correct.

09:46:18 6 Q. And you wrote this paper with Mr. Baldwin, it's a
09:46:25 7 marketing material for VoiceBox, correct?

09:46:27 8 A. It was a vision piece, correct.

09:46:34 9 Q. If we look at page 6 of this paper. Can you move to
09:46:41 10 that Mr. Patterson?

09:46:42 11 At the top is a heading cooperative
09:46:45 12 conversation. Do you see that, sir?

09:46:46 13 A. I do.

09:46:48 14 Q. And then it goes on and it says what is a cooperative
09:46:53 15 conversation, and you wrote in this paper that the
09:46:56 16 cooperative principle was first described by Paul Grice in
09:47:01 17 1975. Do you see that?

09:47:04 18 A. I do.

09:47:04 19 Q. And the cooperative principle is what you were
09:47:07 20 talking about with your counsel, where people need to work
09:47:12 21 together to get to some goal in their conversations,
09:47:14 22 correct?

09:47:15 23 A. Correct.

09:47:15 24 Q. And that idea that you're talking about with your
09:47:19 25 counsel, you got from this paper from Mr. Grice, right?

Freeman - cross

09:47:22 1 A. Correct.

09:47:23 2 Q. And if we look lower down, if we could go down to --
09:47:30 3 so if we highlight the paragraph that begins a cooperative
09:47:33 4 conversation, and the material just below it, it would be
09:47:36 5 the second paragraph, Mr. Patterson.

09:47:40 6 There is --

09:47:41 7 MR. SMITH: I object, I think referencing this
09:47:45 8 is Mr. Patterson, if we could clarify Mr. Freeman for the
09:47:50 9 record.

09:47:50 10 MR. HADDEN: I was talking to Mr. Patterson who
09:47:52 11 is --

09:47:53 12 THE COURT: Don't talk to each other, talk to
09:47:55 13 me.

09:47:55 14 MR. HADDEN: Sorry, Your Honor. I did not mean
09:47:58 15 to misstate your name. I was talking to Mr. Patterson, sir.

09:48:03 16 THE WITNESS: No offense taken.

09:48:05 17 BY MR. HADDEN:

09:48:05 18 Q. If we look at this from this paper you wrote with
09:48:08 19 Mr. Baldwin, you're laying out here the principle of a
09:48:12 20 cooperative conversation that Mr. Grice described in his
09:48:16 21 paper in 1975, right?

09:48:17 22 A. Correct.

09:48:18 23 Q. And that included this notion of the parties in a
09:48:22 24 conversation using shared knowledge, right?

09:48:25 25 A. Correct again.

Freeman - cross

09:48:29 1 Q. And that included both long-term shared knowledge and
09:48:33 2 short-term shared knowledge, correct?

09:48:34 3 A. Correct.

09:48:35 4 Q. And so the notion of -- the importance of using
09:48:45 5 long-term and short-term shared knowledge to understand what
09:48:49 6 is being said in a conversation is something that you got
09:48:52 7 from Mr. Grice; right?

09:48:54 8 A. This was part of the intellectual averment, and this
09:49:03 9 was a very useful way of sharpening our vocabulary around
09:49:04 10 this, the answer is yes, sir.

09:49:10 11 Q. I just want to be clear, this was Mr. Grice's idea,
09:49:14 12 that wasn't your idea?

09:49:15 13 A. Correct.

09:49:15 14 Q. And then it talks about hypothesis building, intent
09:49:23 15 determination, that also came from Mr. Grice's paper?

09:49:24 16 A. Correct.

09:49:24 17 Q. And adaptive response, that also came from
09:49:28 18 Mr. Grice's paper?

09:49:31 19 A. Correct.

09:49:32 20 Q. And this marketing paper where you describe these
09:49:37 21 principles that Mr. Grice had laid out, this is essentially
09:49:40 22 the '681 patent in ordinary language, right?

09:49:42 23 A. So this is '681 but '681 takes this to a machine, as
09:49:47 24 opposed to human to human.

09:49:48 25 Q. So what you did in the '681 patent is you said let's

Freeman - cross

09:49:52 1 take all these ideas from Mr. Grice about a cooperative
09:49:57 2 conversation, and let's propose that we should do the same
09:50:00 3 thing when we talk to computers; right?

09:50:05 4 A. Yes, sir. And he's attributed in the '681.

09:50:11 5 Q. Actually when you went -- here in this paper you cite
09:50:14 6 to Mr. Grice, if you look at the references in the back, can
09:50:18 7 we look at page 7, please, Mr. Patterson, and blow up that
09:50:22 8 first reference there.

09:50:24 9 You credit Mr. Grice's paper here in this
09:50:31 10 marking material you wrote, correct?

09:50:33 11 A. Yes.

09:50:34 12 Q. But when you filed the '681 patent, you didn't say
09:50:41 13 anything about Mr. Grice, did you?

09:50:41 14 A. We attributed the view paper, and the view paper
09:50:44 15 attributes this.

09:50:45 16 Q. There was nothing in the patent itself that says that
09:50:47 17 these ideas about using long-term shared knowledge and
09:50:51 18 short-term shared knowledge and intent determination and
09:50:54 19 adapting a response, that that all came from Mr. Grice,
09:50:59 20 that's not anywhere in your patent, is it?

09:51:02 21 A. Well, it is attributed to the -- the paper is
09:51:06 22 attributed, and the paper attributes that.

09:51:10 23 Q. So you're saying -- just to be clear, Mr. Grice's
09:51:14 24 article did not provide --

09:51:21 25 A. Say again?

Freeman - cross

09:51:22 1 Q. Mr. Grice's article that you got all these ideas
09:51:25 2 from, you did not provide that to the Patent Office during
09:51:30 3 the prosecution of the '681 patent, correct?

09:51:35 4 A. It was included by reference.

09:51:36 5 Q. Well it wasn't included by reference, what was
09:51:39 6 included by reference was your view paper?

09:51:41 7 A. Correct.

09:51:41 8 Q. There is no reference in the '681 patent to
09:51:45 9 Mr. Grice, or the paper you copied those ideas from,
09:51:50 10 correct?

09:51:51 11 A. There was no attempt to deny Mr. Grice's
09:51:54 12 contribution.

09:51:54 13 Q. I understand that, sir, and I'm not saying you were
09:52:00 14 attempting to deny his contribution, I just want to state
09:52:03 15 the facts. The fact is that the patent that you filed, the
09:52:04 16 '681 patent, doesn't say anywhere that these ideas came from
09:52:11 17 Mr. Grice, correct?

09:52:14 18 A. I disagree.

09:52:19 19 Q. Well, do you want to look at the patent and show me
09:52:22 20 where Mr. Grice's name appears?

09:52:22 21 A. So it is in the reference to the view paper, and the
09:52:24 22 view paper attributes him.

09:52:31 23 Q. So you're saying if someone found the view paper and
09:52:34 24 read it, they would figure out that actually these ideas
09:52:37 25 came from Mr. Grice, but you didn't tell the Patent Office

09:52:41 1 that, correct?

09:52:43 2 A. We were talking about implementing a lot of these
09:52:47 3 ideas in a machine, and that as such, that was less
09:52:52 4 important.

09:52:57 5 MR. HADDEN: I have no further questions. Thank
09:52:58 6 you for your time.

09:53:00 7 THE WITNESS: Thank you.

09:53:00 8 THE COURT: All right. Thank you.

09:53:01 9 Redirect.

09:53:04 10 MR. SMITH: No redirect. Thank you.

09:53:06 11 THE COURT: All right. Thank you, sir. You are
09:53:08 12 excused.

09:53:09 13 THE WITNESS: Thank you.

09:53:10 14 THE COURT: What's next?

09:53:13 15 MR. YOON: Your Honor, at this time, we are
09:53:15 16 going to call by deposition, Kelly Vanee, who was the former
09:53:21 17 Vice-President of Learning and Engineering at Amazon.

09:53:31 18 (Videotape deposition of Kelly Vanee:)

09:53:41 19 Q. -- PowerPoint presentation with a Bates number ending
09:53:42 20 in 44736?

09:53:42 21 A. Oh, there we go. Yep, it's open now.

09:53:52 22 Q. Well, do you recognize Exhibit 226 to be a slide deck
09:53:52 23 that you presented at Amazon?

09:53:52 24 A. Yes, this is a slide deck that I helped author and
09:54:02 25 present.

Polish - direct

09:54:04 1 Q. And do you recall when you presented this slide deck?

09:54:09 2 A. This was presented numerous times throughout the --
09:54:13 3 the history of Alexa. And it was -- the presentation was
09:54:17 4 recorded and watched by a large number of individuals, as
09:54:23 5 well.

09:54:34 6 (End of videotape.)

09:54:36 7 MR. YOON: Your Honor, at this time, we move
09:54:39 8 into evidence PTX-226.

09:54:42 9 MR. HADDEN: No objection.

09:54:44 10 THE COURT: All right. It's admitted.

09:54:48 11 (PTX Exhibit No. 226 was admitted into
09:54:49 12 evidence.)

09:54:49 13 MR. YOON: And Your Honor, at this time,
09:54:53 14 VoiceBox will call its expert, Nathaniel Polish.

09:55:00 15 THE COURT: Okay.

09:55:00 16 COURTROOM DEPUTY: Please raise your right hand.
09:55:14 17 Please state and spell your full name for the record.

09:55:44 18 THE WITNESS: Nathaniel Polish,
09:55:46 19 N-A-T-H-A-N-I-E-L, P-O-L-I-S-H.

09:55:54 20 NATHANIEL POLISH, having been duly sworn, was
09:55:59 21 examined and testified as follows:

09:56:02 22 DIRECT EXAMINATION

09:56:03 23 BY MR. YOON:

09:56:09 24 Q. Good morning, Dr. Polish.

09:56:10 25 A. Good morning.

Polish - direct

09:56:11 1 Q. Could you please introduce yourself to the jury?

09:56:14 2 A. Sure. My name is Nathaniel Polish. I'm from New
09:56:20 3 York City, and I'm here to testify on behalf of VB Assets.

09:56:26 4 Q. And if we could have PDX-32 on the screen.

09:56:32 5 Dr. Polish, could you briefly describe your educational
09:56:35 6 background?

09:56:36 7 A. Sure. I have a bachelor's in physics from Columbia,
09:56:40 8 and I have a Ph.D. in computer science from Columbia. My
09:56:44 9 Ph.D. work was in computer speech.

09:56:47 10 Q. And Dr. Polish, could you briefly describe your
09:56:50 11 professional experience?

09:56:51 12 A. Sure. Outside of -- as soon as I got done with high
09:56:55 13 school, I started with a consulting firm called Daedalus
09:57:02 14 Technology Group, it's a research and development outsource
09:57:04 15 for other companies, companies coming to me and ask me to
09:57:06 16 help them create new technologies, and we and a team of
09:57:11 17 engineers produce prototypes and early stage concepts for
09:57:15 18 the clients.

09:57:16 19 Q. And Dr. Polish, could you briefly describe your
09:57:18 20 professional experience?

09:57:20 21 A. Yeah. So in addition to Daedalus, I from time to
09:57:22 22 time start companies that commercialize technologies that I
09:57:23 23 invent. I have probably done that seven or eight times over
09:57:32 24 the last forty years. Two of the companies relevant to
09:57:32 25 here, one of them is Simplicity, which developed a

Polish - direct

09:57:40 1 conversational speech access to databases, particularly from
09:57:45 2 music and eCommerce in the late '90s. And also I recall
09:57:50 3 that was doing linking of note taking applications to things
09:57:55 4 like audio and video recordings.

09:57:58 5 Q. And Dr. Polish, are you a named inventor on any
09:58:02 6 patents?

09:58:02 7 A. Yes. My work has resulted in I think, at this time,
09:58:05 8 10 patents, there are a few others pending. And at least
09:58:09 9 one of them involves conversational speech systems.

09:58:12 10 MR. YOON: Your Honor, at this time we would
09:58:14 11 like to offer Dr. Polish as an expert on interactive voice
09:58:17 12 and speech technology.

09:58:18 13 MR. HADDEN: No objection.

09:58:19 14 THE COURT: All right. Thank you. He'll be
09:58:21 15 recognized as such. There is an echo going on. Maybe you
09:58:25 16 can turn down the volume or something.

09:58:30 17 THE WITNESS: How is it now? Is it better?

09:58:32 18 MR. YOON: Is that better, Your Honor?

09:58:34 19 BY MR. YOON:

09:58:36 20 Q. If we could go to PDX slide 3 on the screen.

09:58:40 21 Dr. Polish, in general, what areas of technology do the
09:58:42 22 patents in this case relate to?

09:58:44 23 A. So the patents relate to systems that are conversant
09:58:50 24 systems where a person is talking to a computer, and the
09:59:00 25 computer is talking back, and there is some conversation

Polish - direct

09:59:03 1 that goes on for some particular purpose, in some cases,
09:59:07 2 involving eCommerce.

09:59:10 3 Q. And if we could have PDX slide four. Dr. Polish,
09:59:16 4 what have you been asked to do in this case?

09:59:23 5 A. So I was asked to look at the patents, look at the
09:59:25 6 accused products, and determine whether I believe that there
09:59:28 7 was infringement of those -- of those patents by those
09:59:32 8 products.

09:59:32 9 Q. And what did you do to prepare yourself to offer such
09:59:37 10 an opinion?

09:59:37 11 A. I looked at a lot of documents. I reviewed the
09:59:40 12 patents. I looked at the prosecution histories.
09:59:43 13 Prosecution histories are the interaction between the
09:59:46 14 patentee and the Patent Office as part of getting the
09:59:49 15 patent. I looked at the Court's claim construction order.
09:59:52 16 I looked at PTAB rulings, I used Alexa extensively. I
09:59:55 17 reviewed many technical documents provided to me in the case
10:00:04 18 relating to Alexa, and then I confirmed my analysis with
10:00:08 19 source code. And I ultimately compared the claims of the
10:00:11 20 patents to the Alexa system.

10:00:14 21 Q. And if I could have PDX slide five.

10:00:18 22 Dr. Polish, as part of your analysis, did you
10:00:22 23 review the Court's claim construction of certain claim terms
10:00:26 24 with respect to the four patents?

10:00:29 25 A. I did.

Polish - direct

10:00:30 1 Q. And for example, do you see there is a reference
10:00:33 2 there to speech recognition engine/speech recognition?

10:00:38 3 A. Yes.

10:00:38 4 Q. And for illustration, do you see that it's software
10:00:42 5 or hardware that recognizes the words or phrases in the
10:00:46 6 natural language utterance?

10:00:47 7 A. Yes.

10:00:47 8 Q. And in your analysis, did you apply the Court's claim
10:00:52 9 construction to your infringement analysis?

10:00:53 10 A. I did.

10:00:54 11 Q. Now, Dr. Polish, if a claim term was not expressly
10:01:01 12 interpreted by the Court, did you apply the ordinary meaning
10:01:04 13 of claim terms to a person of ordinary skill in the field?

10:01:04 14 A. Yes, I did.

10:01:10 15 Q. If we could have slide six on the screen.

10:01:13 16 And Dr. Polish, in your opinion, what's the
10:01:17 17 level of ordinary skill in the art with respect to the four
10:01:20 18 patents?

10:01:20 19 A. So, a person of ordinary skill in my view, is
10:01:25 20 somebody who has a bachelor's degree in computer science or
10:01:28 21 related field, plus two years of practical experience in
10:01:32 22 various kinds of speech systems. You could trade some of
10:01:35 23 that off with more education or more experience, but this is
10:01:40 24 approximately the level of skill that you would need to
10:01:45 25 understand the patents.

Polish - direct

10:01:46 1 Q. And is it your understanding that the patents were
10:01:49 2 written for people of such skill?

10:01:51 3 A. Yes.

10:01:51 4 Q. And that would be the background of someone reading
10:01:54 5 the patent?

10:01:55 6 A. Yes, that's right.

10:01:57 7 Q. And if we could now have on the screen JTX-1, the
10:02:05 8 '681 patent.

10:02:09 9 And Dr. Polish, what conclusions have you
10:02:14 10 reached regarding Claim 13 of the '681 patent?

10:02:19 11 A. My conclusion is that the Alexa products infringe
10:02:22 12 Claim 13 of the '681 patent.

10:02:25 13 Q. And if we could now have on the screen the '176 and
10:02:31 14 '097 patents.

10:02:34 15 And Dr. Polish, with respect to the asserted
10:02:39 16 claims to each of the patents in this case, what are the
10:02:42 17 opinions that you have reached with respect to whether or
10:02:45 18 not Alexa infringes those patents?

10:02:46 19 A. So the asserted claims of each of those patents are
10:02:49 20 infringed by the Alexa systems.

10:02:52 21 Q. In particular Alexa Shopping?

10:02:54 22 A. Yes.

10:02:59 23 Q. And let's go specifically, if we could have just the
10:03:01 24 '176 patent on the screen. And what conclusions have you
10:03:05 25 reached with respect to Claim 40 of the '176 patent?

Polish - direct

10:03:09 1 A. Claim 40 is infringed by the Alexa systems.

10:03:17 2 Q. And looking at -- would that be Alexa Shopping?

10:03:23 3 A. Yes.

10:03:23 4 Q. Looking at the '097 patent, what conclusions have you

10:03:27 5 reached with regard to Claim 23 of the '097 patent?

10:03:31 6 A. That Claim 23 is infringed by the Alexa Shopping

10:03:35 7 systems.

10:03:36 8 Q. And if we could have the '703 patent on the screen.

10:03:41 9 And sir, what conclusions have you reached regarding Claim

10:03:44 10 25 of the '703 patent?

10:03:46 11 A. Claim 25 is infringed by the Alexa Shopping system.

10:03:50 12 Q. And Dr. Polish, we're going to walk through element

10:03:53 13 by element, your infringement analysis for those patents

10:03:56 14 shortly, but let's talk a little bit about the background

10:03:59 15 for each patent.

10:04:00 16 If we could have on the screen the '681 patent.

10:04:10 17 If we could turn to column one, lines 7 to 8 of the '681

10:04:15 18 patent.

10:04:16 19 And -- I'm sorry, column one lines 5 to 9, I

10:04:22 20 apologize.

10:04:22 21 What was the field of invention for the '681

10:04:25 22 patent?

10:04:25 23 A. Well the invention relates to a cooperative

10:04:30 24 conversation model for human to machine voice.

10:04:34 25 Q. And the '681 patent you understand relates to a

Polish - direct

10:04:38 1 machine voice user interface, correct?

10:04:41 2 A. That's right.

10:04:44 3 Q. And what is a cooperative conversation model, sir?

10:04:47 4 A. A cooperative conversation model is some kind of
10:04:51 5 model that represents an expected dialogue between a user
10:04:55 6 and a computer. So it's something that represents what
10:05:00 7 interaction would be expected between the human and the
10:05:03 8 computer for some particular purpose.

10:05:06 9 Q. And if we could now have Figure 1 of the '681 patent.
10:05:11 10 And column six lines 64 and 65. Dr. Polish, can you
10:05:20 11 describe the system disclosed in the '681 patent?

10:05:23 12 A. Sure, so this block diagram, a very high level
10:05:31 13 diagram of how this all works. In the upper left is what's
10:05:35 14 labeled as input, that's the human speech that comes in.
10:05:38 15 The next box is labeled ASR, Automatic Speech Recognition
10:05:43 16 that converts it, converts the speech into some form of
10:05:47 17 text. Then there is a Conversational Language Processor
10:05:51 18 which is, also can be an NLU or Natural Language
10:05:55 19 Understanding processor that seeks to understand what the
10:05:58 20 text is talking about. And that, in combination with
10:06:02 21 applications and databases, tries to understand what the
10:06:08 22 user's intentions or goals are, and ultimately constructs an
10:06:14 23 output which goes out on the left as generated speech.

10:06:17 24 Q. If we could now have Figure 3 of the '681 patent, and
10:06:24 25 column seven, lines 1 to 3.

Polish - direct

Dr. Polish, what's shown in Figure 3?

A. So this is a little bit of a drill down on how the models work for a cooperative conversations. It's showing the input is coming in from the bottom, that's some kind of recognized speech, and then that is combined with shared knowledge, that is to say knowledge from prior utterances or prior conversations, it's combined with that, it's combined with some kind of hypothesis builder where it's making guesses if you will, intelligent guesses as to what the user means. And then based on that, it comes up with some kind of a response.

Q. And if we could now have column four, lines 45 to 50 and column five, lines 25 to 30 of the '681 patent on the screen.

Dr. Polish, how is shared knowledge used by the system in the '681 patent?

A. So the '681 patent talks about several different kinds of shared knowledge. They referred to long-term shared knowledge, and short-term shared knowledge. Generally, the knowledge is used, is combined with new utterances that comes in to try to figure out what the intention of the user is.

Q. And if we could focus on, for example, lines 53 to 55, does the patent describe short-term shared knowledge?

A. Yes, it does.

Polish - direct

10:08:10 1 Q. And what does it say?

10:08:12 2 A. So short-term shared knowledge is accumulated during
10:08:16 3 a single conversation. So if you're engaged in a
10:08:20 4 conversation with a computer that's a multiple interaction
10:08:24 5 with the computer, from interaction to interaction, that's
10:08:29 6 short-term knowledge.

10:08:30 7 Q. And if we look at lines 63 to 65, do you see there is
10:08:35 8 a reference there to build long-term shared knowledge?

10:08:38 9 A. Yes.

10:08:39 10 Q. How does the '681 describe how long-term shared
10:08:43 11 knowledge can be built?

10:08:44 12 A. So long-term shared knowledge, is knowledge about the
10:08:47 13 user that extends over multiple conversations, so it would
10:08:54 14 be things about the user that presumably don't change, it
10:08:57 15 might involve where their device is, it might involve the
10:09:01 16 acoustics of their room, it might involve their profile in
10:09:05 17 some other way that would help with the conversation.

10:09:08 18 Q. And if we could now look at Figure 3 and have column
10:09:13 19 13, lines 31 to 36 on the screen.

10:09:19 20 And does the '681 patent describe how long-term
10:09:22 21 and short-term shared knowledge can be used?

10:09:22 22 A. Yes, so it talks about that for long-term and
10:09:34 23 short-term shared knowledge, it accumulates over a single
10:09:37 24 conversation to help build user profiles, other information
10:09:42 25 about the user.

Polish - direct

10:09:43 1 Q. And what is the benefit of using long-term and
10:09:50 2 short-term shared knowledge?

10:09:51 3 A. There is a lot of benefits to it. It generally
10:09:55 4 streamlines the conversations. It means that the user
10:09:58 5 doesn't have to keep repeating themselves because you have
10:10:01 6 already set a context of what you're looking for, so you
10:10:04 7 don't have to keep saying the context over and over again.
10:10:07 8 It streamlines the conversation, it makes errors less likely
10:10:11 9 because you're interpreting things from the point of view of
10:10:15 10 what's come before. With long-term knowledge, you might
10:10:18 11 have information about whether someone is an expert or a
10:10:22 12 novice, or whether they're a native English speaker or
10:10:25 13 something of that nature.

10:10:26 14 Q. Would the '681 patent reduce the number of turns or
10:10:30 15 interactions a user would have to have in order to get
10:10:35 16 something done?

10:10:35 17 A. Yes, it would streamline a number of things including
10:10:38 18 the number of times you would have to go around.

10:10:40 19 Q. And if we could now discuss the '176 and '097 patent
10:10:42 20 together. And for convenience sake, Dr. Polish, you
10:10:44 21 understand that the '176 patent and '097 patent share the
10:10:50 22 same specification?

10:10:52 23 A. Yes, I do.

10:10:52 24 Q. And so I'll just for convenience, direct you to where
10:10:54 25 it is in the '176 patent, but I'll be asking you about both.

Polish - direct

10:11:03 1 A. Okay.

10:11:04 2 Q. If I could go to column one, lines 8 to 10 of the
10:11:08 3 '176 patent. What is the field of invention for the '176
10:11:13 4 and '097 patents?

10:11:15 5 A. So the field of the invention of these patents is
10:11:18 6 selecting and presenting advertisements based on natural
10:11:22 7 language processing of voice-based input.

10:11:26 8 Q. And if we could have Figure 1, column two, lines 50
10:11:30 9 to 53 on the screen. And looking at Figure 1 of the '176
10:11:37 10 and '097 patent, can you describe the system disclosed in
10:11:41 11 those patents?

10:11:43 12 A. Sure, similar to what we saw before, the input, which
10:11:47 13 is human speech, is on the upper left connecting to an ASR,
10:11:51 14 which connects to a Conversational Language Processor or
10:12:00 15 NLU. This then connects to applications including an
10:12:04 16 advertising application and connects to databases. From
10:12:10 17 that, output is generated and sent to the user in the form
10:12:17 18 of vocalized speech.

10:12:21 19 Q. If we could also have Figure 1, column 4, lines 17 to
10:12:25 20 34, if you could move it down a little it. Column 17 is cut
10:13:10 21 in half.

10:13:12 22 Dr. Polish, does the '176 and '097 patent
10:13:16 23 explain how the Conversational Language Processor operates?

10:13:20 24 A. Yes, it describes it here, it talks about long-term
10:13:24 25 and short-term knowledge. And using that to understand the

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10:13:29 1 current utterance.

10:13:31 2 Q. And looking at line 25, do you see the statement "for
10:13:36 3 example, Conversational Language Processor 120 may use
10:13:41 4 context determination model 130 to establish context for a
10:13:48 5 current utterance by having domain agents." Do you see
10:13:52 6 that?

10:13:52 7 A. Yes.

10:13:52 8 Q. What is a domain agent?

10:13:55 9 A. A domain agent is some piece of code that is
10:13:59 10 associated with a particular topic area. So the domain
10:14:02 11 might be shopping, it might be weather. It might be travel.
10:14:07 12 But it's some topic area where the interactions with the
10:14:12 13 users make sense to group them together within a single
10:14:16 14 module.

10:14:16 15 Q. Do you see there is a reference there to scoring
10:14:20 16 possible interpretations and selecting a highest scoring
10:14:23 17 interpretation?

10:14:24 18 A. Yes.

10:14:25 19 Q. What do you understand that to be part of?

10:14:29 20 A. So these systems are not -- they're not ever
10:14:32 21 completely sure about themselves, I mean, sometimes they may
10:14:37 22 be, but usually they operate with competing hypotheses. So
10:14:42 23 someone is talking to it, and it thinks they're probably
10:14:45 24 talking about the weather, but maybe they're talking about
10:14:48 25 travel. So it will often maintain a collection of competing

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10:14:55 1 hypotheses with different levels of confidence. And this is
10:15:00 2 talking about generating those different hypotheses and
10:15:06 3 scoring them.

10:15:06 4 Q. Briefly talking about Alexa for a moment, we'll get
10:15:09 5 into more detail later, does Alexa have domains?

10:15:12 6 A. Yes, it does.

10:15:13 7 Q. And does Alexa score possible interpretations and
10:15:17 8 select the highest?

10:15:18 9 A. Yes, it does.

10:15:19 10 Q. Now, if we could now go to Figure 1 and column four,
10:15:25 11 lines 55 -- 45 to 55. Do the '176 and '097 patents explain
10:15:31 12 how the Conversational Language Processor can adapt to
10:15:40 13 incorrect interpretation?

10:15:42 14 A. Yes. It describes how it can support, essentially
10:15:48 15 changing its mind about a given hypothesis, deciding that
10:15:54 16 what it thought was going on was actually wrong and it
10:15:57 17 should do something else.

10:15:58 18 Q. If we could go to Figure 2, and column two, lines 53
10:16:04 19 to 54. Figure 2.

10:16:15 20 Dr. Polish, what's shown in Figure 2 of the '176
10:16:18 21 and '097 patents?

10:16:20 22 A. So, this is talking about an advertising server, so
10:16:27 23 this is how an advertiser might create advertisements that
10:16:34 24 would be used within the system.

10:16:38 25 Q. And if we could now have Figure 2, column two, lines

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10:16:45 1 7 to 12 on the screen. Does the '176 patent provide
10:16:50 2 examples of the types of ads that may be used, or how ads
10:16:55 3 may be selected?

10:16:58 4 A. Yes, it talks about ways in which ads could be
10:17:02 5 selected based upon any number of things, including user
10:17:07 6 profiles, demographics, so that things would be served to a
10:17:11 7 user that would be appropriate to their needs or might be
10:17:15 8 more likely to be purchased than some other offering.

10:17:23 9 Q. And if we could have column two, lines 21 to 25 on
10:17:30 10 the screen.

10:17:58 11 Does the '176 and '097 patents provide examples
10:18:15 12 of the types of advertisements that can be used by the
10:18:20 13 system?

10:18:20 14 A. Yes. They talk, for example, about the
10:18:25 15 advertisements could include sponsored messages, purchase
10:18:29 16 opportunities, other marketing communications. It would be
10:18:34 17 -- it could be a pretty broad range of things, but
10:18:38 18 importantly, it could be just any kind of message that is
10:18:41 19 offering a purchase.

10:18:43 20 Q. If we can now go to Figure 3, column two, lines 55 to
10:18:51 21 57.

10:18:52 22 Dr. Polish, what's shown in Figure 3 of the '176
10:18:58 23 and '097 patents?

10:19:00 24 A. So this is a flow chart that is showing roughly what
10:19:08 25 happens when voice input is received where voice input comes

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10:19:14 1 in at the top, it's identified and then -- and then an ad is
10:19:21 2 chosen, and it's then presented to the user in the form of
10:19:28 3 speech. And then -- and then the user can interact with
10:19:33 4 that, with that advertisement, presumably to purchase
10:19:37 5 something or ask a follow-up question or something like
10:19:40 6 that. And then action is taken based on that. And it can
10:19:44 7 loop where it continues to present output and get
10:19:50 8 interaction from the user, and ultimately the behavior of
10:19:54 9 the user is being tracked.

10:19:57 10 Q. And given the interface between the user and the
10:20:00 11 system, do the '176 and '097 patents streamline the
10:20:10 12 communications between the user and the system such as the
10:20:13 13 number of turns or interactions?

10:20:16 14 A. Yes, as you go through these loops, things become
10:20:19 15 more focused as you're interacting with the system in
10:20:24 16 response to this ad. And more information is being
10:20:29 17 obtained. So this approach to sort of focusing the
10:20:31 18 interaction reduces the amount of cycles through the system
10:20:39 19 you would have to do.

10:20:40 20 Q. If we could go to JTX-2, the '703 patent. And if we
10:20:45 21 could now have column one, lines 11 to 17 on the screen.

10:20:52 22 And what is the field of invention for the '703
10:20:55 23 patent?

10:20:55 24 A. So the '703 patent is related to voice commerce, and
10:21:00 25 particularly to systems and methods around streamlining

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10:21:06 1 checkout. So it makes the checkout process more efficient.

10:21:14 2 Q. And if we could now have Figure 1, column three,

10:21:19 3 lines 20 to 21 of the '703 patent on the screen.

10:21:24 4 And what's shown there, sir?

10:21:28 5 A. All right. So this is a diagram that's showing

10:21:33 6 various components of the system. It's showing the voice

10:21:39 7 commerce application that has various components within it

10:21:42 8 that are managing profiles and managing the user interface,

10:21:46 9 that are then talking -- are working with storage devices

10:21:51 10 and processors, and have databases associated with them.

10:21:56 11 And then this whole system communicates to various

10:22:02 12 third-party external systems which would include search

10:22:05 13 engines and retailers and service providers.

10:22:08 14 Q. And if we could now have Figure 2 and column three,

10:22:12 15 lines 20 to 23 on the screen.

10:22:15 16 And what's shown in Figure 2, Dr. Polish?

10:22:20 17 A. So this is showing block diagrams for different

10:22:24 18 components of the systems and how they communicate, it's

10:22:27 19 actually showing something fairly similar to things we've

10:22:31 20 seen before. On the upper left are input devices such as an

10:22:34 21 Alexa, which would go into a speech recognition engine.

10:22:40 22 That would feed a Natural Language Processing system or NLU

10:22:43 23 and also talk to a database, and also talk to applications.

10:22:49 24 And ultimately the result of all that goes to output devices

10:22:52 25 where the system speaks.

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10:22:57 1 Q. And if we could now have Figure 3, column 3, line 24
10:23:03 2 to 26.

10:23:06 3 Can you explain what's shown in Figure 3 of the
10:23:11 4 '703 patent?

10:23:13 5 A. This is a flow chart that is showing the operation of
10:23:19 6 the system from where it receives a natural language
10:23:23 7 utterance, and then the steps it takes to automatically
10:23:29 8 without further user input, complete the purchase and
10:23:33 9 ultimately complete the transaction for the user.

10:23:38 10 Q. And if you look in Step 304 and 310, there is
10:23:43 11 reference to without further user input. Do you see that?

10:23:46 12 A. Yes.

10:23:47 13 Q. What does that indicate?

10:23:48 14 A. Well that means that it's not waiting for some sort
10:23:52 15 of step from the user, that when it gets to that point, it
10:23:58 16 just effectively falls through and gathers the information
10:24:01 17 it needs from other sources besides the user. So it's an
10:24:06 18 ultimate streamlining of a purchase.

10:24:08 19 Q. Does that reduce the number of turns or interactions
10:24:11 20 the user has with the system?

10:24:12 21 A. Yes, if it can operate without further user input,
10:24:17 22 then there is no further turns at all, and it just completes
10:24:20 23 the transaction.

10:24:22 24 Q. If we could now have Figure 3, column eight, lines 19
10:24:25 25 to 24 on the screen.

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10:24:37 1 And let's start to talk a little bit about
10:24:41 2 Step 304. Does the '703 patent explain how products could
10:24:46 3 be selected?

10:24:47 4 A. Yes, it talks about being able to use search and also
10:24:54 5 to be able to use groupings of products, and categorizations
10:25:01 6 of products to make the determination as efficiently as
10:25:07 7 possible.

10:25:07 8 Q. Now, if we could have Figure 3, column five, lines 44
10:25:11 9 to 46 on the screen. And let's talk about Steps 306, which
10:25:21 10 retrieve payment information that is to be used to pay for
10:25:26 11 the product or service, and 308, retrieve shipping
10:25:30 12 information that is to be used to deliver the product or
10:25:34 13 service.

10:25:34 14 Does the '703 patent explain how user profile
10:25:39 15 information could be used to perform these steps and
10:25:43 16 complete a transaction?

10:25:44 17 A. Yes, it's talking specifically about storing payment
10:25:48 18 information, storing shipping information, precisely so that
10:25:51 19 a purchase can be completed without having to ask for it
10:25:56 20 again.

10:26:00 21 Q. And, now, Dr. Polish, let's now turn to the product
10:26:04 22 at issue in this case, Amazon Alexa, okay?

10:26:08 23 A. Okay.

10:26:12 24 Q. And if we could have slide four on the screen. And
10:26:16 25 just kind of refresh, Dr. Polish, when you were doing your

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10:26:23 1 analysis to determine whether or not Alexa infringed the
10:26:28 2 VoiceBox patents, what did you review and base your opinion
10:26:31 3 on?

10:26:31 4 A. I reviewed technical documents provided to me in the
10:26:35 5 case. I looked at the Court's construction order. I used
10:26:41 6 Alexa. And I confirmed what I saw by looking at source
10:26:48 7 code. And then I looked at the patents and compared it to
10:26:51 8 what I was seeing in Alexa.

10:26:54 9 Q. If you would open your binder, sir, and do you
10:26:58 10 recognize exhibit PTX-68?

10:27:05 11 A. Yes.

10:27:06 12 Q. And is that the document entitled ASR overview and
10:27:11 13 workflows?

10:27:11 14 A. That's right.

10:27:12 15 Q. Is that one of the technical documents from Amazon
10:27:15 16 that you based your opinion on?

10:27:16 17 A. Yes, it is.

10:27:17 18 MR. YOON: I would like to move into evidence
10:27:19 19 now, Your Honor, exhibit PTX-68.

10:27:22 20 MR. HADDEN: No objection.

10:27:24 21 THE COURT: Thank you. It is admitted.

10:27:26 22 (PTX Exhibit No. 68 was admitted into evidence.)

10:27:26 23 BY MR. YOON:

10:27:27 24 Q. And so do you see here sir on the bottom right corner
10:27:32 25 you can see there is an AMZ_VB_00046286. Do you see that?

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10:27:41 1 A. Yes.

10:27:41 2 Q. And that would be what I referred to earlier in this

10:27:44 3 case as the Bates number and that would indicate that this

10:27:48 4 document came from Amazon?

10:27:49 5 A. Yes, my understanding.

10:27:51 6 Q. And do you see that in this document here it's

10:27:56 7 entitled ASR overview and work flow?

10:27:59 8 A. Yes.

10:28:00 9 Q. That's for Alexa, correct?

10:28:02 10 A. That's correct.

10:28:02 11 Q. If we can scan back. And for example, at the bottom,

10:28:07 12 if you could just expand there, there is a logical -- and

10:28:12 13 this document provides information such as a logical

10:28:15 14 architecture overview of Alexa?

10:28:17 15 A. Yes, that's right.

10:28:19 16 Q. If we could now go to page 6. And if we could just

10:28:25 17 expand what's shown on the top part of page 6, the diagram.

10:28:34 18 Does Alexa have an ASR, sir?

10:28:37 19 A. Yes, it does.

10:28:38 20 Q. And where is that indicated?

10:28:39 21 A. So the box on the upper right of this diagram is

10:28:42 22 labeled ASR, that's where the speech recognition takes

10:28:43 23 place.

10:28:44 24 Q. Does the Amazon Alexa include an NLU engine?

10:28:52 25 A. Yes.

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10:28:53 1 Q. Where is that?

10:28:54 2 A. That's just in the box below, it's labeled NLU on it.

10:28:58 3 Q. Now, if we can now expand that document back.

10:29:01 4 And if you could now expand the bottom there
10:29:04 5 that says flow description. -- oh, actually, would go back
10:29:13 6 Mr. Smith, I apologize. If we can just expand out that top
10:29:17 7 part.

10:29:18 8 Dr. Polish, what's an ASR?

10:29:20 9 A. It's a speech recognizer, it's something that takes
10:29:24 10 speech and does some kind of recognition on it, turning it
10:29:27 11 into text or some other kind of more compact representation.

10:29:32 12 Q. And what is an NLU, sir?

10:29:34 13 A. An NLU is a Natural Language Understanding system,
10:29:39 14 which is some kind of -- can be referred to as Artificial
10:29:41 15 Intelligence, it tries to make sense of speech in the
10:29:50 16 context of a particular purpose. So it puts the speech into
10:29:54 17 some kind of context, you think of it as understanding or
10:29:59 18 assigning meaning.

10:30:01 19 Q. If we could have a split screen with this figure and
10:30:04 20 the flow description below. If we can just focus on the
10:30:33 21 flow description through steps 1 to 5 for a moment.

10:30:39 22 A. Okay.

10:30:40 23 Q. Mr. Smith, can you expand it more? And I'm only
10:30:47 24 doing this, Dr. Polish, to try to make it a little easier to
10:30:52 25 read.

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10:30:52 1 A. Yes.

10:30:53 2 Q. Now, does this flow description and document describe

10:30:58 3 how Alexa operates?

10:31:00 4 A. Yes, in part it does.

10:31:01 5 Q. Could you walk through that for us?

10:31:04 6 A. Sure, it starts off at Item 1 where the examiner asks

10:31:13 7 Echo or Alexa what's the weather today. So you then have,

10:31:18 8 it notices the wake word, which is Alexa, and it streams the

10:31:23 9 rest of it, what is the weather today to the ASR. So that

10:31:31 10 goes there. The ASR takes it and does further processing on

10:31:38 11 it, and it comes up with what it's referring to as the NBest

10:31:43 12 utterances, which is what its NBest guesses are as to what

10:31:49 13 the audio stream contains.

10:31:52 14 Q. Is that Step 2?

10:31:54 15 A. Yes.

10:31:57 16 Q. And what happens next?

10:32:04 17 A. So the NBest gets sent to a, what is referred to as a

10:32:12 18 speechlet which is some application code that is oriented to

10:32:19 19 a particular task such as shopping, or getting the weather.

10:32:29 20 And ultimately, the NLU detects what is referred to as the

10:32:32 21 domain which is "Weather", in this case, and the intent is

10:32:42 22 "get the weather", and it says here no slot is detected.

10:32:47 23 And that means that the intent "GetWeather" would have slots

10:32:52 24 associated with it which are pieces of information that

10:33:02 25 would be needed to fulfill the request such as location and

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10:33:05 1 time.

10:33:05 2 Q. If you look at 4(a), it says it goes in parallel
10:33:11 3 through both FST's, rule-based and exact match and
10:33:15 4 statistical models paths and then goes to a range to choose
10:33:20 5 the best output, do you see that?

10:33:22 6 A. Yes.

10:33:22 7 Q. We discussed in this case about rules-based and AI
10:33:25 8 and machine learning, do you recall that?

10:33:26 9 A. Yes.

10:33:27 10 Q. Does the NLU of Amazon Alexa use rules to determine?

10:33:32 11 A. Yes, my understanding is that there are rules-based
10:33:38 12 components to the NLU among other things that it does. So
10:33:44 13 it's definitely using rules and that's indicated here.

10:33:48 14 Q. If we can now go to and re-expand it, and focus on
10:33:54 15 steps 6 through 9. What happens after the NLU detects the
10:34:00 16 domain which is "Weather," the intent, which is
10:34:04 17 "GetWeather," and no slot is detected?

10:34:07 18 A. So what it is talking about here is that it's
10:34:11 19 noticing that it doesn't have all the information that it
10:34:16 20 needs, so it's saying, if you look at 6(b), where it says
10:34:22 21 that the "Weather" speechlet detects a missing slot, this
10:34:28 22 case location, and you can have a pre-configured rule that
10:34:34 23 says that it should now perform an action which is ask for
10:34:39 24 location in that case, you can have a different rule which
10:34:42 25 says use the location where the device is located, or some

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10:34:46 1 other rule, but in this case, the rule is set to if you
10:34:49 2 don't have a location, ask for it. So it then goes off and
10:34:53 3 prompts the user for the location.

10:34:55 4 Q. And would the slot eventually be filled?

10:35:00 5 A. Yes, if the user cooperates and provides the
10:35:04 6 location, the slot would eventually be filled and that would
10:35:08 7 be satisfied and they could fulfill the request.

10:35:11 8 Q. If we could now turn in your binder to PTX-78.

10:35:16 9 A. Okay.

10:35:18 10 Q. And do you recognize exhibit PTX-78?

10:35:21 11 A. Yes, I do.

10:35:23 12 Q. And what is the title?

10:35:26 13 A. The title is history of Alexa Shopping and Alexa, and
10:35:30 14 it's dated December 17th, 2020.

10:35:35 15 Q. And this is -- was one Amazon technical documents you
10:35:40 16 reviewed to base your opinion on?

10:35:42 17 A. Yes.

10:35:42 18 MR. YOON: I would now like to move into exhibit
10:35:46 19 PTX Exhibit 78.

10:35:47 20 MR. HADDEN: No objection.

10:35:49 21 THE COURT: Thank you. It is admitted.

10:35:50 22 (PTX Exhibit No. 78 was admitted into evidence.)

10:35:51 23 BY MR. YOON:

10:35:52 24 Q. If we could now turn to page Amazon 8041. Generally,
10:35:54 25 what's shown in the diagram at the top of the page?

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10:36:01 1 A. So this is a diagram similar to what we saw before,
10:36:06 2 it's showing the connection of the device, in this case the
10:36:10 3 Echo on the far left, passing information to this operating
10:36:15 4 system called DeeSOS, which communicates with the ASR and
10:36:23 5 communicates with the NLU and communicates with speechlets,
10:36:28 6 and potentially other Amazon internal services.

10:36:31 7 Q. See the input to the ASR is audio, correct?

10:36:34 8 A. Yes.

10:36:35 9 Q. And the output of the ASR then would be the text,
10:36:42 10 list of possible interpretations?

10:36:43 11 A. Yes.

10:36:43 12 Q. And would that be an input into the NLU?

10:36:46 13 A. Yes, it would.

10:36:47 14 Q. And what is the output of the Amazon Alexa NLU?

10:36:53 15 A. The output of the Amazon Alexa NLU is a collection of
10:37:07 16 intents and slots, each of them having a domain associated
10:37:12 17 with them. The output of the NLU is a collection of the
10:37:15 18 hypotheses of what the user's intent is, and how different
10:37:19 19 slots have been filled.

10:37:20 20 Q. Is the intent output indicated on this Amazon graph?

10:37:22 21 A. Yes, the right most are coming out of NLU, it's
10:37:30 22 labeled intent.

10:37:32 23 Q. Now, if we expand the page back. Let's go to
10:37:32 24 Section 2.1, the glossary, how Amazon defines the terms.
10:37:42 25 How does Amazon define ASR or Automatic Speech Recognition?

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10:37:55 1 It's the sub-bullet point under SLU?

10:38:02 2 A. They say the ASR, Automatic Speech Recognition, is
10:38:04 3 the act of taking audio and turning it into recognized text.

10:38:09 4 Q. How does Amazon define NLU?

10:38:11 5 A. They say NLU is natural language recognition, I think
10:38:14 6 that may be a typo, I think it's Natural Language
10:38:18 7 Understanding, but the act of taking recognized text and
10:38:21 8 turning it into an intent.

10:38:22 9 Q. How does Amazon define intent?

10:38:27 10 A. They say intent is a language understanding concept
10:38:30 11 referring to the goal of the speech, what the speaker was
10:38:33 12 trying to communicate.

10:38:35 13 Q. And do you see the bullet point below it says at
10:38:40 14 Amazon, though, refer to intent, we are almost always
10:38:45 15 referring specifically to the blueshift intent format. Do
10:38:48 16 you see that?

10:38:50 17 A. Yes.

10:38:50 18 Q. Is that the acronym BIF?

10:38:54 19 A. Yes.

10:38:54 20 Q. Is that the output of the NLU?

10:38:56 21 A. Yes, the output of the NLU, my understanding of it is
10:38:59 22 a BIF, and a BIF is a collection of intents and scores for
10:39:11 23 them.

10:39:11 24 Q. If we could now go to PTX-84?

10:39:14 25 A. Okay.

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10:39:15 1 Q. PTX-84, what's the title of that document?

10:39:18 2 A. Dialogue platform.

10:39:19 3 Q. Is this another one of the Amazon technical documents
10:39:23 4 that you based your opinion on?

10:39:24 5 A. Yes, it is.

10:39:25 6 MR. YOON: I would like to now move into
10:39:27 7 evidence, PTX-84.

10:39:29 8 MR. HADDEN: No objection.

10:39:30 9 THE COURT: Thank you. It is admitted.

10:39:32 10 (PTX Exhibit No. 84 was admitted into evidence.)

10:39:32 11 BY MR. YOON:

10:39:34 12 Q. Do you see on this document here, it has the
10:39:36 13 reference to dialogue platform?

10:39:38 14 A. Yes.

10:39:39 15 Q. And do you see there is a primary owner of this
10:39:42 16 Amazon technical document is Amazon Shopping?

10:39:43 17 A. Yes, I do.

10:39:44 18 Q. And do you see that it provides -- if we can go back.
10:39:51 19 If you can go to the section there, it provides an overview,
10:39:52 20 do you see that, Section 1?

10:40:00 21 A. Yes.

10:40:00 22 Q. And that includes an overview on conversation run
10:40:04 23 time, what's new to Alexa Shopping, conversation management,
10:40:04 24 do you see that?

10:40:05 25 A. Yes.

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10:40:10 1 Q. If we can now turn to page 5509. And if we could
10:40:20 2 expand conversation runtime.

10:40:27 3 Dr. Polish, what are the three primary
10:40:33 4 components of the Alexa Shopping dialogue platform?

10:40:36 5 A. There is the Shopping FrontDoor, the Shopping
10:40:43 6 Orientation, and Shopping Conversation State Management.

10:40:49 7 Q. If we could expand shopping conversation state
10:40:53 8 management, let's start with the word "state." What is
10:41:03 9 state?

10:41:04 10 A. State generally refers to the state of a system or
10:41:09 11 all the different parts of the system at the current moment.
10:41:18 12 So in a person it might be, you know, weight, height, heart
10:41:26 13 rate, things like that, things that might change, but at a
10:41:30 14 given moment, it has a particular state.

10:41:31 15 Q. Does Alexa use states?

10:41:34 16 A. Yes, it does, it uses states as part of taking
10:41:38 17 somebody through a conversation to make something happen.

10:41:42 18 Q. Now, with regards to the Alexa Shopping platform,
10:41:49 19 what does shopping conversation state management do?

10:41:52 20 A. Well, what it does, what it is explaining here is
10:41:59 21 that it's keeping track of what's been done across time so
10:42:03 22 that it can help -- it can help a user make progress through
10:42:08 23 their purchase, or make progress through their transaction
10:42:12 24 and keep track of what they've done and what they need to
10:42:15 25 do.

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10:42:15 1 Q. Do you see the statement "we enable a smarter
10:42:20 2 conversation with customers by paying attention to what they
10:42:23 3 have said and done to make better decisions later." Do you
10:42:27 4 see that?

10:42:27 5 A. Yes.

10:42:28 6 Q. Is that done by Alexa?

10:42:29 7 A. Yes, it is.

10:42:30 8 Q. If we can now go to PTX-226. And this document, Your
10:42:40 9 Honor, was already admitted during the deposition of
10:42:45 10 Mr. Vanee.

10:42:48 11 THE COURT: Okay.

10:42:49 12 By Mr. Yoon:

10:42:49 13 Q. Looking at Exhibit 226, do you see this is entitled
10:42:52 14 Natural Language Understanding Deep Dive?

10:42:54 15 A. Yes.

10:42:54 16 Q. And you were here, you understand that one of the
10:42:57 17 authors of this document is an Amazon Alexa engineer, Kelly
10:43:02 18 Vanee?

10:43:04 19 A. Yes.

10:43:05 20 Q. And was this one of the documents you based your
10:43:08 21 opinion on with regards to Alexa?

10:43:10 22 A. Yes, it is.

10:43:14 23 Q. And if we could now go to page 2. And do you see
10:43:21 24 that this slide is entitled where does NLU fit in?

10:43:25 25 A. Yes.

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10:43:25 1 Q. And do you see there is a reference there to what's
10:43:28 2 the weather tomorrow? Do you see that?

10:43:32 3 A. Yes.

10:43:32 4 Q. Would that be an utterance by a user?

10:43:35 5 A. Yes. Where you're showing it there, that's -- the
10:43:40 6 utterance is spoken by the user into a device, and that is
10:43:45 7 then sent to the ASR.

10:43:47 8 Q. And you understand those wavy lines below would
10:43:50 9 indicate kind of the sound of a person's voice?

10:43:53 10 A. Yeah, that's sort of a time domain representation of
10:43:56 11 human speech.

10:43:57 12 Q. And does this slide demonstrate how the ASR in Alexa
10:44:02 13 and the NLU interact?

10:44:05 14 A. Yes, at a very high level.

10:44:07 15 Q. And could you explain that?

10:44:11 16 A. Sure. What it's showing here is that the person
10:44:14 17 speaks to the device, the speech goes to the ASR which then
10:44:23 18 turns it into text, which turns it into an NLU, and the NLU
10:44:28 19 outputs an intent which is in the form of get weather
10:44:32 20 forecast, and it has a slot, and the slot is the date,
10:44:38 21 March 18, 2016.

10:44:39 22 Q. And so when the user says "what's the weather
10:44:43 23 tomorrow," the NLU in Alexa would interpret that as the
10:44:48 24 intent of wanting the weather forecast?

10:44:52 25 A. Yes, it's the intent of the weather forecast and it

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10:44:55 1 also has the -- it's interpreted tomorrow to mean that date.

10:44:59 2 Q. And if could go to the next page? And does this

10:45:07 3 slide indicate the stages of the Alexa NLU engine?

10:45:12 4 A. Yes, it gives you a little more detail, it's showing
10:45:15 5 there is an intent classification where it comes up with the
10:45:19 6 notion that this is a get weather forecast intent, and then
10:45:22 7 it has a separate step which is slot resolution where it's
10:45:26 8 trying to figure out how to fill in the date slot which it's
10:45:31 9 doing here with the word tomorrow.

10:45:31 10 Q. Do you see at the bottom the reference there to BIF?

10:45:31 11 A. Yes.

10:45:37 12 Q. That's the output of the NLU right?

10:45:39 13 A. Yes, that's the same BIF we saw before.

10:45:41 14 Q. So the NLU engine of Alexa would go through a
10:45:45 15 recognition step, and then a resolution step before it
10:45:50 16 outputted the BIF?

10:45:51 17 A. That's right.

10:45:52 18 Q. What is recognition?

10:45:54 19 A. I'm sorry, say that again.

10:45:55 20 Q. What does recognition refer to?

10:45:56 21 A. Recognition refers to that it's taking the recognized
10:46:00 22 speech, and it's breaking it up into pieces that it can then
10:46:02 23 use to further process and determine the intent.

10:46:10 24 Q. And then what's resolution, sir?

10:46:12 25 A. So resolution is where it's taking any number of

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10:46:19 1 possible words that the user could have used to indicate
10:46:24 2 time, and turning it into a recognizable time entry.

10:46:32 3 Q. So that, for example, when you ask about the weather,
10:46:36 4 Alexa, before it gave you the weather would want to know
10:46:39 5 what date you wanted the weather associated with?

10:46:42 6 A. That's correct.

10:46:46 7 Q. If we could now go to page 10?

10:46:51 8 What is illustrated on this page?

10:46:53 9 A. This is another view on this process, this is where
10:46:56 10 somebody says "what is the weather in Seattle," recognition
10:47:01 11 takes place, and it turned it into domain is weather, and
10:47:06 12 the intent is get weather forecast.

10:47:11 13 Q. And this would be done by the NLU?

10:47:11 14 A. Yes.

10:47:17 15 Q. If we go to page 11. Now, we have been talking about
10:47:24 16 the recognition in the NLU. Do you recall that, sir?

10:47:29 17 A. Yes.

10:47:29 18 Q. And what's shown on this page?

10:47:31 19 A. So this is a particular view on what's taking place
10:47:34 20 in the NLU, particularly around recognition. It's showing
10:47:37 21 that a number of things are happening simultaneously. So
10:47:42 22 the input comes in on the left where it says input request,
10:47:47 23 and it's going to, in this case, four different places. The
10:47:52 24 first one it goes to is labeled exact match rules. So those
10:47:57 25 are rules that it -- that the recognition system would have

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10:48:03 1 to look for particular words, to look for particular
10:48:06 2 patterns, and then the next thing over that diamond is a
10:48:12 3 decision, and if it matches, then it's done, it bypasses the
10:48:16 4 whole thing and goes to the slot filling step, it thinks
10:48:24 5 it's now figured out what the intent is.

10:48:26 6 If it doesn't match exactly, it tries to match a
10:48:30 7 little bit more collectively with that pattern of reject
10:48:35 8 rules, and if that matches, then it says okay, we're done.
10:48:39 9 If it doesn't work, then it waits to see if this other step
10:48:44 10 called FST returns anything, and the FST is going to be
10:48:50 11 slower than the rule matching. And finally, if that doesn't
10:48:54 12 return things, it will wait to see whether these models or
10:48:57 13 statistical models will complete and come up with their idea
10:49:02 14 of what the intent is.

10:49:04 15 So it will do all three of these things at once,
10:49:10 16 if the rules complete, then it bypasses the rest and doesn't
10:49:14 17 waste time, but if they don't, then it falls through to ever
10:49:20 18 more computationally approaches, as a fourth way, using this
10:49:24 19 totally separate system called the EVI recognizer, it can
10:49:32 20 also contribute.

10:49:32 21 Q. During the opening, we would been hearing about
10:49:35 22 machine learning and AI. Do you recall that sir?

10:49:39 23 A. Yes.

10:49:39 24 Q. Would that be the step relating to models?

10:49:42 25 A. Yes. I think when Amazon talks about machine

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10:49:44 1 learning and AI, they're talking about the model there.

10:49:48 2 Q. What would be the FST step?

10:49:51 3 A. The FST step is something involving something
10:49:55 4 referred to as parsing, where it's trying to, in a more
10:50:05 5 deterministic rules-based approach, try to take apart the
10:50:10 6 words and understand what they mean using rules rather than
10:50:13 7 statistics.

10:50:14 8 Q. Let's talk about one possible operation in the Alexa
10:50:17 9 system. Okay, sir?

10:50:19 10 THE COURT: At the end of this, let's take our
10:50:21 11 break.

10:50:21 12 MR. YOON: Yes, let me just finish this
10:50:24 13 paragraph.

10:50:25 14 BY MR. YOON:

10:50:25 15 Q. In this example here, an utterance is received at the
10:50:28 16 ASR, it interprets it and detects and it provides that to
10:50:31 17 the recognition engine of the NLU core pipeline. Okay, sir?

10:50:31 18 A. Yes.

10:50:31 19 Q. And if that input satisfies the rules in the system,
10:50:40 20 it would reach resolution, correct?

10:50:40 21 A. Yes.

10:50:42 22 Q. And so, in the Alexa system when the NLU is
10:50:50 23 interpreting intent, there are situations where it will only
10:50:52 24 use rules and will not use AI or machine learning?

10:50:52 25 A. Yes, if a rule can be satisfied, it will satisfy the

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10:51:03 1 rule preference over the other things because it's faster.

10:51:07 2 Q. And you have been -- I will?

10:51:09 3 MR. YOON: I'll stop there, Your Honor.

10:51:11 4 THE COURT: All right. Let's take our 15-minute
10:51:14 5 morning break.

10:51:15 6 COURTROOM DEPUTY: All rise.

10:51:17 7 (Jury exiting the courtroom at 10:51 a.m.)

10:51:44 8 THE COURT: All right. Anything we need to
10:51:46 9 discuss?

10:51:47 10 MR. YOON: No, Your Honor.

10:51:47 11 MR. HADDEN: No, Your Honor.

10:51:48 12 (A brief recess was taken.)

11:10:52 13 COURTROOM DEPUTY: All rise.

11:10:54 14 (Jury entering the courtroom at 11:10 a.m.)

11:11:14 15 THE COURT: All right, everyone welcome back.
11:11:20 16 Everyone else, you can be seated.

11:11:23 17 Please continue.

11:11:24 18 MR. YOON: Yes, Your Honor.

11:11:25 19 BY MR. YOON:

11:11:26 20 Q. Dr. Polish, do you recall earlier this morning we
11:11:27 21 were talking about how the NLU would score, come up with
11:11:30 22 hypotheses and provide scores?

11:11:32 23 A. Yes.

11:11:32 24 Q. And if we could now go to page 18 of Exhibit 226.

11:11:42 25 What is illustrated in this Amazon document regarding Alexa?

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11:11:51 1 A. So this is showing if you look on the top, it says
11:11:56 2 utterance play Hunger Games, so the user has presumably said
11:12:00 3 play Hunger Games, and the system is trying to figure out
11:12:04 4 what that means, so it's come up with, in this case, four
11:12:09 5 different intent hypotheses. Two of them are music related,
11:12:18 6 one of them is books, one of them is video. So those are
11:12:22 7 potentially different domains. And it scored them with
11:12:27 8 these different ranked values on the right, and the blue
11:12:33 9 arrow means that it's picked the first one as the best
11:12:37 10 hypothesis, so it's assuming that when the user said play
11:12:41 11 Hunger Games, it's talking about a song named Hunger Games.

11:12:45 12 Q. If we go to the next page. With Alexa, if you make
11:12:50 13 the same utterance play Hunger Games, is there information
11:12:54 14 that the system could use that would result in the NLU
11:13:00 15 selecting something different than the scoring of just
11:13:04 16 Hunger Games?

11:13:08 17 A. Yes, so what this is showing at the top is in
11:13:12 18 addition to saying play Hunger Games, the device that that
11:13:16 19 request came from was a Fire TV, which is a video play back
11:13:20 20 device, so in that case, it has decided that the best one
11:13:24 21 was actually the last one, which was play a video called
11:13:28 22 Hunger Games.

11:13:32 23 Q. So, in the first example, just the words play Hunger
11:13:36 24 Games, it ranked play the song Hunger Games number one, with
11:13:40 25 just that information, right?

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11:13:47 1 A. That's correct.

11:13:47 2 Q. But when it knew that the request came from a Fire
11:13:52 3 TV, it altered the selection because it came from a TV, to
11:13:56 4 video?

11:13:56 5 A. Right, that was additional information that was
11:13:59 6 available that changed the score, that changed the results
11:14:02 7 of its decision making.

11:14:03 8 Q. If we go to the next page. Does information stored
11:14:10 9 by the user, could that affect what's selected?

11:14:13 10 A. Right. So in this case, it's saying that intent
11:14:20 11 resolution, which is a component of the system which is
11:14:23 12 described in the document found that the user had an album
11:14:27 13 called Hunger Games in their cloud player. So in that case,
11:14:30 14 the user had previously purchased, or somehow obtained an
11:14:35 15 album called Hunger Games and stored it. So now when it
11:14:39 16 goes through this recognition process, the hypothesis that
11:14:44 17 you mean the album Hunger Games, that becomes the best
11:14:50 18 hypothesis.

11:14:51 19 Q. Could that purchase of the album Hunger Games come
11:14:52 20 from buying it over Alexa?

11:14:52 21 A. Certainly.

11:14:52 22 Q. Could that be based on a prior conversation?

11:15:00 23 A. Yes.

11:15:01 24 Q. And so, how does the information that Alexa has
11:15:02 25 determine what the intent interpretation is?

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11:15:09 1 A. So, the information that Alexa has is both -- is
11:15:18 2 long-term information about the user, it is information
11:15:21 3 provided by the user from previous interactions, and all
11:15:24 4 that goes into interpreting what the user said and going
11:15:30 5 into ranking the hypotheses and picking out which one is the
11:15:34 6 most likely to be correct.

11:15:36 7 Q. If we go to the next page. There is a page 22,
11:15:44 8 what's this show?

11:15:47 9 A. So this is showing that this is talking about this
11:15:50 10 sort of re-ranking process of reconsidering what the user
11:15:51 11 means, and it's showing that the re-ranker can use system
11:16:00 12 features such as the ASR, the recognizer, what they call
11:16:01 13 entity resolution, and context.

11:16:11 14 Q. And the example we discussed earlier, it used entity
11:16:14 15 resolution, correct?

11:16:17 16 A. Yes.

11:16:17 17 Q. And that would result in a change from range 1 or 2?

11:16:21 18 A. Yes, that's what happened in that case.

11:16:25 19 Q. So originally, it was the song Hunger Games had a
11:16:30 20 score of .89, and the album Hunger Games had a 4.7?

11:16:32 21 A. Yes.

11:16:32 22 Q. After the resolution entity occurred, what was the
11:16:42 23 ranking of the album?

11:16:43 24 A. The album was .82.

11:16:45 25 Q. What was the song?

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11:16:46 1

A. .6.

11:16:49 2

Q. Could context also be used by the Alexa system to

11:16:52 3

cause a re-ranking or readjustment?

11:16:57 4

A. Yes.

11:16:58 5

Q. And if we go to the previous page to this one. And

11:17:04 6

what's shown here on this Alexa technical document?

11:17:08 7

A. This is just some text on this presentation that says

11:17:11 8

based on additional signals or features from the rest of the

11:17:13 9

system, the recognition results can be rescored and

11:17:18 10

re-ranked. So the signals are features is a very broad

11:17:23 11

statement of pretty much any kind of input could be taken to

11:17:28 12

influence what the ranking is on these different hypotheses.

11:17:33 13

Q. One of those inputs could be context?

11:17:35 14

A. That's correct.

11:17:38 15

Q. If we could now go to PTX-472. And Dr. Polish, do

11:17:43 16

you recognize exhibit PTX-472?

11:17:50 17

A. Yes, I do.

11:17:51 18

Q. Is that one of the documents you relied on in forming

11:17:53 19

your opinion and understanding regarding the design and

11:17:56 20

operation of Alexa?

11:17:57 21

A. Yes.

11:17:57 22

MR. YOON: I would like to now move into

11:17:58 23

evidence exhibit PTX-472.

11:18:01 24

MR. HADDEN: No objection.

11:18:02 25

THE COURT: Thank you. It is admitted.

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11:18:03 1 (PTX Exhibit No. 472 was admitted into
11:18:04 2 evidence.)

11:18:04 3 BY MR. YOON:

11:18:07 4 Q. And do you see there is a reference there to speaker
11:18:16 5 ID cloud. Do you see that?

11:18:18 6 A. Yes.

11:18:18 7 Q. And what is that, sir?

11:18:21 8 A. So speaker ID is where the system identifies
11:18:27 9 different speakers from within a household, so there is a
11:18:31 10 speaker registration process where you can say a few
11:18:34 11 sentences, and it learns your voice so that particularly if
11:18:37 12 you have multiple people in the same household, it can
11:18:41 13 distinguish those different people within the household and
11:18:44 14 do different things depending on who they are.

11:18:48 15 Q. If could go to page 2 of this document, and if you
11:18:51 16 would expand speaker ID cloud, speaker identification
11:18:54 17 service. And what's that, sir?

11:19:00 18 A. So this is just -- this is talking about what I just
11:19:03 19 said, which is that it's using this service to distinguish
11:19:10 20 individual users of the device in a single household. They
11:19:13 21 would use the speaker ID service.

11:19:16 22 Q. And is this -- what type of information is this in
11:19:20 23 the system?

11:19:23 24 A. So this would be long-term information, so your
11:19:26 25 registration with the system when you enroll yourself in

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11:19:33 1 this, would retain some piece of information that would be
11:19:36 2 retained from conversation to conversation, presumably over
11:19:40 3 the course of months or years, that would be used by the
11:19:44 4 system to customize your experience depending upon who you
11:19:49 5 are.

11:19:49 6 Q. Looking at the last sentence there, it says "the
11:19:51 7 incoming audio stream is forked to the speaker ID service,
11:19:56 8 and this service helps in determining who in the household
11:19:59 9 is currently using the device." Do you see that?

11:20:02 10 A. Yes.

11:20:03 11 Q. What does that indicate?

11:20:04 12 A. When they say forked, what they mean is that the
11:20:09 13 stream, audio stream is split, so it's going to both the
11:20:14 14 speaker ID service, as well as, the speech recognizers, this
11:20:20 15 is happening without causing some sort of disruption, so
11:20:24 16 it's happening in parallel if you will to the regular speech
11:20:31 17 recognition.

11:20:31 18 Q. Does Alexa, ASR and NLU use this speaker ID
11:20:36 19 information in interpreting what is said?

11:20:39 20 A. Yes.

11:20:39 21 Q. How so?

11:20:40 22 A. Well, it knows, it learns from this -- who the user
11:20:42 23 is, and loads various profiles and information about the
11:20:44 24 user that is then used to direct the conversation.

11:20:49 25 Q. And if we could now expand back and do you see there

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11:20:57 1 is another reference there at the top to NLU cloud-Natural
11:21:04 2 Language Understanding service?

11:21:06 3 A. Yes.

11:21:06 4 Q. And what does that indicate?

11:21:08 5 A. So that's sort of an overall wrapper for the NLU,
11:21:13 6 it's saying that the input is a SIRF, S-I-R-F, which is just
11:21:21 7 the speech, and then some other things including user info,
11:21:25 8 information about the user, the user's history, so it's
11:21:30 9 taking all these inputs and its output is a BIF, which we've
11:21:35 10 seen before is a collection of scored intents.

11:21:41 1 Q. And so do you see that with the input to the NLU and
11:21:48 2 the ASR be the SIRF, the hint, user info and history?

11:21:51 3 A. Yes.

11:21:56 4 Q. And the output is the intent determination of the
11:21:59 5 NLU?

11:22:01 6 A. Yes.

11:22:01 7 Q. If we could take that down. Thank you.

11:22:02 8 Now, Dr. Polish, do you know of Mr. John Peck?

11:22:07 9 A. Yes.

11:22:07 10 Q. And how did you work with Mr. Peck for your analysis
11:22:10 11 in this case?

11:22:11 12 A. So John Peck is a -- is a very experienced programmer
11:22:14 13 and software analyst, and he reads lots of source code and I
11:22:20 14 read source code too, but I didn't have enough time to put
11:22:30 15 into looking at everything that was required. So he was

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11:22:36 1 retained by the lawyers in the case to look at Amazon's
11:22:40 2 source code, and when I had questions about things I wanted
11:22:44 3 to understand about the source code, I told lawyers about
11:22:48 4 it, they instructed Mr. Peck, and he went off and did the
11:22:53 5 research. And I got reports back from him, including a
11:22:58 6 report that he filed in this case of what he found.

11:23:02 7 Q. Now, Dr. Polish, have you helped prepare a video
11:23:06 8 illustrating a conversation with Alexa?

11:23:09 9 A. Yes, I have.

11:23:10 10 Q. And if we could have PDX-3-7 on the screen.

11:23:21 11 And when you were having your actual
11:23:25 12 conversation with Alexa, what features did you look for?

11:23:27 13 A. So I went through this conversation with Alexa
11:23:31 14 particularly looking for Voice ID, the presence of long-term
11:23:41 15 information, the presence of short-term information, I
11:23:45 16 showed voice purchasing, I showed pronoun use which is
11:23:50 17 important in one of the patents, and I showed a voice
11:23:54 18 advertisement. And when you watch the video, you can see
11:23:58 19 all these -- all these elements come out in the video.

11:24:02 20 Q. Why don't we play the first video now.

11:24:12 21 (PDX-3-7 video played.)

11:27:12 22 MR. YOON: If we can play the next video.

11:27:22 23 (Video played.)

11:28:02 24 MR. YOON: Your Honor, at this time, we would
11:28:07 25 like to move into physical evidence PTX-674.

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11:28:13 1 MR. HADDEN: No objection, Your Honor.

11:28:15 2 THE COURT: Thank you. It is admitted.

11:28:15 3 (PTX Exhibit No. 674 was admitted into
11:28:21 4 evidence.)

11:28:21 5 BY MR. YOON:

11:28:27 6 Q. Now, Dr. Polish, let's now go into the specifics of
11:28:35 7 your infringement analysis. If we could have PDX3-9 on the
11:28:41 8 screen.

11:28:45 9 And focusing on the '681 patent, Dr. Polish,
11:28:50 10 what's your opinion with respect to Claim 13 of the '681
11:28:54 11 patent?

11:28:55 12 A. It's my opinion that Claim 13 is infringed by the
11:28:59 13 Alexa system.

11:29:00 14 Q. And now let's discuss Claim 13. If I could have
11:29:05 15 PDX3-10 on the screen. Do you see on that screen is the
11:29:10 16 full language of Claim 13 of the '681 patent?

11:29:14 17 A. Yes.

11:29:15 18 Q. Dr. Polish, what's a nontransitory computer readable
11:29:20 19 medium containing computer-executable instructions?

11:29:24 20 A. That's patent language for some piece of storage
11:29:30 21 computer code, so the computer executable instructions are
11:29:35 22 just computer code, and nontransitory means that it's stored
11:29:40 23 somewhere.

11:29:41 24 Q. So focusing on the first part of Claim 13, what we
11:29:44 25 call the preamble, if we can just expand that Claim 13

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11:29:56 1 begins a nontransitory computer readable medium containing
11:30:00 2 computer-executable instructions for providing a cooperative
11:30:05 3 conversational voice user interface, the computer-executable
11:30:10 4 instructions operable when executed to." Is that present in
11:30:16 5 Alexa?

11:30:16 6 A. Yes, it is.

11:30:17 7 Q. And what's the basis of that opinion?

11:30:19 8 A. Well, it's Alexa runs on servers, the servers are
11:30:27 9 computers, they're running code, I have seen code. And
11:30:32 10 those servers are loaded from non-transitory sources, so the
11:30:40 11 code is written, and it's loaded into those server computers
11:30:44 12 that is then operable when executed.

11:30:47 13 Q. When the code that's stored on the Amazon servers is
11:30:52 14 executed, does it practice the invention of Claim 13?

11:30:55 15 A. Yes, it does.

11:30:56 16 Q. If we go to the next element of Claim 13, if we could
11:30:59 17 expand that. Do you see that the next element is "receive
11:31:02 18 an utterance at a voice input device, during a current
11:31:07 19 conversation with a user, wherein the utterance includes one
11:31:10 20 or more words that have different meanings in different
11:31:14 21 contexts." Do you see that?

11:31:17 22 A. Yes.

11:31:17 23 Q. Is that present in the Alexa system?

11:31:19 24 A. Yes, it is.

11:31:20 25 Q. And what's the basis of that opinion?

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11:31:22 1 A. Well, technical documents that I've seen, as well as,
11:31:29 2 from my own use of the system.

11:31:33 3 Q. And if you would look at now PDX3-11.

11:31:45 4 Does this slide illustrate how the Alexa system
11:31:50 5 meets the receive an utterance requirement?

11:31:53 6 A. Yes. This is showing an Alexa device receiving
11:32:00 7 speech and that the speech, the utterance is being sent to
11:32:06 8 the Alexa voice service.

11:32:07 9 Q. And when someone speaks to Alexa, can we speak in one
11:32:11 10 or more words that have different meanings and different
11:32:15 11 contexts?

11:32:15 12 A. Yes, they can.

11:32:16 13 Q. If we now go back to the next element of the claim,
11:32:20 14 PDX3-10. If we could have the next one on the screen,
11:32:25 15 accumulate short-term. This element recites "accumulate
11:32:30 16 short-term shared knowledge about the current conversation,
11:32:31 17 wherein the short-term shared knowledge includes knowledge
11:32:36 18 about the utterance received at the voice during the current
11:32:40 19 conversation."

11:32:41 20 Is that element present in that by Alexa?

11:32:42 21 A. Yes, it is.

11:32:42 22 Q. What's the basis of that opinion?

11:32:50 23 A. Well, again, technical documents that I've seen, my
11:32:54 24 own use -- and my own use of the system.

11:32:57 25 Q. If we go to the next slide, please.

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11:33:05 1 Was the accumulation of short-term knowledge
11:33:09 2 illustrated in the demonstration that you provided in the
11:33:13 3 video?

11:33:13 4 A. Yes.

11:33:15 5 Q. How so?

11:33:16 6 A. Well, so when I was setting the alarm and I said
11:33:21 7 6:30, it knew 6:30, it wasn't -- it had multiple meanings,
11:33:28 8 6:30, it could be in the morning or in the evening, so it
11:33:31 9 retained that short-term knowledge for the further
11:33:34 10 conversation to disambiguate between 6:30 a.m. and p.m.

11:33:41 11 Q. Is that when Alexa asked is that 6:30 in the morning
11:33:47 12 or the evening?

11:33:48 13 A. Yes, that was when Alexa realized that that -- that
11:33:54 14 it didn't have enough information to set the alarm, its slot
11:33:59 15 wasn't full, wasn't fully filled out, so it had to get more
11:34:03 16 information which it did by soliciting me for more
11:34:07 17 information.

11:34:08 18 Q. If we can now go to PDX3-14. Does this also provide
11:34:13 19 support for your opinion that Alexa stores short-term
11:34:20 20 knowledge and meets that element?

11:34:30 21 A. So this is from a technical document, actually we
11:34:34 22 looked at that document before, this is what it does when it
11:34:37 23 has ambiguity that it needs to figure out, and so here it
11:34:41 24 takes what they call a two-step approach where it creates
11:34:44 25 another, effectively another intent looking for some kind of

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11:34:51 1 response from the user, and it goes out and makes a request
11:34:57 2 of the user and then tries to interpret what the user says
11:35:01 3 as a response to that disambiguous request.
11:35:04 4 Q. So in the example here, when it hears the number six,
11:35:10 5 it could be either an intent to set the volume, it could be
11:35:16 6 a song name, or it could mean this is a put multi-turn?
11:35:26 7 A. That's correct.
11:35:26 8 Q. In the example you gave in your video, that was
11:35:30 9 multi-turn?
11:35:31 10 A. That was 6:30, followed by a request for morning or
11:35:35 11 evening, followed by my saying morning.
11:35:37 12 Q. And PTX-226, that's the deep dive document that
11:35:41 13 Mr. Vanee was the author of what we discussed, correct?
11:35:44 14 A. That's right.
11:35:46 15 Q. Go to the next element.
11:35:48 16 Can we go to PDX3-15, please. And what is --
11:36:01 17 does that document that you have been discussing provide
11:36:04 18 further support for your opinion about whether the
11:36:07 19 accumulate short-term knowledge is met?
11:36:10 20 A. Yes, it does. This is talking -- this is again from
11:36:13 21 that same document. This is talking about a component
11:36:17 22 called the context interpreter that merges the results of
11:36:22 23 the disambiguation request of what came before so as to come
11:36:24 24 up with the intent.
11:36:32 25 Q. If could go to PDX3-16. And this is also an

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11:36:41 1 Exhibit 226, how does this support your opinion regarding
11:36:46 2 accumulating short-term knowledge about a current
11:36:50 3 conversation?

11:36:50 4 A. Right, so this is a work example from that slide
11:36:56 5 deck. The utterance is set for 6 o'clock. It thinks it's
11:37:03 6 setting an alarm, and it sees there are two possibilities,
11:37:10 7 0600 or 1800 or 6:00 p.m., and so it needs to have a
11:37:18 8 dialogue which is slot solicitation, that is asking for more
11:37:27 9 information.

11:37:27 10 Q. Here it doesn't know whether it's 6:00 a.m. or
11:37:31 11 6:00 p.m.?

11:37:32 12 A. That's correct.

11:37:32 13 Q. And 6:00 p.m. is indicated by 1800 hours?

11:37:37 14 A. Right.

11:37:37 15 Q. If we can go to the next element in the claim, go
11:37:42 16 back to PDX3-10, if we can expand the next element. This
11:37:48 17 also requires, "accumulate long-term shared knowledge about
11:37:51 18 the user, wherein the long-term shared knowledge includes
11:37:55 19 knowledge about one or more past conversations with the
11:37:58 20 user." Do you see that?

11:37:58 21 A. Yes.

11:37:58 22 Q. Is that element practiced in that by Alexa?

11:38:02 23 A. It is.

11:38:02 24 Q. What's the basis of your opinion?

11:38:04 25 A. Technical documents that I have seen, and my own use

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11:38:07 1 of it including from that demo you saw.

11:38:09 2 Q. And if we could now go to PDX3-17. And this is

11:38:16 3 another document that we've -- that you've relied on.

11:38:23 4 What's shown here in PDX3-17?

11:38:25 5 A. Right, so this is a document, it's a technical

11:38:28 6 document that's talking about among other things, the

11:38:31 7 speaker ID system that we were talking about before where it

11:38:37 8 talks about that if people in a household can register

11:38:41 9 themselves or enroll themselves in this program which allows

11:38:45 10 the system to differentiate people in the household. And

11:38:48 11 this would be a form of long-term shared knowledge.

11:38:51 12 Q. And in order to do the speaker ID, you had a

11:38:54 13 conversation with Alexa, correct?

11:38:58 14 A. Yes, it was done within Alexa, as you saw in the

11:39:01 15 demo, it's part of Alexa.

11:39:04 16 Q. If we can now go to the next slide. And how did your

11:39:07 17 video here illustrate that -- how did your video illustrate

11:39:10 18 how Alexa accumulates long-term shared knowledge about the

11:39:23 19 user?

11:39:26 20 A. Well, in this case, you can see that I'm changing an

11:39:29 21 alarm. So the long-term information was the old setting of

11:39:32 22 the alarm, and I am changing it to a new time. So it has --

11:39:40 23 it's accumulated long-term information that informs the

11:39:43 24 conversation and makes the conversation more streamlined.

11:39:47 25 Q. At this time you had already done the speaker ID?

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11:39:51 1 A. Yes.

11:39:51 2 Q. And Alexa recognized you as Nat?

11:39:53 3 A. That's right.

11:39:54 4 Q. Was that also a form of long-term shared knowledge
11:39:57 5 from the communication?

11:39:58 6 A. Yes, it was.

11:40:00 7 Q. If we could now go to slide PDX3-19. And how do the
11:40:07 8 documents here that you based your opinion on illustrate the
11:40:11 9 use of long-term shared knowledge?

11:40:13 10 A. So this is a document that talks about what they call
11:40:18 11 an enrollment profile, mutable model, which as it's
11:40:21 12 described here, this is something that would listen to your
11:40:31 13 voice, understand some of the acoustic properties of your
11:40:34 14 voice and your environment and make changes to the, to this
11:40:39 15 model that it stores that would cause the ASR to do a better
11:40:44 16 job over time.

11:40:48 17 Q. And now let's go to the next element. And we could
11:40:52 18 have that next element on the screen identified. The next
11:41:01 19 element of Claim 13 refers to identify a context associated
11:41:12 20 with the utterance, wherein a conversational speech engine
11:41:16 21 identifies the context associated with the utterance from
11:41:19 22 the short-term shared knowledge and the long-term shared
11:41:24 23 knowledge." Do you see that?

11:41:25 24 A. Yes.

11:41:25 25 Q. And is that element met by Alexa?

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11:41:29 1 A. It is.

11:41:30 2 Q. And what's the basis for your opinion, sir?

11:41:32 3 A. The technical documents and my own use of the system.

11:41:36 4 Q. And would one of the documents be the NLU deep dive

11:41:41 5 document which is PTX-226?

11:41:45 6 A. Yes.

11:41:47 7 Q. Can we go -- if we can now go to the next element.

11:41:56 8 And this element says "establish an intended meaning for an

11:42:01 9 utterance within the identified context, wherein the

11:42:04 10 conversational speech engine establishes the intended

11:42:08 11 meaning within the identified context to disambiguate an

11:42:12 12 intent that the user had in speaking the one or more words

11:42:16 13 that have the different meanings in the different contexts."

11:42:21 14 Is that element met by Alexa?

11:42:23 15 A. Yes, it is.

11:42:24 16 Q. And what do you base that opinion on?

11:42:26 17 A. The technical documents that we've seen, as well as,

11:42:29 18 my own use of it.

11:42:30 19 Q. If we can now go to PDX3-21. How did your opinions,

11:42:40 20 how were they supported by PTX-226?

11:42:52 21 A. We talked about this before, what's going on here is

11:42:56 22 where you have some kind of ambiguity that the system needs

11:43:00 23 to resolve and it has, and it gets more information and then

11:43:04 24 this context interpreter needs to run to combine the result

11:43:12 25 of this ambiguation request with what came before. So this

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11:43:18 1 is combining information from different con -- from
11:43:24 2 different utterances into the context.

11:43:26 3 Q. If we can go now to the next slide?

11:43:31 4 MR. HADDEN: Objection, Your Honor. This is not
11:43:33 5 a slide that was in the demonstratives we were given in the
11:43:38 6 exchange.

11:43:39 7 THE COURT: Can you talk to me.

11:43:43 8 MR. HADDEN: Your Honor, our understanding is
11:43:45 9 this slide was withdrawn per our agreement this morning.

11:43:49 10 MR. YOON: Your Honor, there appears to be an
11:43:51 11 error, counsel is correct. We had made a change, but the
11:43:55 12 change did not pop up. We can put the correct slide on now,
11:43:58 13 and I'll remove it from the demonstrative, I'll redo it now
11:44:02 14 Your Honor with the proper demonstrative.

11:44:04 15 MR. HADDEN: I'll move to strike the testimony
11:44:07 16 with the demonstrative that we agreed wouldn't be shown.

11:44:10 17 THE COURT: We'll strike that.

11:44:12 18 This was some testimony given, it was just a
11:44:15 19 mixup with the slide. They're going to put the correct
11:44:18 20 slide up and redo that testimony, and the testimony that you
11:44:20 21 saw on the prior slide, we'll strike.

11:44:22 22 BY MR. YOON:

11:44:23 23 Q. And so let me just go back really quick. If we could
11:44:30 24 have PDX3-10 on the screen. PDX3-10.

11:44:42 25 Looking at -- could I have the element -- we can

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11:44:49 1 do it this way. If I could just have the element on the
11:44:53 2 screen, identify a context associated, we can go over that
11:44:57 3 again. Just expand the identify. Thank you.

11:45:05 4 Dr. Polish, with respect to this element, do you
11:45:09 5 see that it says, "identify a context associated with the
11:45:12 6 utterance, wherein a conversational speech engine identifies
11:45:16 7 the context associated with the utterance from the
11:45:20 8 short-term shared knowledge and the long-term shared
11:45:23 9 knowledge."

11:45:24 10 A. I do.

11:45:25 11 Q. And is that element met by Alexa?

11:45:27 12 A. It is.

11:45:28 13 Q. And what's your basis for your opinion?

11:45:31 14 A. Technical documents and my own use of the system.

11:45:34 15 Q. Can you explain how the technical documents supported
11:45:36 16 your opinion?

11:45:37 17 A. Well, what this is talking about is identifying the
11:45:40 18 context which is, in part anyway, an intent, so the NLU
11:45:41 19 generates an intent, or a collection of intents based upon
11:45:50 20 the speech of the user, and the long-term information that
11:46:00 21 informs it, as well as, the short-term information from
11:46:02 22 prior utterances within the same conversation.

11:46:12 23 Q. Let's go to the next element. We'll just expand it
11:46:15 24 to the next element now. If we could go to establish. The
11:46:20 25 next element in the claim says "establish an intended

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11:46:24 1 meaning for the utterance within the identified context,
11:46:27 2 wherein the conversational speech engine establishes the
11:46:30 3 intended meaning within the identified context to
11:46:34 4 disambiguate an intent that the user had in speaking the one
11:46:40 5 or more words that have different meanings in the different
11:46:43 6 contexts." Do you see that?

11:46:45 7 A. Yes.

11:46:45 8 Q. Is that element met by Alexa?

11:46:47 9 A. It is.

11:46:48 10 Q. What's the basis for your opinion?

11:46:50 11 A. Technical documents and my own use of the system.

11:46:52 12 Q. And if we could now go, I want to go to PDX3-22,
11:46:58 13 we're skipping 21, go to 22. 22. PDX3-22.

11:47:37 14 Could you just advance it to 22, please. If we
11:48:11 15 could just go back up with regards to, put PDX3-10 up again.
11:48:22 16 And sir, can you explain how Alexa does this, please?

11:48:27 17 A. So this is talking about the disambiguation of words
11:48:34 18 that have one or more meanings, that have more than one
11:48:40 19 meaning. So we've seen this already with when I said 6:30
11:48:47 20 which could mean two different things, and it went off and
11:48:52 21 established which it meant. There was also, we saw in the
11:49:00 22 technical document, we saw Hunger Games being interpreted,
11:49:05 23 there were different possible meanings for that, a song, an
11:49:09 24 album, a video, and Alexa went off and figured out,
11:49:13 25 disambiguated which it meant, and it used short-term

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11:49:18 1 information to do that to establish what the meaning was in
11:49:26 2 the different topics.

11:49:29 3 Q. Going back to Exhibit 226, how is this demonstrated
11:49:36 4 in terms of the establishing the intended meaning?

11:49:39 5 A. Right. So this is the example of Hunger Games, and
11:49:43 6 so Hunger Games can mean in this case, I guess four
11:49:47 7 different things, a song, an album, a book and a video. And
11:49:51 8 it was able to use, in this case long-term information which
11:49:57 9 was whether somebody had purchased the album before to
11:50:01 10 disambiguate it and decide that it meant the album.

11:50:07 11 Q. We can keep that language up and then turn to slide
11:50:23 12 22 of 226. Advance two pages from the right. Thank you.

11:50:31 13 And we looked at this during your testimony.
11:50:42 14 How does this support the basis for your opinion that the
11:50:47 15 identified context is to disambiguate an intent that the
11:50:52 16 user had in speaking one or more words?

11:50:55 17 A. So, this is showing that you can re-rank, or in this
11:51:03 18 case, that would mean disambiguate the intent of the user
11:51:10 19 and the meaning of the words based upon the ASR, the ER, or
11:51:17 20 the content, and that can be long-term information,
11:51:22 21 short-term information, it could be further information from
11:51:25 22 the user.

11:51:28 23 Q. And did that support your opinion, sir?

11:51:30 24 A. It does.

11:51:32 25 Q. If we could now go back to PTX3-10 and go to the last

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11:51:37 1 element of Claim 13 of the '681 patent. You see this is
11:51:42 2 "generate a response to the utterance where in the
11:51:44 3 conversational speech engine, grammatically or syntactically
11:51:49 4 adapts the response based on the intended meaning
11:51:52 5 established within the identified context." Do you see
11:51:54 6 that?

11:51:54 7 A. Yes.

11:51:55 8 Q. Is that element met by Alexa?

11:51:58 9 A. It is.

11:51:58 10 Q. What is the basis of that opinion?

11:52:00 11 A. Documents that I have seen, and how I have used the
11:52:03 12 system.

11:52:04 13 Q. We now have PDX3-24. And is that element met, the
11:52:39 14 last element of Claim 13 met by Alexa and supported by the
11:52:44 15 technical documents?

11:52:45 16 A. Yes. So this technical document is showing after the
11:52:50 17 utterance has gone through the system, ultimately what comes
11:52:54 18 out is a voice response that is played back through the
11:52:57 19 speaker.

11:52:58 20 Q. And if we could go to Exhibit 226, slide 32. This is
11:53:12 21 a multi-turn example for Alexa, correct?

11:53:14 22 A. Yes.

11:53:14 23 Q. And this example is very similar to what you used in
11:53:19 24 your video, correct?

11:53:20 25 A. Yes, it is.

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11:53:20 1 Q. And this is the example set forth in the Amazon
11:53:24 2 technical documents that was the deep dive?

11:53:27 3 A. Yes, it is.

11:53:28 4 Q. And would Claim 13 of the '681 patent be practiced
11:53:34 5 during the multi-turn example?

11:53:36 6 A. Yes, absolutely.

11:53:39 7 Q. Now, there is some discussion in this case about like
11:53:43 8 a single-turn conversation. Are you familiar with that?

11:53:46 9 A. Yes, generally.

11:53:47 10 Q. And would single-turn conversations include
11:53:53 11 short-term shared knowledge?

11:53:54 12 A. It certainly could. It wouldn't -- not all would
11:53:58 13 necessarily, but you certainly could have a single-turn that
11:54:02 14 would have short-term information in it.

11:54:05 15 Q. And where the single-turn have short-term
11:54:09 16 information, would Alexa also use long-term information?

11:54:13 17 A. The long-term faster information is used with speaker
11:54:16 18 ID, there is lots of long-term information that would be
11:54:20 19 used all the time, so in a situation where a single-turn is
11:54:25 20 using short-term, it would be using both.

11:54:27 21 Q. And in the case where a single-turn utterance
11:54:30 22 included short-term shared knowledge, would Claim 13 be
11:54:34 23 practiced?

11:54:34 24 A. Yes.

11:54:35 25 Q. Now, let's turn to your opinion as to the '176

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11:54:41 1 patent, the first of the voice ad patents. And if we could
11:54:48 2 have PDX3-26 on the screen, that's Claim 40.

11:54:58 3 A. Okay.

11:54:59 4 Q. Dr. Polish, what is your opinion with respect to
11:55:02 5 Claim 40 of the '176 patent?

11:55:05 6 A. That it is infringed by the Alexa system.

11:55:09 7 Q. Now, this is Alexa Shopping, correct?

11:55:12 8 A. Yes.

11:55:12 9 Q. Would Alexa Shopping involve multi-turns?

11:55:17 10 A. Yes, it certainly can.

11:55:19 11 Q. And would that -- now, let's talk about the preamble
11:55:24 12 of Claim 40. Do you see that this preamble recites a system
11:55:32 13 for selecting and presenting advertisements in response to
11:55:36 14 processing natural language utterances, do you see that?

11:55:40 15 A. Yes.

11:55:41 16 Q. Is that present in Alexa?

11:55:42 17 A. Yes, it is.

11:55:43 18 Q. And what's the basis for your opinion?

11:55:45 19 A. Technical documents and the use of it that I showed.

11:55:51 20 Q. So let's now go to the next element. Does Alexa
11:56:00 21 include an input device that receives a natural language
11:56:03 22 utterance containing at least one request at an input
11:56:06 23 device?

11:56:07 24 A. Yes.

11:56:07 25 Q. And what's the basis for your opinion?

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11:56:09 1 A. Technical documents and my own use of it.

11:56:14 2 Q. And if we could look at now PDX3-27. And does this
11:56:22 3 support your opinion that Alexa includes an input device
11:56:28 4 that receives a natural language utterance?

11:56:30 5 A. Yes, this is showing the input device and it's
11:56:34 6 showing the user's utterance being sent to the Alexa voice
11:56:37 7 service.

11:56:37 8 Q. If we could now go back to PDX3-10 -- PDX3-26. Thank
11:56:46 9 you. Looking at the next element, "a speech recognition
11:56:51 10 engine coupled to the input device, wherein the speech
11:56:51 11 recognition engine recognizes one or more words or phrases
11:56:51 12 in the natural language utterance." Is that element met by
11:57:04 13 Alexa?

11:57:05 14 A. Yes, it is.

11:57:05 15 Q. What's the basis for your opinion?

11:57:07 16 A. The technical documents and my own use.

11:57:09 17 Q. And if we can now go to the next slide. And how does
11:57:19 18 the technical documents show that Alexa practices this
11:57:21 19 element?

11:57:22 20 A. Right. So these documents are showing that the
11:57:22 21 speech comes in on the input device and is sent to the ASR
11:57:34 22 which is in the upper right, the Automatic Speech
11:57:34 23 Recognition system which is also shown in Figure 1 of the
11:57:41 24 '176 patent as the ASR in the Figure 1.

11:57:42 25 Q. Going to the next element. This element of the claim

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11:57:53 1 recites "a conversational language processor coupled to the
11:57:58 2 speech recognition engine, wherein the conversational
11:58:02 3 language processor is configured to." Do you see that?
11:58:04 4 A. Yes.
11:58:05 5 Q. Is that present in Alexa?
11:58:07 6 A. Yes, it is.
11:58:08 7 Q. And what's the basis for your opinion?
11:58:11 8 A. From the technical documents that I have seen.
11:58:14 9 Q. And how does Alexa meet this?
11:58:16 10 A. The conversational language processor is the NLU and
11:58:21 11 some other components, it's also including -- it's also
11:58:26 12 including speechlets as well, as part of that, that we
11:58:31 13 talked about, but in this diagram that's contained within
11:58:36 14 the NLU.
11:58:41 15 Q. And if we can go to the next slide. And how does
11:58:51 16 this support your opinion regarding whether or not the Alexa
11:58:56 17 Shopping system has a conversational language processor
11:59:01 18 coupled to the speech recognition engine?
11:59:06 19 A. So this is from the technical document we have seen
11:59:11 20 before, the coupling to the speech recognition system is via
11:59:16 21 this thing on the left labeled S-I-R-F, S-I-R-F, that's what's
11:59:21 22 coming from the speech recognition, and goes into this
11:59:26 23 recognition engine within the NLU.
11:59:31 24 Q. And so there is a recognition engine within the NLU
11:59:36 25 engine of Alexa?

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11:59:33 1 A. That's right.

11:59:34 2 Q. If could go to now, the next element. Can you expand
11:59:42 3 that, interpreting, interpret the recognized. The next
11:59:50 4 element recites "interpret the recognized words or phrases,
11:59:54 5 wherein the interpreting the recognized words or phrases
11:59:57 6 includes establishing a context for the natural language
12:00:00 7 utterance." Is that met by Alexa Shopping?

12:00:03 8 A. It is.

12:00:04 9 Q. And what's the basis for your opinion?

12:00:05 10 A. The technical documents.

12:00:07 11 Q. And how do those documents support this opinion?

12:00:11 12 A. So, the interpretation of the words and phrases is
12:00:14 13 what we've seen before, the coming up with an intent and
12:00:25 14 slots based on the words that are presented.

12:00:29 15 Q. And is that supported by the technical documents such
12:00:32 16 as the one shown on the screen?

12:00:34 17 A. Yes.

12:00:35 18 Q. And how so?

12:00:36 19 A. So the output of the NLU which we've seen other
12:00:40 20 places is, I believe it's called a BIF, which is this
12:00:41 21 collection of intents that are -- that establish the context
12:00:52 22 for those words.

12:00:54 23 Q. So the output of the NLU is intent; correct?

12:00:58 24 A. Yes.

12:00:58 25 Q. And that establishes context?

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12:01:00 1 A. Yes.

12:01:05 2 Q. Can you go to the next element?

12:01:10 3 Do you see this element recites select an
12:01:16 4 advertisement in the context established for the natural
12:01:19 5 language utterance. Do you see that?

12:01:22 6 A. Yes.

12:01:22 7 Q. Is that found in Alexa Shopping?

12:01:26 8 A. It is.

12:01:26 9 Q. And what's the basis for your opinion?

12:01:28 10 A. The technical documents.

12:01:30 11 Q. And how do they support your opinion?

12:01:33 12 A. So what happens is the user says that they want to
12:01:40 13 shop for something, that is -- that's recognized, and that
12:01:43 14 information is sent to a shopping speechlet which is a piece
12:01:46 15 of application code that is connected to the NLU, and it
12:01:50 16 selects a device or selects a product which is then
12:02:00 17 presented. So the example that I gave in my demo was that I
12:02:05 18 said "Alexa, I want to buy an iPhone case," and the
12:02:09 19 speechlet went off, shopping speechlet went off and figured
12:02:14 20 out that it wanted to sell me this case.

12:02:17 21 Q. And stay on this slide, stay on this slide, but I
12:02:21 22 notice here that this also has the next element recited in
12:02:24 23 the claim, press a selected advertisement via an output
12:02:28 24 device, do you see that?

12:02:29 25 A. Yes.

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12:02:30 1 Q. Is that found in Alexa?

12:02:31 2 A. Yes, it is.

12:02:32 3 Q. And do you base that opinion on the technical
12:02:36 4 documents you reviewed?

12:02:36 5 A. Yes, it's based on the technical documents and my own
12:02:40 6 use of it.

12:02:40 7 Q. And in the example here, did the Echo device present
12:02:44 8 the advertisements?

12:02:45 9 A. Yes, it did.

12:02:48 10 Q. If we could now go back to the language of Claim 40,
12:02:51 11 the last element. Go to slide 26. The last element of
12:03:01 12 Claim 40 recites "an adaptive misrecognition engine
12:03:11 13 configured to determine that the conversational language
12:03:18 14 incorrectly interpreted the words or phrases in response to
12:03:21 15 detecting a predetermined event, wherein the conversational
12:03:28 16 language processor reinterprets the words or phrases in
12:03:31 17 response to the predetermined event." Do you see that?

12:03:31 18 A. Yes.

12:03:34 19 Q. Is that element practiced by Alexa Shopping?

12:03:37 20 A. Yes, it is.

12:03:38 21 Q. And what's the basis of that opinion?

12:03:40 22 A. The technical documents.

12:03:42 23 Q. And how do the technical document that you reviewed
12:03:44 24 support that opinion?

12:03:47 25 A. So, we've seen that Alexa can get information that

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12:03:54 1 causes it to rescore, or to reevaluate what -- which intent
12:04:02 2 is the right one. So that can be done based upon any number
12:04:07 3 of signals that are passed into it to change the scoring of
12:04:14 4 the intent.

12:04:15 5 Q. If we could have Exhibit 226, page 22 on the screen.
12:04:22 6 This is the NLU deep dive document that we were discussing.
12:04:33 7 And does re-ranking support your opinion with regard to the
12:04:39 8 last element?

12:04:39 9 A. Yes, so this re-ranking could happen in response to
12:04:45 10 getting some information that indicated that you had gotten
12:04:49 11 it wrong, that the top scoring intent was wrong, and then it
12:04:54 12 would re-rank it and try a different intent.

12:04:57 13 Q. And one of the events that could cause that, an input
12:05:01 14 would be context, correct?

12:05:03 15 A. Yes, that's one of the inputs listed here.

12:05:07 16 Q. All right. Let's now turn to the '097 patent.
12:05:20 17 Looking at Claim 23 of the '097 patent, starting with the
12:05:24 18 preamble, do you see that this recites a system providing
12:05:31 19 natural language processing based on advertisements, the
12:05:34 20 system comprising. Do you see that?

12:05:36 21 A. Yes.

12:05:37 22 Q. Is that present in Alexa Shopping?

12:05:39 23 A. Yes, it is.

12:05:40 24 Q. And what's the basis for that?

12:05:42 25 A. The documents and my own use.

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12:05:44 1 Q. And if we could go to the next element. You see that
12:05:59 2 it says one or more physical processors programmed with the
12:06:02 3 computer program instructions, which when executed, cause
12:06:05 4 one or more physical processors to, do you see that?

12:06:08 5 A. Yes.

12:06:09 6 Q. Is that met by Alexa Shopping?

12:06:10 7 A. Yes, it is.

12:06:11 8 Q. Why is it met by Alexa Shopping?

12:06:14 9 A. Well, the Alexa voice system is running on servers,
12:06:17 10 the servers have processors, those processors execute
12:06:21 11 instructions, so it has to be running on a server somewhere,
12:06:27 12 it's a physical server.

12:06:29 13 Q. And looking at the exhibit here from DTX-586, do you
12:06:34 14 see there is a reference there to Alexa voice services?

12:06:38 15 A. Yes.

12:06:39 16 Q. Do you see at the bottom it says AWS?

12:06:41 17 A. Yes.

12:06:42 18 Q. What do you understand AWS to be?

12:06:44 19 A. AWS is Amazon's, is the cloud hosting service for
12:06:50 20 hosting servers, I use it as part of my business all the
12:06:54 21 time. It's an enormous infrastructure that supports many,
12:06:59 22 many servers.

12:07:00 23 Q. Is it fair to say that those many servers have many
12:07:04 24 physical processors?

12:07:04 25 A. Yes.

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12:07:05 1 Q. And those processors are programmed with the computer
12:07:09 2 instruction; correct?

12:07:11 3 A. Yes.

12:07:11 4 Q. Can we go to the next element? This one recites
12:07:17 5 "provide an advertisement associated with a product or
12:07:20 6 service for presentation to a user." Is that element
12:07:25 7 present in Alexa Shopping?

12:07:27 8 A. Yes, it is.

12:07:27 9 Q. And why is it?

12:07:31 10 A. From the technical documents and from my own use of
12:07:33 11 it.

12:07:35 12 Q. And how did your own use illustrate providing an
12:07:41 13 advertisement associated with a product or server for
12:07:44 14 presentation to the user?

12:07:45 15 A. When I asked Alexa for an iPhone case, it came up
12:07:50 16 with one to offer me. It offered it to me, it presented it,
12:07:54 17 it gave me its price. That offering is an advertisement,
12:08:01 18 certainly as it was discussed in the patent.

12:08:03 19 Q. And what the Alexa advertisement offered is Amazon's
12:08:13 20 choice is a Lago compatible with iPhone 13 Pro case liquid
12:08:18 21 silicone case, right?

12:08:20 22 A. That's right.

12:08:22 23 Q. And that was selected by Alexa Shopping, correct?

12:08:24 24 A. Yes, that was selected by Alexa Shopping, I had
12:08:30 25 nothing to do with choosing it.

Polish - direct

12:08:35 1 Q. Can we go to the next element? Does Alexa Shopping
12:08:38 2 receive the natural language utterance of a user?
12:08:40 3 A. Yes, it does.
12:08:42 4 Q. And that was illustrated when you spoke to Alexa to
12:08:45 5 order the iPhone case, right?
12:08:47 6 A. That's right.
12:08:48 7 Q. Can we go to the slide for that?
12:08:51 8 And so in the example here, was colored in
12:08:57 9 white, Alexa what color or what color is it, or the previous
12:09:02 10 one about I want to buy an iPhone case, those were
12:09:06 11 utterances, right?
12:09:07 12 A. Correct, those were all natural language utterances
12:09:11 13 of the user.
12:09:12 14 Q. If we go to the next element. The last element says
12:09:25 15 "interpret the natural language utterance based on the
12:09:28 16 advertisement and responsive to the existence of a pronoun
12:09:31 17 in the natural language utterance, determine whether the
12:09:35 18 pronoun refers to one or more of the product or service or a
12:09:40 19 provider of the product or service." Do you see that?
12:09:42 20 A. Yes.
12:09:42 21 Q. Is that element present in Alexa Shopping?
12:09:47 22 A. Yes, it is.
12:09:48 23 Q. And why is it present?
12:09:49 24 A. Based upon technical documents and my own use of it.
12:09:52 25 Q. If we go to the next slide.

Polish - direct

12:09:55 1 And how did your communication with Alexa

12:10:05 2 Shopping indicate that this element was present?

12:10:08 3 A. So, when I asked it -- so it had just offered me this
12:10:12 4 iPhone case, and then I asked it what color, and it came
12:10:17 5 back with the definition of the word peach. So it clearly
12:10:25 6 didn't know what I was talking about because the iPhone case
12:10:28 7 isn't peach. But when I later said, Alexa what color is it,
12:10:34 8 it being the pronoun, it recognized that I was referring to
12:10:39 9 the color of the iPhone case, and it correctly said the
12:10:43 10 color is stone. So there it's clear that Alexa is using the
12:10:51 11 presence of the pronoun to understand that I was referring
12:10:54 12 to the product in the advertisement and not just some random
12:11:01 13 color.

12:11:01 14 Q. And turning to now the last of our patents, the '703
12:11:05 15 patent. On the screen is the language of Claim 25 of the
12:11:09 16 '703 patent, okay?

12:11:12 17 A. Okay.

12:11:12 18 Q. And is it your opinion that Alexa Shopping infringes
12:11:18 19 Claim 25 of the '703 patent?

12:11:21 20 A. Yes.

12:11:22 21 Q. And let's focus on, as we have been, element by
12:11:25 22 element. Can we have the first one? "A system for
12:11:32 23 providing voice commerce, the system comprising." Is Alexa
12:11:36 24 Shopping a system for providing voice commerce?

12:11:38 25 A. Yes, it is.

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12:11:39 1 Q. Can we go to the next element?

12:11:42 2 This element recites, "one or more physical
12:11:49 3 processors programmed with computer program instructions
12:11:52 4 which, when executed, cause the one or more physical
12:11:56 5 processors to." Do you see that?

12:11:58 6 A. Yes.

12:11:58 7 Q. Is that element present in Alexa Shopping?

12:12:02 8 A. Yes, it is.

12:12:03 9 Q. And why is it?

12:12:04 10 A. Same as we had before, these are -- this is running
12:12:08 11 on servers, the servers are running in AWS which has
12:12:14 12 physical processors, so there are physical processors
12:12:17 13 running the computer programs embodying Alexa Shopping.

12:12:21 14 Q. Going to the next element. Receive a user input
12:12:30 15 comprising a natural language utterance. Does Alexa receive
12:12:36 16 a user input comprising a natural language utterance?

12:12:39 17 A. Yes.

12:12:42 18 Q. Can we go to the next slide. Did your demonstration
12:12:45 19 illustrate how Alexa receives a user input comprising a
12:12:51 20 natural language utterance?

12:12:52 21 A. Yeah, certainly when I said, "Alexa I want to buy an
12:12:55 22 iPhone case," that was the user input was natural language.

12:13:00 23 Q. Can you go to the next element. This element
12:13:02 24 requires "provide, without further user input after the
12:13:10 25 receipt of the user input, the natural language utterance as

Polish - direct

12:13:13 1 an input to a speech recognition engine."

12:13:18 2 Is that element present in Alexa Shopping?

12:13:21 3 A. Yes, it is.

12:13:22 4 Q. And why is it?

12:13:23 5 A. Based upon the technical documents and my own use.

12:13:26 6 Q. And how do the technical documents illustrate that it
12:13:32 7 would provide without further user input after the receipt
12:13:36 8 of user input the natural language utterance that's an input
12:13:41 9 to the speech recognition engine?

12:13:47 10 A. What goes on is I speak to the Echo, the Echo
12:13:51 11 receives it, and sends it straight to the ASR, there is no
12:13:54 12 further action I have to take, I just speak and it goes.

12:13:59 13 Q. If we go to the next element. Obtain without further
12:14:05 14 user input after the receipt of the user input, one or more
12:14:09 15 words or phrases recognized from the natural language
12:14:13 16 utterance as an output of the speech recognition engine. Is
12:14:18 17 that element present in Alexa Shopping?

12:14:21 18 A. Yes.

12:14:21 19 Q. And why is it present?

12:14:23 20 A. Technical documents and the fact that the output of
12:14:32 21 the ASR goes straight to the NLU without my having to do
12:14:40 22 anything further.

12:14:42 23 Q. So the natural utterance that was said is received by
12:14:45 24 the ASR?

12:14:46 25 A. Yes.

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12:14:47 1 Q. And the ASR will provide it to the NLU?

12:14:50 2 A. Yes.

12:14:51 3 Q. And will it require any additional input to do that?

12:14:55 4 A. No.

12:14:56 5 Q. If we go to the next element. This element is

12:15:03 6 "determine, without further user input after the receipt of

12:15:06 7 the user input, a context based at least on the one or more

12:15:11 8 words or phrases." Do you see that?

12:15:13 9 A. Yes.

12:15:14 10 Q. Is that element met by Alexa Shopping?

12:15:17 11 A. Yes, it is.

12:15:18 12 Q. And why is it met?

12:15:19 13 A. It's met because the NLU comes up with an intent, and

12:15:25 14 that intent is part of the context. And that's done without

12:15:31 15 any further input from the user.

12:15:33 16 Q. And do the Amazon technical documents support the

12:15:37 17 fact that it's a context based on one or more words or

12:15:42 18 phrases?

12:15:42 19 A. Yes, that's -- we have seen it in technical documents

12:15:42 20 so far including PTX-226.

12:15:42 21 Q. And one of the things that the Alexa NLU has is a

12:15:52 22 context interpreter?

12:15:54 23 A. That's right.

12:15:54 24 Q. Is that illustrated in the red box here from PTX-226?

12:16:02 25 A. Yes the context interpreter is there, it's a 2 step

Polish - direct

12:16:08 1 approach that combines context information from different
12:16:10 2 sources.

12:16:20 3 Q. Let's go to the next element, identify without
12:16:24 4 further user input after the receipt of the user input, the
12:16:27 5 product or service to be purchased on behalf of the user
12:16:30 6 based at least on the determined context."

12:16:33 7 A. Yes.

12:16:34 8 Q. Is that element practiced by Alexa Shopping?

12:16:37 9 A. Yes.

12:16:37 10 Q. And why is it practiced?

12:16:39 11 A. Well, we've seen it in documents and you could see it
12:16:43 12 in my use of it that it found an iPhone case to offer me
12:16:44 13 without my having to do anything further.

12:16:52 14 Q. If we go to the next slide. And how is that
12:16:55 15 illustrated in your video demonstration of use with Alexa?

12:16:59 16 A. Yeah, so I asked for an iPhone case, and it without
12:17:03 17 any further queries from me, just came up with that
12:17:07 18 particular offer.

12:17:07 19 Q. Which is the Lago compatible with iPhone 13 proliquid
12:17:14 20 silicone case?

12:17:16 21 A. Yes.

12:17:16 22 Q. If we go to the next element here. "Obtain payment
12:17:22 23 information with which to pay for the product or service."
12:17:24 24 Do you see that?

12:17:27 25 A. Yes.

Polish - direct

12:17:27 1 Q. Is that element met by Alexa Shopping?

12:17:31 2 A. Yes.

12:17:32 3 Q. And was that illustrated in your demonstration?

12:17:36 4 A. Yes, it was.

12:17:37 5 Q. Could we go to the next slide. Also here the next

12:17:50 6 element is "obtain, without further user input after the

12:17:54 7 receipt of the user input, shipping information with which

12:17:57 8 to deliver the product or service, wherein the shipping

12:18:00 9 information specifies a name or address of a recipient to

12:18:05 10 which the product or service is to be delivered after the

12:18:08 11 product or service is purchased." Is that element present

12:18:12 12 in Alexa Shopping?

12:18:15 13 A. Yes.

12:18:15 14 Q. And why is it present?

12:18:16 15 A. Well, it's present from my own use of it, it's also

12:18:21 16 in documents that are discussed.

12:18:23 17 Q. Next slide. Let me just ask you. Sir, in your

12:18:31 18 example of the video, when you said buy it, did Alexa

12:18:41 19 Shopping ask for your credit card or purchasing information?

12:18:42 20 A. No, it didn't.

12:18:42 21 Q. Did Alexa Shopping ask for your address?

12:18:52 22 A. No.

12:18:52 23 Q. Did it, when you said buy it, ship the case to you

12:18:52 24 without requiring any input with respect to either financial

12:19:02 25 information or address information?

Polish - direct

12:19:06 1 A. That's right, it did it without any of that
12:19:08 2 information being given by me at the time.

12:19:12 3 Q. Going to the next element, "provide, without further
12:19:15 4 user input after the receipt of the user input, a request
12:19:19 5 for user confirmation to use the payment information and the
12:19:23 6 shipping information for a purchase transaction for the
12:19:26 7 product or service."

12:19:29 8 Is that element met by Alexa Shopping?

12:19:34 9 A. Yes.

12:19:35 10 Q. And what's the basis of that opinion?

12:19:37 11 A. My own use of it and their documents.

12:19:42 12 Q. Now looking at the last three elements that we have
12:19:45 13 been talking about, but in particular, provide without
12:19:49 14 further user input after the receipt of the user input a
12:19:52 15 request for user confirmation to use the payment information
12:19:56 16 and the shipping information for a purchase transaction for
12:20:00 17 the product or service, was that illustrated in your video
12:20:04 18 demonstration?

12:20:04 19 A. Yes. It provided -- it provided -- it provided the
12:20:13 20 information about what was going on.

12:20:15 21 Q. So when you said, "Alexa, buy it now," what happened?

12:20:20 22 A. It made a beep tone, and said that it was -- that it
12:20:23 23 was placing the order and it will be shipped to me and what
12:20:31 24 the costs were.

12:20:32 25 Q. And did it indicate that it would be delivered to New

Polish - direct

12:20:35 1 **York, 10025?**

12:20:37 2 A. **Yes.**

12:20:37 3 Q. **That's your address?**

12:20:38 4 A. **That's my Zip code, yes.**

12:20:40 5 Q. **And that, did it indicate that the total including**
12:20:45 6 **tax after \$0.65 in discounts and credits, was \$13.44?**

12:20:52 7 A. **Yes, that's what it said.**

12:20:53 8 Q. **Was that charged to your credit card without any**
12:20:56 9 **additional input?**

12:20:57 10 A. **Yes.**

12:20:57 11 Q. **Were all the elements of Claim 25 met by Alexa**
12:21:01 12 **Shopping?**

12:21:01 13 A. **Yes.**

12:21:16 14 Q. **Just a few more questions, Dr. Polish. In this case,**
12:21:21 15 **did you review the expert report of Amazon expert**
12:21:27 16 **Dr. Johnson?**

12:21:27 17 A. **Yes.**

12:21:28 18 Q. **And did Dr. Johnson offer an opinion regarding**
12:21:32 19 **possible non-infringing alternatives to the VoiceBox patent?**

12:21:32 20 A. **Yes, he did.**

12:21:37 21 Q. **And what impact did these non-infringing alternatives**
12:21:41 22 **have on the number of turns that a user would have to use to**
12:21:47 23 **perform the operations without practicing the patents?**

12:21:50 24 A. **In Dr. Johnson's view, the number of turns would**
12:21:56 25 **increase.**

12:21:57 1 Q. And would that increase -- let me ask this first.

12:22:08 2 Would it increase by approximately how much, at least?

12:22:13 3 A. I don't remember the exact number, but it was on the
12:22:16 4 order of, you know, of 2 or 3 number of turns, it may have
12:22:22 5 been one-and-a-half turns, something like that.

12:22:25 6 Q. And do the VoiceBox patents reduce the number of
12:22:28 7 turns that a user needs to make?

12:22:30 8 A. Yes, they will.

12:22:32 9 Q. And does that streamline the user's interface with
12:22:35 10 respect to how they interact with Alexa?

12:22:40 11 A. Yes, the whole point is to reduce the amount of
12:22:44 12 effort the user has to go through.

12:22:45 13 Q. Would the patents in this case reduce the friction
12:22:49 14 between the user and the system performing it?

12:22:54 15 A. Yes.

12:22:55 16 MR. YOON: Your Honor, at this time, we would
12:22:59 17 also like to admit Exhibit 586.

12:23:00 18 MR. HADDEN: I don't recall what that is.

12:23:04 19 MR. YOON: That's the DTX-586 document. I'm
12:23:08 20 sorry. It's the one in the slide.

12:23:14 21 MR. BELGAM: Your Honor, can we confer?

12:23:21 22 MR. HADDEN: No objection, Your Honor.

12:23:23 23 THE COURT: Thank you. It is admitted.

12:23:24 24 (DTX Exhibit No. 586 was admitted into
12:23:29 25 evidence.)

12:23:24 1 MR. YOON: Thank you, Dr. Polish. No questions.

12:23:27 2 THE COURT: Did he talk about that document?

12:23:30 3 MR. YOON: Those were the documents in all the
12:23:32 4 slides, it was the slide, each slide that said PDX, I forgot
12:23:35 5 to mention that, he did talk about, that's the main, if we
12:23:40 6 can call up one of the slides, he repeatedly talked about
12:23:43 7 those documents.

12:23:44 8 THE COURT: I just want to make sure --

12:23:46 9 MR. YOON: He did.

12:23:47 10 THE COURT: All right. Thank you. How about
12:23:49 11 before cross we take our lunch break.

12:23:51 12 MR. HADDEN: Sure.

12:23:51 13 THE COURT: Let's take our lunch break. We'll
12:23:53 14 come back after, a little bit after 1:00.

12:23:58 15 COURTROOM DEPUTY: All rise.

12:23:59 16 (Jury leaving the courtroom at 12:23 p.m.)

12:24:21 17 THE COURT: All right. You guys can be seated.
12:24:31 18 And sir, you can step down.

12:24:36 19 Claim construction, is there going to be an
12:24:38 20 issue on that? I didn't hear Dr. Polish talk about it, so
12:24:43 21 I'm just curious.

12:24:45 22 MR. HADDEN: Yeah, I think we can avoid that
12:24:47 23 issue at this point. He kind of pointed to something but he
12:24:52 24 didn't redefine it.

12:24:54 25 THE COURT: And there was no objection, so I

Polish - cross

12:24:56 1 didn't hear that, but if you think there is, then you're
12:24:59 2 going to have to tell me so I can deal with it. All right.

12:25:03 3 COURTROOM DEPUTY: All rise.

12:25:04 4 (A luncheon recess was taken.)

13:08:31 5 COURTROOM DEPUTY: All rise.

13:08:32 6 MR. YOON: I just have one brief procedural
13:08:43 7 thing. Your Honor, the next witness after this one will be
13:08:47 8 Mr. Peck, and Mr. Peck is the source code witness. Your
13:08:50 9 Honor, the protective order, the parties agreed we wouldn't
13:08:52 10 be making copies so for Exhibit 541(a) and 541(b), Mr. Smith
13:08:54 11 will be using the Elmo but the witness won't be given a
13:09:03 12 copy.

13:09:03 13 THE COURT: How are you going to give it to the
13:09:05 14 jury when they deliberate?

13:09:07 15 MR. YOON: We'll submit it to the jury when they
13:09:10 16 deliberate, there is no objection to being submitted, but
13:09:13 17 the order limited the number of copies, but it will be
13:09:16 18 submitted to jury, there is no dispute there, it's just two
13:09:21 19 copies.

13:09:21 20 THE COURT: You guys agree?

13:09:24 21 MR. HADDEN: Fine, Your Honor.

13:09:31 22 (Jury entering the courtroom at 1:09 p.m.)

13:09:32 23 THE COURT: All right. Everyone, welcome back.
13:09:42 24 Please proceed.

13:09:52 25 CROSS-EXAMINATION

Polish - cross

13:09:52 1 BY MR. HADDEN:

13:09:53 2 Q. Good afternoon, Dr. Polish.

13:09:55 3 A. Good afternoon.

13:09:56 4 Q. Now the Alexa NLU or Natural Language Understanding,
13:10:01 5 uses machine learned neural networks, correct?

13:10:08 6 A. There are some neural networks components of the NLU.

13:10:12 7 Q. And those neural networks are domain models, those
13:10:18 8 are machine learned DNN's and they're used to classify the
13:10:22 9 user's intent, correct?

13:10:24 10 A. That's part of what the NLU does, it also does other
13:10:28 11 things as I talked about.

13:10:29 12 Q. But you agree that the domain models are machine
13:10:34 13 learned DNN's used to classify the user's intent, correct?

13:10:40 14 A. As I said, there are machine learned models within
13:10:45 15 the NLU that are also rules and other things used to
13:10:50 16 classify intent.

13:10:51 17 Q. Well, you prepared an expert report in this case that
13:10:55 18 included your opinions about how Alexa worked and your
13:10:59 19 opinions on infringement, correct?

13:11:01 20 A. Yes.

13:11:02 21 Q. Okay. And you have that in your binder in front of
13:11:05 22 you. Let's look at your expert report. Mr. Patterson, can
13:11:10 23 we look at Dr. Polish's opening report at paragraph 90. On
13:11:20 24 page 31?

13:11:24 25 A. Tell me which tab it is in this.

Polish - cross

13:11:28 1 Q. You should have a tab for your report, pretty thick,
13:11:32 2 probably the thickest thing in your cross binder. Do you
13:11:36 3 have that? There should be two binders there.

13:11:58 4 A. Yes, there is another binder labeled -- oh, and
13:12:03 5 expert reports. Okay.

13:12:08 6 Q. It's on page 31 of your opening report. If you look
13:12:31 7 at paragraph 90, you start by saying the domain models are
13:12:36 8 machine-learned DNN's used to classify the user's intent,
13:12:40 9 such as does the customer want to play music, get the
13:12:44 10 weather, or shop, do you see that?

13:12:46 11 A. Yes.

13:12:47 12 Q. And that's accurate, right?

13:12:51 13 A. Yes, for the -- yes.

13:12:58 14 Q. And you don't say anything in here about rules, you
13:13:02 15 talk about machine-learned DNN's, right, in fact, if we go
13:13:17 16 up to paragraph 88, Mr. Patterson. Highlight that sentence.
13:13:21 17 You said in your expert report when you're describing
13:13:30 18 Alexa's NLU, the first step in the 1P pipeline, "X-domain
13:13:40 19 recognition and re-ranking" refers to running all the 1P
13:13:42 20 domain models in parallel and running them through a
13:13:47 21 re-ranking model that merges all results. Do you see that?

13:13:50 22 A. I see that.

13:13:52 23 Q. When you talk about 1P models, those are those deep
13:13:57 24 neural networks, those machine learning neural networks,
13:14:00 25 right?

Polish - cross

13:14:01 1 A. Just give me one second to review the rest of this
13:14:06 2 section in the report here.

13:14:36 3 Q. You wrote this report, right?

13:14:38 4 A. Yes.

13:14:44 5 Q. Okay.

13:14:45 6 A. So the section we're talking about refers to one
13:14:50 7 particular pipeline through the NLU.

13:14:52 8 Q. Right, and that's the 1P pipeline, that's the
13:14:54 9 pipeline that is used to determine whether the user's
13:15:01 10 request relates to one of the functionalities of Alexa that
13:15:05 11 Amazon itself provides rather than a third-party skill,
13:15:10 12 right, that's why it's called 1P, correct?

13:15:14 13 A. It's one of the pipelines that the NLU runs, it's
13:15:20 14 part of what the NLU does.

13:15:21 15 Q. Well, let's be clear here. 1P refers to it being a
13:15:26 16 pipeline for the Amazon speechlet, like shopping or weather,
13:15:31 17 or alarms, and the other examples that you used that you
13:15:37 18 just talked about with VB Assets's counsel, right? Let me
13:15:41 19 ask a clearer question, maybe. Every example that you
13:15:51 20 talked about earlier today, those are all examples of these
13:15:56 21 domain models running in the 1P pipeline, those generated
13:16:04 22 intents, right?

13:16:04 23 A. What I talked about with counsel this morning was
13:16:09 24 about generating intents within the NLU.

13:16:12 25 Q. Right. And every one of these examples you used,

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13:16:15 1 those intents were generated by these deep neural networks
13:16:19 2 that are run in the 1P pipeline; right? Do you not know how
13:17:05 3 the intents were generated that you talked about all
13:17:08 4 morning?

13:17:08 5 A. I know that the intents were generated within the
13:17:11 6 NLU. I don't know -- what I'm not clear about is whether
13:17:15 7 they were part of the 1P pipeline in particular.

13:17:19 8 Q. Okay. So you don't know other than that they came
13:17:21 9 out of the NLU box, how they were actually generated?

13:17:24 10 A. Well, we talked about they were generated based upon
13:17:28 11 the document we had from Mr. Vanee, that they were generated
13:17:31 12 by executing a variety of different pipelines, including
13:17:41 13 ones that contained rules including ones that contained
13:17:47 14 finite data machines including one that contained models.

13:17:48 15 Q. You don't know whether these are generated by the 1P
13:17:52 16 models that you talk about in your report?

13:17:54 17 A. I don't recall whether the -- whether what was in
13:17:59 18 Mr. Vanee's diagram was entirely part of 1P or not entirely
13:18:05 19 part of 1P.

13:18:06 20 Q. So in your report here, you claim that the
13:18:12 21 information that's in paragraph 90, the information in a
13:18:19 22 SIRE, is passed to all the domain models, roughly 37 to
13:18:22 23 produce intents and token labels, do you see that?

13:18:24 24 A. Yes.

13:18:25 25 Q. And those 37 domain models, those are 37 of those

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13:18:34 1 machine learned deep neural networks, right?

13:18:36 2 A. Yes, that's my understanding.

13:18:37 3 Q. And each of those domain models produces multiple
13:18:42 4 results, including intent classification and name entity
13:18:48 5 recognition; right?

13:18:50 6 A. Yes.

13:18:51 7 Q. And then the Alexa NLU -- before I get there, yeah,
13:19:02 8 and the Alexa NLU sorts those results based on confidence
13:19:10 9 scores and retains the NBest to be passed along to
13:19:18 10 downstream processing.

13:19:20 11 A. Yes.

13:19:22 12 Q. Yes, and the output of the NLU retains multiple
13:19:28 13 interpretations of a customer's request right?

13:19:29 14 A. Yes, the different intents are different
13:19:37 15 interpretations.

13:19:37 16 Q. At least what you described in your report is what I
13:19:41 17 showed in the opening, right, so we have this NLU and it
13:19:46 18 receives the words from ASR, that's what's in that SIRF,
13:19:53 19 right?

13:19:54 20 A. The SIRF contains the recognized words.

13:19:57 21 Q. Right, that's the output of ASR, right?

13:20:00 22 A. The SIRF is the output of the ASR.

13:20:03 23 Q. And those words, that's what is provided to these
13:20:07 24 deep neural network domain models, and here I only show six,
13:20:13 25 but as you explained in your report, there is actually 37,

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13:20:17 1 right?

13:20:17 2 A. Yes.

13:20:18 3 Q. And those guys receive whatever the words are, right,
13:20:23 4 and they process those neural networks, and each one comes
13:20:29 5 up with its own meaning, right?

13:20:34 6 A. So you used -- so first of all, the implication here
13:20:38 7 is that the entirety of the NLU is of these -- are these
13:20:43 8 DNN's, which it's not, and also you're calling them
13:20:48 9 meanings. They're different intents and associated slots.

13:20:52 10 Q. So let's just follow along with what you said in your
13:20:55 11 expert report. What you describe in your expert report is
13:20:58 12 exactly what I showed on the screen, which is the output of
13:21:01 13 ASR goes through each of the deep neural networks and they
13:21:04 14 all provide at least one, maybe multiple interpretations,
13:21:10 15 correct?

13:21:12 16 A. They each can provide one or more intents and slots.

13:21:14 17 Q. Well you called them interpretations in the expert
13:21:21 18 report, are they interpretations?

13:21:24 19 A. Yes, that's in the form of those intents.

13:21:26 20 Q. Right, so these are interpretations of what the words
13:21:32 21 meant that the user spoke; right?

13:21:34 22 A. I'm cagey about using the word meaning here because I
13:21:41 23 think it implies --

13:21:43 24 Q. Meaning today in the claim, and you talked about
13:21:48 25 determining the meaning of the words that are ambiguous in

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13:21:51 1 an utterance, right?

13:21:51 2 A. Yes.

13:21:53 3 Q. And in that use of meaning, you were referring to
13:21:56 4 exactly this, which are the intents and slots that are
13:21:59 5 determined by the NLU, right?

13:22:02 6 A. Broadly speaking, an interpretation of what comes out
13:22:06 7 of the ASR is an intent and slot.

13:22:12 8 Q. Right.

13:22:12 9 A. Yes.

13:22:13 10 Q. That's what I'm showing exactly here on the diagram
13:22:14 11 right, you have different meanings for the words that come
13:22:15 12 out of each of these neural networks, right, and they're
13:22:16 13 collected in this list; right, that's the NBest words,
13:22:17 14 correct?

13:22:18 15 A. This is your slide, this is -- are you saying that
13:22:19 16 change is the intent and 6:45 is the slot.

13:22:20 17 Q. I'm using meaning to incorporate both the intent and
13:22:21 18 the slot, do you understand that?

13:22:22 19 A. Okay.

13:22:23 20 Q. Okay, so given that interpretation, this diagram is
13:22:24 21 correct, right?

13:22:25 22 A. This diagram is extremely high level and it's -- I
13:22:26 23 was trying to make reference to actual Amazon documents that
13:22:27 24 had more technical terminology there. I'm not sure I see
13:22:28 25 anything wrong with this diagram, but it's not -- I'm not

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13:23:16 1 adopting it as the truth.

13:23:18 2 Q. One important thing about this diagram and also when
13:23:21 3 you say in your expert report is that the Alexa NLU runs all
13:23:28 4 of these deep neural networks, 37 in your report. And they
13:23:34 5 all do their job and come up with their interpretation
13:23:38 6 before any context is selected, right?

13:23:44 7 A. My understanding is that as I testified to this
13:23:51 8 morning, there are rules -- there are rules approaches taken
13:23:57 9 that would complete before these NLU -- these neural
13:24:03 10 networks would finish processing.

13:24:05 11 Q. I understand that. But the question is, if we take
13:24:10 12 music as an example of a context, Alexa doesn't determine
13:24:15 13 that the user's request had to do with music before it runs
13:24:21 14 all 37 neural networks and comes up with all the different
13:24:24 15 meanings, right?

13:24:26 16 A. Well, there is more to the context than just -- than
13:24:31 17 just this one output. In a multi-turn environment, you're
13:24:35 18 going to have, as I showed, you're going to have prior --
13:24:38 19 you're going to have prior -- prior intents as the current
13:24:42 20 context.

13:24:43 21 Q. Let's just focus on what we're talking about now.
13:24:47 22 Speech comes into through the ASR, the words are recognized,
13:24:52 23 every utterance goes through this process, and we create a
13:24:56 24 list of meanings before Alexa has picked which of these
13:25:00 25 contexts is the right one; correct?

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13:25:03 1 A. Well, also going into these are the current contexts
13:25:08 2 and the information about the prior -- the prior dialogue
13:25:16 3 acts.

13:25:16 4 Q. That's not true, you know that's not true. The input
13:25:19 5 to the deep neural network, that's only the words that come
13:25:23 6 out of the ASR, right?

13:25:25 7 A. I don't know if that's solely the inputs.

13:25:27 8 Q. You don't know how these work, right? Do you know
13:25:32 9 how these work or not?

13:25:34 10 A. My understanding is that the deep neural networks
13:25:37 11 take into account contexts, as well as the speech that comes
13:25:42 12 out.

13:25:42 13 Q. So you believe that when the NLU processes the words
13:25:48 14 from SIRF, it somehow has other inputs?

13:25:52 15 A. My understanding is that the NLU takes into account
13:25:57 16 context.

13:25:58 17 Q. Let's be more precise than that. We're not talking
13:26:04 18 about everything that's done in the NLU, I'm talking about
13:26:06 19 the processing of the words by these deep neural networks
13:26:10 20 that you talk about in your report. What they receive is
13:26:13 21 only the words from the utterance, correct?

13:26:16 22 A. I'm looking at the NLU, the NLU takes into account
13:26:20 23 the other things. It may be that there is a portion of the
13:26:23 24 code that doesn't take into account the contexts. But the
13:26:25 25 NLU takes into account the contexts.

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13:26:30 1 Q. Answer my question. My question is, I'm not talking
13:26:34 2 about the NLU, I'm talking about the deep neural networks
13:26:37 3 that you described in your report, and it's true fact, isn't
13:26:40 4 it, that the only thing that they receive as input are the
13:26:44 5 words from NLU, isn't that a true fact?

13:26:50 6 A. I don't know whether the particular deep neural
13:26:52 7 network that you're pointing to just takes in speech or
13:26:56 8 takes in other things. The NLU takes into other things
13:26:59 9 beside just the speech.

13:27:00 10 Q. As far as you know, what I have got on the screen is
13:27:02 11 absolutely accurate, right?

13:27:04 12 A. I'm not adopting your slide, as you already said the
13:27:07 13 NLU does more than just run the deep neural networks.

13:27:11 14 Q. I'm not asking about that, I'm asking about the
13:27:13 15 process that you describe in your report where the output of
13:27:17 16 the ASR is processed by deep neural networks, this is
13:27:21 17 accurate, right?

13:27:25 18 A. The deep neural -- I don't know whether the deep
13:27:28 19 neural networks use more than just speech.

13:27:30 20 Q. You don't know what they do because you actually
13:27:32 21 didn't look at any of Alexa source code in this case, did
13:27:40 22 you?

13:27:40 23 A. Well, yes, I certainly did look at source code.

13:27:42 24 Q. You did? Do you recall being deposed in this case?

13:27:42 25 A. I do.

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13:27:48 1 Q. Let's look in your deposition. Let's look at page 7,
13:28:02 2 lines 1 through 4. Mr. Patterson, if you could pull up a
13:28:15 3 clip, if you have it. Did you find that in your deposition,
13:28:23 4 sir?

13:28:23 5 A. Yes.

13:28:25 6 Q. Can we play the clip?

13:28:26 7 (Videotape deposition:)

13:28:31 8 Q. Is it correct that you did not review any of the
13:28:34 9 Alexa source code that Amazon made available in this case?

13:28:38 10 A. That is correct.

13:28:39 11 MR. YOON: Objection, Your Honor.

13:28:41 12 THE COURT: Go ahead.

13:28:42 13 MR. YOON: I understood, Your Honor, under the
13:28:45 14 procedure they're not supposed to be able to look at it.

13:28:48 15 THE COURT: We don't play it up there, that's
13:28:51 16 not even impeachment. Why don't you ask him if he read it
13:28:54 17 and looked at it, tell him what it says, but don't play it.

13:28:59 18 MR. HADDEN: Okay, Your Honor.

13:29:00 19 THE COURT: You did not ask him any questions I
13:29:03 20 just looked at it --

13:29:05 21 BY MR. HADDEN:

13:29:05 22 Q. Do you see your testimony from your deposition on
13:29:08 23 page 7, line 1?

13:29:09 24 A. Yes.

13:29:09 25 Q. Were you asked the question:

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13:29:10 1 "Question: Is it correct you did not review any
13:29:14 2 Alexa source code that Amazon made available in this case?"

13:29:16 3 Is it correct that you answered:

13:29:18 4 "Answer: This is correct."

13:29:21 5 A. I said that is correct, yes.

13:29:23 6 Q. Is that a true statement?

13:29:24 7 A. Yes, I did not review code. I didn't sit at a source
13:29:28 8 code review computer and review it.

13:29:31 9 Q. And is it also true that you relied entirely on
13:29:34 10 Mr. Peck's analysis of the Alexa source code?

13:29:40 11 A. I relied -- yes, I relied on Mr. Peck's analysis of
13:29:45 12 the source code and I looked at the code that was in his
13:29:47 13 report and that he provided to me.

13:29:51 14 Q. Is it correct that -- did you direct any of
13:30:03 15 Mr. Peck's source code review or analysis?

13:30:06 16 A. Indirectly through the lawyers.

13:30:12 17 Q. Let's turn to your deposition again, page 8. Do you
13:30:15 18 have it? Line 5 through 7. Were you asked:

13:30:21 19 Question: Did you direct any of Mr. Peck's
13:30:25 20 source code review or analysis?

13:30:27 21 Did you answer:

13:30:29 22 Answer: No, I did not.

13:30:34 23 A. Yes, I said that.

13:30:36 24 Q. Is that how you testified?

13:30:37 25 A. That is.

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13:30:37 1 Q. And you didn't tell or ask Mr. Peck to analyze
13:30:42 2 certain features of the Alexa source code, is that right?

13:30:45 3 A. Yes, I did not tell Mr. Peck directly to do anything.
13:30:51 4 I saw the questions that the lawyers were asking him, I
13:30:56 5 contributed to that, and I saw what was going on through
13:30:59 6 that interaction.

13:31:00 7 Q. And you could have reviewed the Alexa source code, it
13:31:05 8 was all made available to you, correct?

13:31:08 9 A. Yes, I think so.

13:31:10 10 Q. But you didn't bother to look at any of that code
13:31:14 11 that was made available to you?

13:31:16 12 A. I resist the term bother there, sir. I had somebody
13:31:21 13 who was looking at the code very diligently and I interacted
13:31:26 14 through the lawyers with him and had his report. I
13:31:31 15 certainly took seriously my responsibility to confirm what I
13:31:35 16 found with the code.

13:31:38 17 Q. But you had the opportunity to see exactly how what
13:31:43 18 we saw on the screen work in the source code, and you chose
13:31:48 19 not to look at it, correct?

13:31:50 20 A. I did not look at the source code. I did not review
13:31:55 21 the source code on a source code computer.

13:31:58 22 Q. Can we put the demonstrative back up.

13:31:59 23 Now, you agree that the output of NLU is a list
13:32:04 24 of possible interpretations, right?

13:32:06 25 A. The output-- my understanding is the output of these

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13:32:12 1 models is an NBest list of intents and slots.

13:32:17 2 Q. Right, that's what I have here is this list and
13:32:21 3 meaning, right?

13:32:21 4 A. Okay.

13:32:23 5 Q. Now, if Alexa chose a context for all these DNN's
13:32:31 6 processed the user's words, then my example from the opening
13:32:40 7 of "do I need an umbrella," versus "I need an umbrella,"
13:32:47 8 wouldn't work, right?

13:32:49 9 A. I'm not sure I'm following.

13:32:51 10 Q. Sure. So if Alexa decided before figuring out the
13:32:57 11 meaning of the user's words in all possible contexts, they
13:33:01 12 decided beforehand that it was going to be focused on the
13:33:05 13 shopping context, and we only ran the neural network for
13:33:11 14 shopping, then if I said "Alexa, do I need an umbrella," I
13:33:17 15 would get intent about buying an umbrella, and not a weather
13:33:21 16 forecast, right?

13:33:24 17 A. No, I don't think that's -- I don't think that's
13:33:27 18 right.

13:33:27 19 Q. Well, the weather forecast intent would come from the
13:33:32 20 operation of the weather model, when it operates on the
13:33:34 21 words, right, isn't that how it works?

13:33:42 22 A. So maybe we can re-examine this hypothetical. Give
13:33:47 23 me the example that you're talking about.

13:33:49 24 Q. Sure. I say "Alexa, do I need an umbrella?"

13:33:52 25 A. Okay.

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13:33:55 1 Q. And we agree the words the way it works now, the
13:33:58 2 words "Do I need an umbrella?", would be provided as input
13:34:03 3 to all thirty-seven of those neural networks in the 1P
13:34:07 4 pipeline; correct?

13:34:08 5 A. Among other things, yes.

13:34:09 6 Q. And now if instead of doing that, Alexa decided this
13:34:14 7 is a shopping context, and only provided those words to the
13:34:20 8 model for shopping, then I would never get a weather intent,
13:34:25 9 right?

13:34:25 10 A. No, as I was saying, the NLU takes into account
13:34:30 11 context, so you could absolutely have all those words
13:34:34 12 supplied to all these DNN's, they would all put up what they
13:34:38 13 thought things were and then they were interpreted in the
13:34:42 14 context of the context. So if you said "do I need an
13:34:45 15 umbrella," and you were in the middle of discussing weather
13:34:49 16 with Alexa, there would be a propensity to decide this was
13:34:54 17 weather, not shopping.

13:34:55 18 Q. That wasn't my hypothetical. The hypothetical was,
13:34:59 19 you decide a context before the words are processed by the
13:35:03 20 DNN, right?

13:35:04 21 A. Okay.

13:35:05 22 Q. You do that, you're never going to get a weather
13:35:09 23 intent, you picked shopping as the context?

13:35:11 24 A. So you're assuming that having decided on the
13:35:14 25 context, you would shut down the other DNN's.

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13:35:16 1

Q. Sure.

13:35:18 2

A. I don't believe that that's what occurs.

13:35:20 3

Q. I agree that doesn't occur, we'll get into the

13:35:24 4

claims, but the claims require identifying a context before

13:35:27 5

you determine anything, right?

13:35:30 6

A. The claim talks about finding a context. And as I've

13:35:37 7

talked about, that context can come from a variety of

13:35:41 8

sources.

13:35:42 9

Q. Let's look at the claim to make it clear.

13:35:45 10

Mr. Patterson, could we get PDX3-10? This is Claim 13 of

13:36:01 11

the '681 patent from the counsel's presentation this

13:36:11 12

morning. And before we get to the context, if we just blow

13:36:14 13

up the preamble again. I think as you testified this

13:36:21 14

morning, this is a claim to computer executable

13:36:28 15

instructions, right?

13:36:29 16

A. Yes.

13:36:31 17

Q. And that's computer code; right?

13:36:34 18

A. That's part of the preamble, yes.

13:36:37 19

Q. And so if we want to find out whether this specific

13:36:42 20

computer code that's required by this claim was in Alexa,

13:36:49 21

the best place to look for that would be in the Alexa source

13:36:52 22

code, right?

13:36:55 23

A. I'm not sure I understand. My understanding is that

13:36:59 24

there is servers that are running Alexa, and that those

13:37:05 25

servers are embodied in executable code that's sitting on a

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13:37:10 1 server.

13:37:11 2 Q. Sure, but if we're going to understand whether or not
13:37:14 3 Alexa has the specific computer instructions that are
13:37:18 4 required by this claim, the place we should look is in the
13:37:22 5 computer instructions in Alexa's source code; right?

13:37:27 6 A. The computer source code and the computer executable
13:37:31 7 instructions are not the same thing.

13:37:34 8 Q. The computer source code is where it gets compiled to
13:37:38 9 make the executable instructions the computer to run, right?

13:37:42 10 A. There are many steps between the source code and
13:37:45 11 computer executable instructions. The point is, that what
13:37:50 12 Alexa is doing, the Alexa server is running codes sitting on
13:37:51 13 computers and that's what is -- what's being talked about
13:38:01 14 here.

13:38:01 15 Q. Right, and if you're going to look at the code in a
13:38:05 16 form that a human can read it, it would be in the source
13:38:08 17 code, right?

13:38:09 18 A. Well, code in human readable form is source code.
13:38:15 19 But this preamble is not talking about source code.

13:38:19 20 Q. You're telling me that the computer executable
13:38:22 21 instructions in Alexa are not created from source code?

13:38:22 22 A. Well, of course they're created, they're created from
13:38:32 23 source code. What this preamble is talking about is
13:38:35 24 computer readable medium, not human, computer readable and
13:38:40 25 computer executable instructions that are -- that are

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13:38:44 1 providing this user interface. So I'm talking about not
13:38:47 2 source code here, but the code that runs the server.

13:38:50 3 Q. Right, and you didn't look at the code that runs the
13:38:54 4 servers, right?

13:38:55 5 A. I did not look at the machine code that was sitting
13:38:58 6 on the servers, no.

13:39:00 7 Q. Let's look at the -- one of the requirements of this
13:39:09 8 claim is receiving an utterance; right?

13:39:17 9 A. Yes.

13:39:18 10 Q. And that utterance then has to be processed by those
13:39:21 11 computer executable instructions in a specific way; right?

13:39:28 12 A. Okay.

13:39:29 13 Q. And if we look at the accumulate short-term shared
13:39:35 14 knowledge element, that has to be knowledge about the
13:39:40 15 utterance. Can you see that? I have it highlighted there,
13:39:50 16 sir, right?

13:39:51 17 A. Well it includes knowledge about the utterance that
13:39:53 18 was received, but the short-term shared knowledge is about
13:39:56 19 the current conversation. So those are -- the conversation
13:40:00 20 can contain multiple utterances and the knowledge, the
13:40:04 21 short-term knowledge is knowledge that goes from utterance
13:40:06 22 to utterance within the same conversation.

13:40:08 23 Q. Right, but it has to be included knowledge about the
13:40:12 24 utterance and that has to be the utterance that was received
13:40:15 25 in the receive an utterance step, right? It has to be the

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13:40:21 1 same utterance, right?

13:40:25 2 A. Well, the short-term shared knowledge includes
13:40:28 3 knowledge about the -- it includes other things as well.

13:40:31 4 Q. Sure, but the utterance in this element has to be the
13:40:34 5 same utterance that we receive when we receive an utterance,
13:40:38 6 right?

13:40:40 7 A. Well, it is accumulating short-term knowledge from
13:40:44 8 the current utterance. The short-term knowledge includes
13:40:49 9 knowledge accumulated from prior, that's what it means to be
13:40:52 10 accumulating.

13:40:54 11 Q. Right, this is not that complicated. All I'm trying
13:40:59 12 to confirm is when it says knowledge about the utterance,
13:41:02 13 that has to be the same utterance that's referred to above
13:41:05 14 where it says receive an utterance, right?

13:41:10 15 A. Again, it's not that complicated, short-term
13:41:15 16 knowledge about the current conversation and it's
13:41:17 17 accumulating some knowledge about the current utterance.

13:41:21 18 Q. Right, and then we go down to the identify context
13:41:28 19 step. And we have to identify a context associated with the
13:41:32 20 utterance again, right?

13:41:37 21 A. Yes.

13:41:37 22 Q. And that has to be the utterance that we received
13:41:40 23 above; right?

13:41:42 24 A. Yes, it's the utterance.

13:41:45 25 Q. And if we go to the next element, we have to

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13:41:51 1 establish an intended meaning for the utterance, it has to
13:41:56 2 be the same utterance we started with, right? Correct?

13:42:03 3 A. Yes, this is talking about establishing an intended
13:42:07 4 meaning for this particular utterance.

13:42:08 5 Q. Right, and then we have to go down to the last one
13:42:13 6 where we generate a response to the utterance, right?

13:42:17 7 A. Yes.

13:42:18 8 Q. So nowhere this morning did you identify what-strike
13:42:26 9 that. Nowhere this morning did you tell the jury this is
13:42:30 10 the utterance and here is how every one of these steps is
13:42:34 11 performed on that utterance, did you?

13:42:39 12 A. So I reviewed the example of a demonstration and I
13:42:51 13 talked about how utterances were received and processed by
13:42:55 14 the NLU.

13:42:57 15 Q. No, my question is very specific. This claim
13:43:01 16 requires taking a specific utterance and doing these
13:43:04 17 highlighted things to it. You didn't identify an utterance
13:43:08 18 and show how each of these steps is performed on that
13:43:13 19 utterance, did you?

13:43:14 20 A. That is why I walked through my infringement
13:43:18 21 analysis, I walked through my infringement analysis by
13:43:21 22 looking at the documents and about my demonstrated use.

13:43:25 23 Q. Understood. But going back to my football/soccer
13:43:30 24 ball example in the opening, to prove infringement, you have
13:43:33 25 to prove that Alexa receives an utterance, the specific

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13:43:38 1 utterance, and that each of these things required, right?

13:43:43 2 A. I have to prove that Alexa does each of the elements
13:43:46 3 of the claims.

13:43:47 4 Q. Right, and each of the elements have to be performed
13:43:51 5 consistently on a single utterance as recited here; right?

13:43:59 6 A. Well, it traces through what happens with an
13:44:03 7 utterance and how knowledge is gained through the utterance
13:44:07 8 and knowledge gained previously is used with the utterance.

13:44:11 9 Q. So what utterance did you show this that each of
13:44:17 10 these steps maps to?

13:44:21 11 A. Well, I showed -- I showed the conversation that I
13:44:26 12 had with Alexa, and I showed the technical documents to show
13:44:29 13 what Alexa is doing.

13:44:31 14 Q. That's not what's required. What's required is you
13:44:34 15 have to identify an utterance and show to the jury that each
13:44:37 16 of these things is gone through. So what is the utterance
13:44:40 17 that you think you showed that for?

13:44:43 18 A. I did not show it that way, I showed what Alexa is
13:44:47 19 doing and -- showed that Alexa is doing each and every thing
13:44:50 20 that is in the claim.

13:44:52 21 Q. It's a fact, isn't it sir, that you can only prove
13:44:55 22 infringement if you prove that every element of this claim
13:44:58 23 was performed; right?

13:45:01 24 A. Yes.

13:45:02 25 Q. Okay. And to perform every element of this claim,

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13:45:05 1 you have to have a specific utterance and show that each of
13:45:09 2 these highlighted steps is performed with respect to that
13:45:13 3 utterance; isn't that what is required, isn't that the law?

13:45:17 4 A. I'm not a lawyer. I know that I showed that Alexa
13:45:22 5 was doing each of these things, and I showed documents
13:45:25 6 around it and I showed an example of Alexa in use.

13:45:30 7 Q. Let's be very clear. True fact or not, did you show
13:45:36 8 the specific utterance that is processed in the way required
13:45:39 9 by Claim 13?

13:45:52 10 A. It's possible that my demo example would fit this and
13:45:58 11 could be analyzed that way. That isn't how I presented it.
13:46:03 12 It's possible that my demo example shows receiving an
13:46:08 13 utterance and using -- and accumulating short-term
13:46:11 14 knowledge, identifying the context and establishing intended
13:46:14 15 meaning and generating a response, I didn't analyze it in
13:46:20 16 that way.

13:46:21 17 Q. But you didn't show any utterance that Alexa has ever
13:46:27 18 processed, that's processed as required by the steps of this
13:46:31 19 claim, right?

13:46:32 20 A. I showed a demonstration and I analyzed documents.

13:46:37 21 Q. You're not answering my question. Showing a
13:46:41 22 demonstration doesn't prove anything to the jury. What the
13:46:44 23 jury has to see is that you proved that each step of this
13:46:48 24 claim is performed on a specific utterance so that we can
13:46:52 25 show that, you can show that the claim is met. You didn't

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13:46:55 1 do that, right?

13:46:56 2 A. I did not prove it by showing one specific utterance.

13:47:00 3 Q. So let's look at your presentation. And let's go to

13:47:17 4 the PDX3-12. Now, PDX3-12, you cite to that deep dive

13:47:32 5 Amazon document on the right. Is that correct?

13:47:36 6 A. That's correct.

13:47:37 7 Q. And what you show above, is the output of the NLU

13:47:44 8 when user says six, right?

13:47:49 9 A. I don't know if that would be considered the output

13:47:52 10 of the NLU. It certainly -- it's the NLU has reached a

13:47:54 11 number of different hypotheses about what six means.

13:48:00 12 Q. But we all agree that the output of the NLU is this

13:48:01 13 NBest list which is, it looks like this, right, it's got

13:48:12 14 intent and slots and multiple contexts, right?

13:48:15 15 A. Yes, that is true.

13:48:17 16 Q. And so this has already been done before any context

13:48:24 17 has been identified in your mapping of the claim, right?

13:48:34 18 A. So no, there is a context associated with what the

13:48:41 19 state of the system is already, and this is being

13:48:42 20 interpreted within the context of that context. And there

13:48:52 21 is further example of how it processes this two-step

13:48:52 22 approach that takes into account the context that it had

13:49:02 23 before, and looks at new utterances and interprets them.

13:49:07 24 Q. I'm confused now. So let's look at the language that

13:49:12 25 you highlighted and red in the claim. One or more words

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13:49:20 1 that have different meanings in different contexts. Do you
13:49:22 2 see that?

13:49:23 3 A. Yes.

13:49:23 4 Q. You're saying that this slide proves that, right?

13:49:26 5 A. I'm showing that this slide -- I'm saying that this
13:49:30 6 slide shows an example of Amazon considering the case where
13:49:34 7 the word six has different meanings and different contexts.

13:49:37 8 Q. And the different contexts you identify are volume
13:49:41 9 level and song name, or are those a different meaning?

13:49:41 10 A. So those are different slots within different
13:49:54 11 intents.

13:49:55 12 Q. Just to be clear, when you say volume level equals
13:49:59 13 six, that's one meaning for the word six; correct?

13:50:02 14 A. Yes.

13:50:03 15 Q. And time equals six is another meaning for the word
13:50:07 16 six, right?

13:50:08 17 A. That's right.

13:50:08 18 Q. And song name equals six is another meaning for the
13:50:13 19 word six, right?

13:50:14 20 A. Yes, because they each have different intents
13:50:18 21 associated with them.

13:50:19 22 Q. And those different meanings are in different
13:50:23 23 contexts, so the different contexts you show here are global
13:50:27 24 set volume intent, is that a context?

13:50:31 25 A. That's an intent, these are intents, and it's trying

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13:50:35 1 -- it's going to try to disambiguate, figure out which is
13:50:39 2 the correct intent.

13:50:42 3 Q. That wasn't the question, though. What the claim
13:50:45 4 requires is different meanings and different contexts.

13:50:48 5 A. Yes.

13:50:48 6 Q. We've gone over what the different meanings are. So
13:50:51 7 where are you showing the different contexts on these
13:50:54 8 slides?

13:50:54 9 A. Well, those different intents, set volume, multi-turn
13:51:03 10 notification, and multi-turn music are different -- in the
13:51:08 11 context of -- in the way of thinking about it in the claim,
13:51:12 12 those are different contexts.

13:51:13 13 Q. That was what I said originally. So you agree that
13:51:17 14 the different -- that set volume is a context, notifications
13:51:21 15 multi-turn intent is a context, music multi-turn intent is a
13:51:28 16 context, right?

13:51:31 17 A. In the sense of the patent, those are different
13:51:32 18 contexts, yes.

13:51:33 19 Q. We have three contexts here with a separate meaning
13:51:36 20 for each of them, right?

13:51:38 21 A. Yes.

13:51:39 22 Q. Okay. And we haven't picked a context, right?

13:51:40 23 A. Well, what do you mean we haven't picked a context?

13:51:41 24 Q. We'll get to that.

13:51:42 25 Now, this, what we see on this slide, this is an

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13:52:01 1 example of what I showed on my demonstrative of that table
13:52:07 2 with the different meanings; right?

13:52:10 3 A. I'm not sure I know what you're referring to.

13:52:12 4 Q. Well, this is a portion -- right. Here we go. This,
13:52:16 5 what I showed here, what I have changed 6:45, meaning two,
13:52:21 6 meaning three, that is equivalent, if could go back, to what
13:52:25 7 you showed at the top of your slide where it says get set
13:52:33 8 volume intent, that would be one of the outputs from one of
13:52:36 9 the deep neural networks and it would include six, the
13:52:42 10 meaning, the meaning of six is volume level, right?

13:52:46 11 A. I don't know that this is the output of an DNN. This
13:52:51 12 is an output -- this is output from the NLU which as I said
13:52:55 13 does things besides the DNN, this could have been the result
13:53:01 14 of an DNN, but I don't know how it produced this.

13:53:05 15 Q. And the same is true for the music intent song name
13:53:11 16 equals six, so six went into the music DNN and it figured
13:53:16 17 out that that could be the name of a song, right?

13:53:18 18 A. Again, I don't know that it went through the DNN to
13:53:21 19 come up with this, it could have gone in through a rule or
13:53:25 20 gone in through an FST.

13:53:28 21 Q. And the result, though, is that the NLU has already
13:53:32 22 determined the meaning of the word six in each of these
13:53:42 23 possible contexts, right?

13:53:43 24 A. Those different -- those different meanings are
13:53:45 25 hypothetically in an NBest list.

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13:53:50 1 Q. They are meanings for the word six in each of the
13:53:54 2 possible contexts, right?

13:53:55 3 A. I think that's what I just said.

13:54:02 4 Q. Now -- and at this point, we haven't used any
13:54:12 5 short-term shared knowledge, right?

13:54:17 6 A. I don't know that that's -- that that's true. The
13:54:22 7 NLU uses information from prior speech acts and from other
13:54:28 8 pieces of information.

13:54:30 9 Q. Well let's look at that. Let's look at PTX-226,
13:54:42 10 Mr. Patterson. Let's look at page 32. This is that
13:54:57 11 multi-turn example you talked about, right?

13:55:00 12 A. Yes.

13:55:01 13 Q. And in fact, the user is saying six, that's what we
13:55:07 14 saw on the top of your slide, PDX3-12, right, the result --
13:55:16 15 that six corresponds to the user saying six in this example,
13:55:20 16 right?

13:55:21 17 A. They're both saying six.

13:55:23 18 Q. Now, if we look in the same document and we go to the
13:55:34 19 next slide, 33, it explains that when the NLU processes that
13:55:42 20 word six to come up with those different meanings, it says
13:55:50 21 explicitly here, NLU models are currently not aware of
13:55:52 22 dialogue context, right?

13:55:52 23 A. It says that, yes.

13:55:52 24 Q. This is saying in fact, when Alexa interprets the
13:56:02 25 word six, it's not using any of that short-term shared

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13:56:08 1 knowledge about what the user had said before; right?

13:56:11 2 A. That's not how I interpret this, I interpret this as
13:56:14 3 saying the NLU model, the statistical models, the DNN's, may
13:56:19 4 not be aware of dialogue contexts but the rules and FST's
13:56:24 5 are.

13:56:25 6 Q. You haven't seen any Alexa source code or
13:56:30 7 documentation at least that you have shown the jury that
13:56:33 8 says that rules are FST's are where dialogue context, have
13:56:40 9 you?

13:56:40 10 A. I haven't shown the jury any source code.

13:56:43 11 Q. Or technical documents that said rules and FST's use
13:56:47 12 dialogue contexts, right?

13:56:49 13 A. That's not true. This document has examples of rules
13:56:55 14 and FST's running within the NLU along with models, and it's
13:57:01 15 showing use of dialogue contexts in this very example. So
13:57:06 16 from that I think it's quite reasonable --

13:57:09 17 Q. Let us walk through this example here to be a little
13:57:12 18 clear.

13:57:13 19 A. Okay.

13:57:13 20 Q. Because what happens in this example, is we run six
13:57:18 21 through the model with no dialogue context, as the Amazon
13:57:22 22 document itself says. We get to the next slide, 34, please,
13:57:32 23 Mr. Patterson. And this is what happens, right? The
13:57:36 24 recognizer generates these intents and slots, these contexts
13:57:42 25 and meaning of words that we just saw in your chart, right?

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13:57:51 1 A. This is showing for each of those utterances six,
13:57:57 2 yeah, and nope, the three different groups of three
13:58:02 3 different interpretations of those utterances.

13:58:04 4 Q. Right, and the one that you used in your chart is the
13:58:07 5 one for six, the top line, right?

13:58:10 6 A. That's right.

13:58:11 7 Q. We just saw in this document that those meanings were
13:58:16 8 generated without using any dialogue context, right, that's
13:58:21 9 what the document said?

13:58:21 10 A. Well, at this point in the process, it's showing you
13:58:24 11 what we get without dialogue contexts.

13:58:30 12 Q. Right, so the meanings of the word six have all been
13:58:33 13 determined without any dialogue contexts, right?

13:58:37 14 A. I don't know about determined, it's this is what it
13:58:41 15 is coming up with for each of these utterances just by
13:58:44 16 themselves.

13:58:47 17 Q. Right, but the intents and slots, set volume intent
13:58:51 18 and volume equals six, for example, that doesn't get changed
13:58:54 19 anywhere in NLU after it gets generated?

13:59:00 20 A. I mean, this example as I went through disambiguates
13:59:03 21 six to mean -- to mean what it's supposed to mean and then
13:59:10 22 uses the context interpreter to join back up with the point
13:59:20 23 in the dialogue where things have become ambiguous.

13:59:24 24 Q. Let's just be clear. Each of these examples here,
13:59:30 25 global set volume intent, notifications multi-turn intent,

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13:59:39 1 music multi-turn intent, they don't get changed anywhere in
13:59:42 2 the NLU process after they get generated in this step?
13:59:45 3 A. I don't know that they get changed or not, that isn't
13:59:48 4 what this example is using it for.
13:59:50 5 Q. Right, so as far as you know, all the meanings of the
13:59:53 6 words have already been determined before we have used any
13:59:59 7 dialogue context, right?
14:00:02 8 A. The words are -- this is talking about how the words
14:00:07 9 are received and how the words can then -- and then later on
14:00:12 10 it talks about how the words can be used to disambiguate an
14:00:17 11 existing dialogue.
14:00:18 12 Q. Let's be clear. You just identified volume level
14:00:23 13 equals six as a meaning of the word six, right?
14:00:27 14 A. That is -- that's one of the possible meanings, yes.
14:00:30 15 Q. Right. And time equals six is another meaning of the
14:00:33 16 word six, right?
14:00:34 17 A. Yes.
14:00:35 18 Q. And song name equals six is another meaning of the
14:00:38 19 word six, right?
14:00:39 20 A. Yes.
14:00:40 21 Q. And those meanings have all already been established
14:00:42 22 once we get to this step in the NLU process; right?
14:00:43 23 A. I don't know what you mean by established.
14:00:44 24 Q. They're right there.
14:00:50 25 A. So those are three hypotheses.

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14:00:52 1 Q. Right, and the output of NLU is a set of hypotheses,
14:00:57 2 right?

14:00:58 3 A. It's a NBest list of hypotheses.

14:01:03 4 Q. Right, so these are exactly the hypotheses that are
14:01:08 5 going to be output from the NLU, right?

14:01:12 6 A. This is showing what the NLU comes up with. I don't
14:01:17 7 -- I think calling that establishing the meaning is
14:01:19 8 misleading.

14:01:20 9 Q. Okay. Let's go forward in your example. After we
14:01:41 10 accumulate the short-term shared knowledge, we accumulate
14:01:51 11 the long-term shared knowledge, we have to identify a
14:02:01 12 context. Right?

14:02:01 13 A. I'm sorry, we're talking about the '681?

14:02:06 14 Q. Claim 13.

14:02:07 15 A. Okay.

14:02:08 16 Q. And look at slide PDX3-21, please, Mr. Patterson.
14:02:21 17 Sorry, that's the wrong slide. Go to slide 20. Yeah, that
14:02:41 18 was wrong. You actually didn't show a slide where you
14:02:51 19 explained how Alexa identifies a context associated with the
14:03:01 20 utterance, did you?

14:03:02 21 A. I don't remember -- I know I talked about it, I don't
14:03:05 22 remember whether it was in the slide or not.

14:03:07 23 Q. And you didn't actually identify what the context
14:03:12 24 was, did you? You have to have a word, it can have
14:03:20 25 different meanings in multiple contexts and then you're

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14:03:24 1 supposed to somehow identify one of those contexts from this
14:03:28 2 long-term and short-term knowledge; right? Isn't that
14:03:40 3 correct?

14:03:42 4 A. I'm sorry, which element are we talking about here?

14:03:45 5 Q. Well, let's go to--well, I don't have it highlighted
14:03:49 6 because you don't have a slide that shows it, but it's the
14:03:53 7 identify context element.

14:03:57 8 A. Okay.

14:03:57 9 Q. Right, we can go here. This is the element where we
14:04:04 10 have this utterance, you have some long-term shared
14:04:09 11 knowledge and some short-term shared knowledge, you're
14:04:12 12 supposed to use that to identify context; right? And you
14:04:17 13 didn't show that step to the jury at all this morning, did
14:04:21 14 you?

14:04:23 15 A. So we talked about examples involving the Hunger
14:04:35 16 Games example. We had an example involving disambiguating
14:04:44 17 the word -- you know, 6:30 based upon short-term knowledge.

14:04:53 18 Q. But that's not what's required here. Here we have to
14:04:57 19 take the utterance we started with and we have to identify a
14:05:00 20 context associated with it, and we have to do that in a
14:05:04 21 specific way. It uses both the short-term shared knowledge
14:05:09 22 and also long-term shared knowledge, right? That's what's
14:05:14 23 required here. And you didn't show a single example of
14:05:17 24 that, did you?

14:05:23 25 A. I don't remember what the examples would be. The

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14:05:32 1 Harry Potter example, where it was deciding whether or not
14:05:37 2 it was a song or an album was using knowledge about whether
14:05:47 3 the person had purchased the album.

14:05:50 4 Q. Well, that's not both long-term shared knowledge and
14:05:55 5 short-term shared knowledge, is it? You got to use both,
14:06:00 6 right?

14:06:03 7 A. Let me think about that example.

14:06:09 8 Q. You certainly didn't explain this to the jury, did
14:06:12 9 you?

14:06:12 10 A. Well, I explained to the jury that we were
14:06:15 11 identifying a context associated with the utterance where it
14:06:22 12 was using short-term knowledge that came from additional
14:06:34 13 elements in the conversation.

14:06:34 14 Q. You didn't show that. Tell me what the utterance
14:06:40 15 was, what the additional conversation information was, and
14:06:44 16 what the long-term shared knowledge was. Because that is
14:06:48 17 all required to show that you did this.

14:06:52 18 A. So, I showed that 6:30 was a.m. -- was a.m. based
14:07:03 19 upon subsequent information that came in on the next
14:07:08 20 utterance.

14:07:12 21 Q. That doesn't have anything to do with what this claim
14:07:14 22 requires. You're just talking about a Harry Potter example,
14:07:18 23 now you're switching to 6:30 a.m. Do you have any example
14:07:22 24 where you actually did this?

14:07:25 25 A. I don't know that I have a specific example in mind

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14:07:28 1 other than the ones that I presented.

14:07:29 2 Q. So you acknowledge that you did not show the jury
14:07:33 3 that this required element of the claim is actually done by
14:07:37 4 Alexa, right?

14:07:38 5 A. Alexa is in the NLU as we saw from the documents, is
14:07:46 6 -- is disambiguating words that have multiple meanings based
14:07:53 7 upon different pieces of information.

14:07:57 8 Q. Okay. But that is not what this claim requires. The
14:07:59 9 claim does not say disambiguate words using different pieces
14:08:05 10 he have information, that is not what this claim requires,
14:08:07 11 the claim requires these specific steps and you haven't
14:08:10 12 shown that Alexa does any of them, and specifically not this
14:08:19 13 one; right?

14:08:20 14 Let's go forward to the last element -- well,
14:08:38 15 let's go forward to the last element which is to generate
14:08:44 16 response to utterance, this would be PDX3-9, I think, can
14:08:52 17 you see that, Mr. Patterson. Sorry, that's not the right
14:09:00 18 number. We don't have a slide for this either. Let's go
14:09:15 19 back in to the claim itself, Mr. Patterson. Here we go.

14:09:24 20 So this claim element requires not just
14:09:28 21 generating a response, but it requires wherein the
14:09:32 22 conversational speech engine grammatically or syntactically
14:09:36 23 adapts the response based on the intended meaning, do you
14:09:42 24 see that?

14:09:43 25 A. Yes.

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14:09:44 1 Q. You do not cite a single Amazon document that talks
14:09:49 2 about grammatically or syntactically adapting this response,
14:09:55 3 correct?

14:09:56 4 A. I showed examples of responses that Alexa was
14:10:04 5 generating that were responsive to the needs of the user.
14:10:10 6 And those responses were grammatically or syntactically
14:10:17 7 adapted.

14:10:17 8 Q. You didn't show that. You showed a response, but
14:10:20 9 this requires more than generating a response, it
14:10:23 10 specifically requires grammatically or syntactically
14:10:28 11 adapting it, and what you showed was this slide here which
14:10:31 12 doesn't show anything about grammatically or syntactically
14:10:35 13 adapting anything, does it?

14:10:37 14 A. No, I think one of ordinary skill would understand
14:10:40 15 that grammatically or syntactically adapted simply means
14:10:44 16 that it's not just a canned response, it's not just okay, or
14:10:49 17 some canned response, it's something which is customized to
14:10:53 18 the situation.

14:10:54 19 Q. You haven't seen any Amazon source code that
14:10:57 20 grammatically or syntactically adapts a response, correct?

14:11:00 21 A. I'm sure I have, Amazon respond -- and I showed in my
14:11:07 22 demo that Amazon responds to things in ways that are
14:11:10 23 specific to the user's request.

14:11:12 24 Q. No, that wasn't my question. My question was it's a
14:11:15 25 true fact you haven't seen any Amazon source code that

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14:11:19 1 grammatically or syntactically adapts a response, correct?

14:11:22 2 A. I don't recall specifically.

14:11:24 3 Q. You haven't seen any testimony from any Amazon
14:11:28 4 witness or engineer that says that Amazon grammatically or
14:11:33 5 syntactically adapts a response, correct?

14:11:35 6 A. They haven't so-they don't use those words, they say
14:11:38 7 that the response is in response to what the user has
14:11:42 8 requested.

14:11:43 9 Q. And the only evidence you provided to this jury today
14:11:47 10 is this diagram that doesn't say anything about
14:11:51 11 grammatically or syntactically adapting a response, correct?

14:11:57 12 A. I provided this and the fact that Amazon is
14:12:01 13 responding to a request from a user.

14:12:02 14 Q. Okay. Let's move to the '176 patent. If we look at
14:12:22 15 slide PDX3-32. You put up this slide in this element about
14:12:31 16 interpreting the recognized words or phrases wherein
14:12:45 17 interpreting the recognized words or phrases includes
14:12:49 18 establishing a context, do you see that?

14:12:51 19 A. Yes.

14:12:51 20 Q. And your example utterance was Alexa, I want to buy
14:12:57 21 an iPhone case; right?

14:13:02 22 A. That was one example I gave, yes.

14:13:10 23 Q. Right. When you say Alexa, I want to buy an iPhone
14:13:15 24 case, this context interpreter is not used at all?

14:13:20 25 A. This particular example here that was shown was

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14:13:25 1 associated with the two-step approach for resolving
14:13:29 2 ambiguities and things of that nature.

14:13:32 3 Q. You're not answering my question. In the example
14:13:35 4 that you used to try to show that Alexa does this, your
14:13:38 5 utterance was Alexa, I want to buy an iPhone case, and it's
14:13:43 6 a true fact that when you say Alexa, I want to buy an iPhone
14:13:47 7 case, what you have shown on the right-hand side of this
14:13:50 8 slide is not used at all?

14:13:54 9 A. I don't believe it's using the two-step approach
14:13:58 10 that's talked about in this part of the document.

14:14:01 11 Q. So you agree with me that this is inapplicable to
14:14:04 12 your example, right?

14:14:08 13 A. The context interpreter may well be being used but
14:14:12 14 it's definitely not part of a two-step approach.

14:14:21 15 Q. Let's go to slide PDX3-35, please, Mr. Patterson.
14:14:28 16 Now, this is the element that requires reinterpreting the
14:14:32 17 words or phrases in response to your predetermined event.
14:14:37 18 Right?

14:14:38 19 A. Yes.

14:14:39 20 Q. And what you show on the right is in re-ranking
14:14:42 21 process within Alexa's NLU?

14:14:43 22 A. That's correct.

14:14:44 23 Q. And this re-ranking process happens before the NLU
14:14:48 24 outputs its result; right?

14:14:50 25 A. Well, the re-ranking process, there can be a run

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14:15:04 1 through the system where it has -- where it ranks it, then
14:15:08 2 there is an issue, there is something that happens, and
14:15:12 3 there is a signal of some sort and then it re-ranks and then
14:15:16 4 it outputs the re-ranked version.

14:15:19 5 Q. You said that, but what really happens is that within
14:15:24 6 the NLU, the re-ranker will re-rank based on information
14:15:31 7 that had already been provided to the NLU when it was
14:15:34 8 interpreting the current utterance, right?

14:15:37 9 A. Well the timing of when it gets that information
14:15:43 10 isn't particularly discussed. It's -- it has -- the idea is
14:15:48 11 that the NLU produces an NBest list, and then other
14:15:53 12 information can be brought in to re-rank it.

14:15:56 13 Q. But the NBest list is not provided to a speechlet or
14:16:07 14 a program that would respond to the user until after this
14:16:10 15 re-ranking process has been done, right?

14:16:12 16 A. Not necessarily, under system features that feed the
14:16:16 17 re-ranker, one of the inputs is the ASR. So you could have
14:16:21 18 -- you could have things feeding into the -- the decision to
14:16:25 19 re-rank that come in at various points in time.

14:16:28 20 Q. Well, let's be clear about this. When it says ASR,
14:16:32 21 that's the ASR results that were -- that was produced, these
14:16:36 22 are the words from speech recognition that produced or that
14:16:40 23 are being used to generate the intents we're looking at
14:16:44 24 here; right?

14:16:48 25 A. I mean, it doesn't -- it doesn't say that, and the

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14:16:51 1 ASR was already provided as input to the NLU.

14:16:55 2 Q. Let's be clear. You don't have any evidence that
14:16:59 3 re-ranker somehow operates because a user indicates that
14:17:05 4 Alexa made a mistake, right, you just made that up?

14:17:09 5 A. That the user said it? I don't think I said that
14:17:13 6 because the user said it made a mistake.

14:17:15 7 Q. You don't identify any actual predetermined event
14:17:18 8 that would cause Alexa's NLU to reinterpret the words or
14:17:25 9 phrases, correct?

14:17:26 10 A. It says that their system features and various kinds
14:17:30 11 of input including context that would cause it to re-rank.

14:17:31 12 Q. That wasn't the question. You haven't identified a
14:17:37 13 single predetermined event that would could cause Alexa to
14:17:40 14 somehow reinterpret the words or phrases, correct?

14:17:43 15 A. I haven't picked one out, no.

14:18:07 16 Q. Let's look at slide PDX3-42. This one that interpret
14:18:14 17 the natural language utterance based to the advertisement
14:18:16 18 and responsive to the existence of a pronoun in the natural
14:18:20 19 language utterance, determine whether the pronoun refers to
14:18:22 20 one or more of the product or service, and you understand
14:18:27 21 that for Alexa's NLU to interpret a pronoun, a speechlet has
14:18:30 22 to first provide a dialog act, right?

14:18:42 23 A. I'm sorry, say that again.

14:18:43 24 Q. Sure, for Alexa's NLU to actually determine the
14:18:48 25 meaning of a pronoun if it's going to do that, it has to

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14:18:51 1 first receive a dialog act from the speechlet, right?

14:18:59 2 A. Dialog act from the speechlet. I'm not sure I'm
14:19:03 3 following what you mean in this context here.

14:19:05 4 Q. Sure. So you actually have no evidence other than
14:19:10 5 what you thought you heard from Alexa, whether or not the
14:19:15 6 NLU actually determines whether the pronoun refers to one or
14:19:21 7 more of a product or service, correct?

14:19:23 8 A. So, I don't know whether it's -- I don't know what
14:19:28 9 it's done with the pronoun, I don't know that -- what it
14:19:31 10 thinks about the pronoun, what I know and what I have shown
14:19:34 11 here, is that it is responsive to the existence of the
14:19:42 12 pronoun in the natural language utterance. So the pronoun
14:19:46 13 exists in one utterance, doesn't exist in another, and there
14:19:49 14 are different responses.

14:19:50 15 Q. Right. But you don't know whether in either of these
14:19:54 16 cases the pronoun is actually used by the NLU, is used to
14:20:01 17 identify a product or service, right?

14:20:03 18 A. I don't know -- in this particular case, I didn't
14:20:07 19 analyze any deeper than seeing that it clearly is doing
14:20:12 20 exactly what's in the claim element.

14:20:15 21 Q. Well it's not, right, because this claim element
14:20:20 22 requires that the system, right, Alexa, do a determination,
14:20:23 23 which is whether the pronoun refers to a product or service.
14:20:26 24 And we both know from your deposition and the evidence in
14:20:30 25 this case, that when a user says buy it now, Alexa ignores

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14:20:41 1 the it, right, you get the same result when you say buy now,
14:20:46 2 right?

14:20:46 3 A. Buy it now is a different example than this.

14:20:49 4 Q. I understand. I understand. We agree on that, don't
14:20:52 5 we?

14:20:52 6 A. I believe it is true if you say buy now or buy it
14:20:57 7 now, the behavior is the same.

14:20:59 8 Q. Right.

14:21:00 9 A. Clearly here what color produces a different result
14:21:05 10 from what color is it.

14:21:06 11 Q. Sure. And the reason what color gets a different
14:21:09 12 result, is that the intent is generated from what color gets
14:21:14 13 routed through a different speechlet in this example in the
14:21:18 14 shopping speechlet, right?

14:21:20 15 A. It would seem that what color gets routed to
14:21:24 16 something that's looking up on the internet for a
14:21:27 17 definition, but it also, it's looking up the color peach,
14:21:31 18 which I don't know where that came from. It just seems
14:21:35 19 clear that the existence of the pronoun tells Alexa that
14:21:40 20 we're talking about the purchase that we were making
14:21:44 21 previously.

14:21:45 22 Q. Well, the existence of the pronoun may make it more
14:21:50 23 likely that the intent gets routed to the shopping
14:21:54 24 speechlet, it doesn't show that the NLU resolves the pronoun
14:21:58 25 to anything, right?

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14:22:00 1 A. It's clearly showing that when I use the pronoun,
14:22:08 2 that I'm talking about the product that I'm trying to
14:22:11 3 purchase.

14:22:11 4 Q. Well that's not true. As far as the NLU knows, this
14:22:15 5 could be just like buy now or buy it now, the only
14:22:21 6 difference in this example is one of those utterances got
14:22:24 7 routed to something other than shopping; right?

14:22:27 8 A. I think the behavior of the system speaks for itself.

14:22:32 9 Q. Well, let's be clear, you haven't identified any
14:22:37 10 Amazon engineer testimony that supports that the pronoun is
14:22:40 11 being resolved in this example, right?

14:22:45 12 A. You said the pronoun is being resolved --

14:22:48 13 Q. Sure, you have no evidence from this slide from any
14:22:52 14 Amazon engineer that this pronoun is being resolved in the
14:22:55 15 way the claim requires; right?

14:22:57 16 A. I have no testimony from an Amazon engineer about it.

14:23:00 17 Q. And you have no document from Amazon --

14:23:05 18 THE COURT: I think he was --

14:23:07 19 You can finish your answer.

14:23:10 20 THE WITNESS: Thank you, Your Honor. I think
14:23:12 21 that the claim doesn't say resolve, it's clear that the
14:23:14 22 presence of the pronoun tells Alexa that we're talking about
14:23:17 23 the thing that I'm buying it, and you can tell that by the
14:23:20 24 fact that it's giving me the color stone, which is the color
14:23:23 25 of the thing that is being purchased.

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14:23:32 1 BY MR. HADDEN:

14:23:33 2 Q. Let's be clear. You do not have any Amazon document
14:23:36 3 that says that Amazon's NLU determines whether the pronoun
14:23:41 4 it refers to anything; correct?

14:23:43 5 A. I am not presenting -- I am not presenting Amazon
14:23:49 6 technical documents on this.

14:23:50 7 Q. You are not presenting Amazon source code that would
14:23:54 8 show that the pronoun is determined to refer to anything;
14:23:58 9 right?

14:23:59 10 A. I'm not presenting source code here.

14:24:01 11 Q. Let's look at the '703 patent. Now, the utterance
14:24:12 12 that you used when you were explaining this example was
14:24:19 13 Alexa, I want to buy an iPhone case, right?

14:24:21 14 A. Yes, I believe so.

14:24:24 15 Q. And when you say Alexa, I want to buy an iPhone case,
14:24:31 16 you don't have any evidence to show that Alexa would obtain
14:24:38 17 your shipping information; right?

14:24:45 18 A. Well it shipped it to my home, so --

14:24:48 19 Q. Let's be clear. Let's look at slide PDX3-55, please,
14:25:04 20 Mr. Patterson. So if we look at the element obtain without
14:25:10 21 further user input after the receipt of the user input
14:25:13 22 shipping information, do you see that?

14:25:15 23 A. Yes.

14:25:16 24 Q. Right. So this stuff about without further user
14:25:20 25 input means that the user can't say anything else after they

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14:25:25 1 said in your example Alexa, I want to buy an iPhone case;
14:25:29 2 right?

14:25:57 3 A. So, when I say buy it now --

14:26:01 4 Q. That's not the utterance that got you started. You
14:26:04 5 got to have the same utterance, right, we start receive a
14:26:07 6 user input, comprising a natural language utterance. And
14:26:11 7 what you said was, I want to buy an iPhone case, right?

14:26:14 8 A. I did say that, that's right.

14:26:16 9 Q. So that's the user input. Now without any other user
14:26:21 10 input, we have to obtain shipping information. Right?

14:26:27 11 Alexa doesn't obtain your shipping information when you say
14:26:32 12 I want to buy an iPhone case, right?

14:26:38 13 A. I believe when I say buy it now, it then goes through
14:26:44 14 and --

14:26:49 15 Q. Sir you're not reading the claim. It says you have
14:26:55 16 to obtain without further user input after the receipt of
14:26:59 17 the user input. And the user input was I want to buy an
14:27:05 18 iPhone case, right?

14:27:09 19 A. And the user --

14:27:12 20 Q. Let me finish the question, please, so it has to
14:27:18 21 obtain the shipping information at that point without any
14:27:24 22 further user input. So you haven't shown and it's a true
14:27:30 23 fact that Alexa does not obtain the shipping information
14:27:36 24 when you say Alexa I want to buy an iPhone case; right?

14:27:42 25 A. That may well be, when I say Alexa buy it now, at

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14:27:26 1 that point it obtains my shipping information and my payment
14:27:29 2 information and it process all the way through.

14:27:31 3 Q. Right and when --

14:27:32 4 THE COURT: Hold on, you're still cutting him
14:27:36 5 off when he's still talking, you finish and then you start.
14:27:39 6 Go ahead, sir.

14:27:40 7 MR. HADDEN: Sorry, Your Honor.

14:27:42 8 THE WITNESS: When I say Alexa buy it now, at
14:27:45 9 that point, it obtains my shipping information, it obtains
14:27:47 10 my payment information and it completes the purchase without
14:27:50 11 any further user intervention.

14:27:52 12 BY MR. HADDEN:

14:27:52 13 Q. Sure. But if we look at what the claim requires, it
14:27:55 14 requires that the shipping information has been obtained
14:27:58 15 after you say in your example Alexa, I want to buy an iPhone
14:28:01 16 case because it explicitly requires without further user
14:28:04 17 input. If you were going to say buy it now, that would be
14:28:10 18 further user input; right?

14:28:11 19 A. I think buy it now is the user -- is the initial user
14:28:20 20 input.

14:28:22 21 Q. That's not what you told us this morning. This
14:28:25 22 morning you told us, it was I want to buy an iPhone case.
14:28:30 23 So let's say instead you said buy it now. If you say buy it
14:28:38 24 now, the rest of the claim doesn't work because you don't
14:28:42 25 identify the product based on buy it now; right? You need

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14:28:59 1 to pick one input and stick with it through the claim.

14:29:16 2 A. I think when I said I want to buy an iPhone case,
14:29:21 3 that was establishing various information, short-term
14:29:24 4 information, and I said buy it now, that was the utterance
14:29:30 5 that's being talked about here, and from that it completed
14:29:34 6 the purchase.

14:29:38 7 Q. Well, the problem is if you look at the identifying
14:29:43 8 stuff, right, identify without further user input after the
14:29:48 9 receipt of the user input, the product or service to be
14:29:54 10 purchased, right? Now the product you're trying to buy, the
14:29:58 11 iPhone case, it had already been identified before you said
14:30:02 12 buy it now. That's why in your presentation to this jury
14:30:05 13 this morning, you said instead, Alexa, I want to buy an
14:30:09 14 iPhone case, right?

14:30:10 15 A. I think you're misinterpreting here. The identify,
14:30:15 16 obtain and obtain steps, there is an identify, and then the
14:30:20 17 next step is obtain, and the next was obtain, those are all
14:30:24 18 internal. So the obtain, I have already provided payment
14:30:27 19 information to Amazon, so when it says obtain, I have
14:30:31 20 already provided that on the website. And when it says
14:30:34 21 obtain payment information, it's getting it from the
14:30:37 22 database. And when I say obtain -- obtain without further
14:30:41 23 user input shipping information, it's doing that from my
14:30:44 24 account, the long-term information that it has with Amazon.
14:30:50 25 So those identify, obtain, obtain, are internal.

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14:30:57 1 Q. Understood. I'm going back to what your input was.
14:31:02 2 Your input, Alexa I want to buy an iPhone case, is that
14:31:06 3 where we start this claim, or do we start with the claim
14:31:10 4 with the buy it now?

14:31:11 5 A. I think for the purposes of this analysis, it's Alexa
14:31:14 6 buy it now.

14:31:14 7 Q. So if it's buy it now, nowhere did you show the
14:31:18 8 identify without further user input receipt of the user
14:31:22 9 input the product or service to be purchased. Right?
14:31:27 10 That's not identified by buy it now, right?

14:31:31 11 A. That information is already part of the context of
14:31:33 12 the conversation. I've already established it and the
14:31:38 13 identify is that Alexa is getting it from the context.

14:31:47 14 Q. I didn't follow that. But we'll move on.

14:31:50 15 Let's look at the last element of this claim,
14:31:52 16 please, Mr. Patterson. Now, this required that the system,
14:31:54 17 Alexa, request, provide a request for user confirmation to
14:32:00 18 use the payment information and the shipping information for
14:32:10 19 a purchase transaction, correct? And you didn't show that
14:32:12 20 at all; correct? You showed this slide. Nowhere did you
14:32:20 21 show Alexa saying Dr. Polish, please confirm this payment
14:32:31 22 information and the shipping information, right?

14:32:40 23 A. I think that's right, I think the receipt was sent --
14:32:44 24 was sent via e-mail.

14:32:46 25 Q. And you mentioned this morning that though you didn't

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14:32:54 1 show it to the jury, that you could somehow have a
14:32:58 2 single-turn utterance that would itself include short-term
14:33:05 3 knowledge about itself, right?

14:33:10 4 A. I don't think I said exactly those words, but I did
14:33:13 5 say that you could have -- you could have -- it's possible
14:33:16 6 to have a single -- a single utterance that would have
14:33:20 7 short-term information in it.

14:33:23 8 Q. But you didn't give the jury any example of one of
14:33:26 9 those, did you?

14:33:27 10 A. That's correct.

14:33:28 11 Q. You never testified that such a thing actually --
14:33:31 12 well, in all of the interaction that you talked about with
14:33:34 13 Alexa, you did not provide an example of such an utterance,
14:33:41 14 correct?

14:33:41 15 A. That's right.

14:33:43 16 MR. HADDEN: No further questions. Thank you.

14:33:46 17 THE COURT: Redirect.

14:33:48 18 REDIRECT EXAMINATION

14:33:49 19 BY MR. YOON:

14:33:49 20 Q. So, Dr. Polish, a couple of things. First of all, in
14:33:54 21 the questioning by counsel for Amazon, counsel did not ask
14:34:02 22 you about the speaker ID or Voice ID, did he?

14:34:05 23 A. That's correct.

14:34:06 24 Q. And the speaker ID and Voice ID you showed in your
14:34:10 25 demonstration, what is that?

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14:34:12 1 A. So, the Speaker Voice ID is a -- its a component of
14:34:20 2 the Alexa system that you have to enroll, when you speak a
14:34:25 3 number of sentences, I think it was in my example, and it
14:34:29 4 learns your voice so that later on when you use the system,
14:34:35 5 it identifies you as you, and can customize the operation of
14:34:39 6 it for you.

14:34:39 7 Q. And is that long-term shared information that's used
14:34:45 8 in each communication with Alexa thereafter?

14:34:48 9 A. Yes, absolutely.

14:34:49 10 Q. Now, there was a discussion regarding -- if we could
14:34:54 11 have slide PDX3-55, on the screen. Do you recall there was
14:35:10 12 a discussion, if we could just focus on the right side for a
14:35:13 13 moment. There was a discussion regarding the I want to buy
14:35:18 14 an iPhone case and buy it now. Do you recall that?

14:35:21 15 A. Yes.

14:35:21 16 Q. And this is after you had already done the speaker
14:35:24 17 ID?

14:35:24 18 A. Yes.

14:35:25 19 Q. And so at the time you did this transaction because
14:35:28 20 of the speaker ID, what did Alexa know?

14:35:32 21 A. It knew it was me, and it had my payment and shipping
14:35:35 22 information.

14:35:35 23 Q. Okay. If we go to the bottom on there. The
14:35:38 24 statement buy it now, do you see that we had some discussion
14:35:42 25 about pronouns, do you recall that, sir?

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14:35:45 1 A. Yes.

14:35:46 2 Q. And when Alexa heard the word it, what did it

14:35:50 3 understand it would refer to?

14:35:51 4 A. Well, it was referring to the previously established

14:35:54 5 iPhone case that I had asked for.

14:35:56 6 Q. So when you said buy it now, that phrase, did Alexa

14:36:04 7 know what it was going to buy?

14:36:06 8 A. Yes.

14:36:06 9 Q. Did it have your shipping information?

14:36:08 10 A. Yes.

14:36:09 11 Q. Did it have your financial information?

14:36:11 12 A. Yes.

14:36:11 13 Q. Did it execute the transaction without further input?

14:36:14 14 A. It did.

14:36:15 15 Q. Now, let's now go to PTX-226. And this is the

14:36:21 16 PTX-226, this is the natural language deep dive that has

14:36:31 17 been shown to a large number of people at Amazon?

14:36:34 18 A. Yes.

14:36:35 19 Q. And this was what Mr. Vanee testified about?

14:36:38 20 A. Yes.

14:36:38 21 Q. And both counsel for VoiceBox and Amazon have asked

14:36:42 22 you about this document; correct?

14:36:42 23 A. Yes.

14:36:42 24 Q. Now, looking at this one, let's now go to the example

14:36:50 25 given in the Amazon, actual Amazon technical document, shall

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14:36:55 1 we. And if we could turn to page 12. Slide 32, I'm sorry,
14:37:03 2 slide 32.

14:37:04 3 This is the multi-turn example about setting an
14:37:09 4 alarm clock.

14:37:11 5 A. Yes.

14:37:11 6 Q. And prior to this conversation, Alexa would have the
14:37:17 7 long-term information from your speaker ID?

14:37:19 8 A. Yes.

14:37:20 9 Q. And if, for example, you had previously set the
14:37:24 10 alarm, Alexa would also have the long-term information about
14:37:27 11 what was previously set as an alarm?

14:37:30 12 A. Yes.

14:37:30 13 Q. Let's walk through what if actual Amazon technical
14:37:34 14 document says. The first phrase there is what the user
14:37:39 15 would say to Alexa, Alexa set alarm. That's an utterance,
14:37:43 16 correct?

14:37:43 17 A. Yes.

14:37:44 18 Q. And if we could have in a split screen this slide and
14:37:49 19 Claim 13 of the '681 patent on the screen. Let's walk
14:37:53 20 through the element.

14:37:58 21 So, looking at Claim 13, the first one is
14:38:03 22 receive an utterance at a voice input device?

14:38:07 23 A. Yes.

14:38:08 24 Q. If we can just highlight the first part of that one.

14:38:12 25 In this example, has Alexa received an utterance

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14:38:15 1 at a voice input device?

14:38:17 2 A. Yes.

14:38:18 3 Q. Now, let's go to see what happened when you say that,
14:38:23 4 Alexa says for what time? Do you see that?

14:38:26 5 A. Yes.

14:38:26 6 Q. And now the user says six. Do you see that?

14:38:30 7 A. Yes.

14:38:31 8 Q. Now, let's go to what is shown in the Alexa technical
14:38:41 9 document. If we can go to slide 36. At slide 36, the
14:38:50 10 statement six is made, do you see that?

14:38:53 11 A. Yes.

14:38:53 12 Q. And at the time the word six is made in this
14:38:57 13 conversation with Alexa, has short-term knowledge, shared
14:39:02 14 knowledge been accumulated about the current conversation?

14:39:05 15 A. Yes.

14:39:06 16 Q. And what is that?

14:39:07 17 A. Well, that we're working on an alarm and that we're
14:39:13 18 setting a notification.

14:39:15 19 Q. Right. And in fact, the previous intent was set
14:39:19 20 notification intent, that's to set the alarm?

14:39:22 21 A. Right, that's at least in part the context and it is
14:39:25 22 the short-term information.

14:39:26 23 Q. If we can highlight short-term shared knowledge about
14:39:30 24 the current conversation. And if we can highlight
14:39:42 25 accumulate, too.

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14:39:47 1 Let's talk about the next element, accumulate
14:39:50 2 long-term shared knowledge about the user. Do you see that?
14:39:53 3 A. Yes.
14:39:54 4 Q. And an example of that was the speaker ID that you
14:39:58 5 showed in your example?
14:39:59 6 A. Yes.
14:39:59 7 Q. And another example would be a previous alarm?
14:40:03 8 A. Yes.
14:40:05 9 Q. Now, let's go back to the multi-turn example in the
14:40:10 10 Amazon technical document. Can we go back to slide 32. And
14:40:14 11 you see that in response to six, Alexa says is that six in
14:40:19 12 the morning or evening. Do you see that?
14:40:21 13 A. Yes.
14:40:21 14 Q. And so now if we could go to slide 38, at this time,
14:40:34 15 from previous conversations would Alexa know that this was
14:40:39 16 for an alarm to be set?
14:40:41 17 A. Yes.
14:40:41 18 Q. Would that be the previous intent?
14:40:42 19 A. Yes, it would.
14:40:43 20 Q. And would Alexa know in the short-term information
14:40:47 21 what time was previously offered in the build slot?
14:40:52 22 A. It has time equals 0600 and 1800.
14:40:53 23 Q. When you say morning, what does Alexa do having known
14:41:02 24 the context of the conversation in the previous short-term
14:41:05 25 information?

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14:41:06 1 A. Then it changes the slot to be time equals 0600.

14:41:11 2 Q. Okay. And so looking at the next element, it says

14:41:15 3 identify a context associated with the utterance, did Alexa

14:41:22 4 do that?

14:41:24 5 A. Yes.

14:41:24 6 Q. Did it use both the short-term and long-term

14:41:27 7 knowledge?

14:41:27 8 A. Yes.

14:41:27 9 Q. For example, with regards to the long-term knowledge,

14:41:30 10 would that be the speaker ID?

14:41:32 11 A. Yes.

14:41:33 12 Q. And if you were changing the alarm, would the

14:41:36 13 long-term knowledge include the previous alarm?

14:41:39 14 A. Yes.

14:41:40 15 Q. Now, if you look at the next element, establish an

14:41:44 16 intended meaning for an utterance within the identified

14:41:46 17 context, as shown in slide 38, does Alexa do that?

14:41:53 18 A. Yes.

14:41:54 19 Q. And if you go to the last element, generate a

14:41:57 20 response to the utterance, if we can now go back to slide

14:42:00 21 32, after the user says morning, what does Alexa do?

14:42:02 22 A. Well, it has figured out the slot now and it comes

14:42:13 23 back with alarm set for 6:00 a.m. tomorrow.

14:42:16 24 Q. So does Alexa practice that element in the example

14:42:20 25 that you provided?

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14:42:20 1 A. Yes.

14:42:22 2 Q. Now, there was some discussion about whether or not
14:42:29 3 Alexa might ask the user to help it resolve ambiguity, do
14:42:35 4 you recall that?

14:42:35 5 A. Yes.

14:42:36 6 Q. You can take that down, Mr. Smith. If we could go to
14:42:39 7 slide 24.

14:42:40 8 Actually, go to slide 23, please. This is on
14:42:56 9 PTX-226, slide 23, I believe, PTX, the actual exhibit. Next
14:43:01 10 page. And next page. There it is.

14:43:13 11 Are there situations where for example in the
14:43:17 12 utterance play Hunger Games that Alexa would find what they
14:43:21 13 call true ambiguity?

14:43:24 14 A. Yes.

14:43:24 15 Q. In this situation here, the scores were close, .82
14:43:30 16 and point .81.

14:43:31 17 A. Right.

14:43:31 18 Q. Because the scores were so close, Alexa couldn't make
14:43:34 19 a call as to what would be the blue arrow, is that fair to
14:43:38 20 say?

14:43:39 21 A. That's right.

14:43:40 22 Q. If you go to the next page. When Alexa faces true
14:43:44 23 ambiguity, does it ask the user to help it correct it?

14:43:44 24 A. Yes, this is an example of it, where it's asking the
14:43:50 25 user for some information to help it out.

Polish - redirect

14:43:55 1 Q. And would that be part of a multi-turn conversation
14:44:00 2 that Alexa would have with the user?
14:44:02 3 A. Yes. This is a multi-turn conversation.
14:44:04 4 Q. In that conversation, would the NLU do multiple
14:44:09 5 turns?
14:44:09 6 A. Yes, it would cycle through multiple times to resolve
14:44:16 7 it.
14:44:16 8 Q. And if we could now go back to slide 22. And sir,
14:44:26 9 there were some questions about whether or not Alexa
14:44:31 10 interpreted certain things. But I wanted to point out one
14:44:34 11 thing here, actually. If we go back to the question that
14:44:40 12 you were asked -- I apologize, I'm going to move to a
14:44:45 13 different slide and come back to this. It was -- do you see
14:44:51 14 on slide 33, please. Do you remember counsel for Amazon
14:45:00 15 asking you about whether the NLU models are currently aware
14:45:05 16 of a dialog context, do you recall that?
14:45:13 17 A. Yes.
14:45:14 18 Q. If we could go back to slide 11. And do you see that
14:45:19 19 this is the recognition for the NLU core pipeline?
14:45:25 20 A. Right.
14:45:25 21 Q. And here is the model, do you see that, sir?
14:45:29 22 A. Yes.
14:45:29 23 Q. And the slide we're talking about is the models might
14:45:32 24 not be at the time using the dialog context, is that fair to
14:45:38 25 say?

Polish - redirect

14:45:38 1 A. That's right.

14:45:38 2 Q. And you recall that in your response to counsel, you
14:45:43 3 indicated there was also rules and FST, do you see that?

14:45:47 4 A. Right.

14:45:47 5 Q. And this input, this would be coming from the ASR?

14:45:52 6 A. That's right.

14:45:53 7 Q. And so the match, the rules, the FST and the models
14:45:58 8 would receive the output from the ASR, correct?

14:46:02 9 MR. HADDEN: Objection, leading Your Honor.

14:46:03 10 THE COURT: Could you make this a little less
14:46:06 11 leading.

14:46:08 12 MR. YOON: Yes, Your Honor, my fault.

14:46:10 13 BY MR. YOON:

14:46:10 14 Q. Do you see this in this document here just the
14:46:13 15 reference to the rules, FST and models. How does that
14:46:17 16 receive the input from the ASR?

14:46:19 17 A. So the ASR provides input to the NLU and that's --
14:46:25 18 according to this diagram, it's sent to the rules on
14:46:30 19 pathway, the FST pathway and the models pathway.

14:46:32 20 Q. And now going back to slide 34. Now, do you recall
14:46:42 21 you were asked some questions about this slide in the
14:46:47 22 context of the models, the DNN models, do you recall that?

14:46:52 23 A. Yes.

14:46:52 24 Q. And you were asked questions, particularly I think
14:46:56 25 you discussed six?

Polish - redirect

14:46:58 1 A. Yes.

14:46:59 2 Q. Now, do you see the title of this slide is a two-step

14:47:02 3 approach?

14:47:02 4 A. Yes.

14:47:03 5 Q. And what was Step 1?

14:47:06 6 A. So, Step 1 it says that recognizer generate the yes

14:47:14 7 intent, no intent, or slots for the current turn utterance.

14:47:19 8 Q. And that's only the first step of the two-step

14:47:22 9 approach, correct?

14:47:22 10 A. Yes.

14:47:23 11 Q. And if you go to the next slide. What occurs in

14:47:31 12 Step 2?

14:47:31 13 A. In Step 2, the context interpreter merges the yes,

14:47:40 14 no, multi-turn intent with previous intent and slots so it

14:47:49 15 takes the previous intent that was somehow ambiguous and

14:47:54 16 merges it with the results here to disambiguate.

14:47:56 17 Q. If we go to the next -- page 36. And that Step 2 is

14:48:02 18 what we were discussing with regard to the clock setting

14:48:05 19 example, correct?

14:48:05 20 A. Yes.

14:48:06 21 Q. Take that down.

14:48:08 22 Just two more questions, Dr. Polish. Now, you

14:48:15 23 answered multiple questions regarding source code during the

14:48:19 24 cross-examination, do you recall that?

14:48:20 25 A. Yes.

14:48:21 1 Q. And how did you work with Mr. Peck?

14:48:24 2 A. So Mr. Peck was doing his analysis of Amazon's source
14:48:33 3 code, he was being communicated with by the lawyers. I saw
14:48:37 4 the questions that were being provided to Mr. Peck and I
14:48:42 5 added my own questions and consulted on what he was -- what
14:48:47 6 he was tasked with looking for. And then I saw his results
14:48:52 7 and I saw his reports as a result of his investigation.

14:48:58 8 Q. And did you read Mr. Peck's report?

14:49:00 9 A. Yes.

14:49:01 10 Q. And did you look at the source code that Mr. Peck
14:49:04 11 identified in his report?

14:49:05 12 A. Yes.

14:49:05 13 Q. And you understand that Mr. Peck will be a witness in
14:49:08 14 this case?

14:49:09 15 A. Yes.

14:49:09 16 MR. YOON: No further questions, Your Honor.

14:49:11 17 THE COURT: All right. Thank you. Thank you,
14:49:13 18 sir. You may step down.

14:49:14 19 We're going to take our afternoon break.

14:49:18 20 COURTROOM DEPUTY: All rise.

14:49:19 21 (Jury exiting the courtroom at 2:49 p.m.)

14:49:32 22 THE COURT: All right.

14:49:42 23 MR. YOON: Your Honor, we can -- Dr. Polish is
14:49:44 24 excused and we can then recall him in rebuttal?

14:49:52 25 THE COURT: Excuse me?

Peck - direct

14:49:53 1 MR. YOON: I apologize, Your Honor, I just
14:49:55 2 wanted to confirm that we can now talk to him that he's off
14:49:59 3 the stand and everything.

14:50:00 4 THE COURT: Yes.

14:50:00 5 MR. YOON: Thank you.

14:50:01 6 (A brief recess was taken.)

15:10:33 7 COURTROOM DEPUTY: All rise.

15:10:38 8 (Jury entering the courtroom at 3:10 p.m.)

15:10:50 9 THE COURT: All right everyone, welcome back.

15:10:51 10 Please be seated.

15:10:51 11 What's next?

15:11:01 12 MR. SMITH: Your Honor, the plaintiff calls John
15:11:01 13 Peck.

15:11:11 14 COURTROOM DEPUTY: Please raise your right hand.
15:11:21 15 Please state and spell your full name for the record.

15:11:21 16 THE WITNESS: My name is John Charles Peck
15:11:21 17 junior, J-O-H-N, Charles, C-H-A-R-L-E-S, Peck, P-E-C-K,
15:11:31 18 junior.

15:11:41 19 CHARLES JOHN PECK, JR., having been duly sworn
15:11:42 20 was examined and testified as follows:

15:11:42 21 DIRECT EXAMINATION

15:11:42 22 BY MR. SMITH:

15:11:52 23 Q. Good afternoon, Mr. Peck.

15:11:52 24 A. Good afternoon.

15:11:52 25 Q. Could you please introduce yourself to the jury?

Peck - direct

15:12:00 1 A. Yes. My name is John Charles Peck, Jr.

15:12:04 2 Q. And generally what's your role in this case?

15:12:08 3 A. On this case I have been reviewing Amazon source
15:12:13 4 code, Alexa source code.

15:12:14 5 Q. And what's your educational background, briefly?

15:12:18 6 A. Yes, so I have a bachelor of science in computer
15:12:22 7 engineering in Carnegie Mellon University and I have a
15:12:26 8 master of science from computer science from the University
15:12:30 9 of California.

15:12:31 10 Q. Mr. Peck, what's your work experience be like since I
15:12:36 11 graduated college?

15:12:37 12 A. I have been a practicing computer engineer for over
15:12:41 13 twenty-five years, I have developed a lot of software and
15:12:44 14 hardware products.

15:12:46 15 Q. And do you have any experience with voice related
15:12:51 16 technology, like at issue in this case?

15:12:51 17 A. I do. I had a client several years ago who was
15:13:01 18 interested in ASR technology. They wanted me to investigate
15:13:06 19 and profile a software package called Sphinx, it performs
15:13:12 20 ASR.

15:13:13 21 Q. Do you have any experience with big computer systems
15:13:16 22 with lots of servers?

15:13:17 23 A. I do. Part of my prior employment at Foxfire
15:13:24 24 Technologies Corporation, and Transarc Corporation which
15:13:27 25 made distributed file systems, and also with a company

Peck - direct

15:13:31 1 called Adion Systems, a client that interacted with servers
15:13:35 2 on a network.

15:13:36 3 Q. And during your professional career, have you ever
15:13:38 4 been awarded patents?

15:13:41 5 A. Yes, I have. I am the named inventor on ten U.S.
15:13:46 6 patents issued.

15:13:46 7 Q. And in what kind of expertise are you bringing to
15:13:54 8 this case?

15:13:54 9 A. In this case I performed a source code review of the
15:13:58 10 Amazon Alexa source code.

15:14:00 11 Q. And have you done source code review like this in
15:14:05 12 other litigation matters?

15:14:08 13 A. Yes, I have. I have performed source code review on
15:14:11 14 several other litigation related matters in the past.

15:14:14 15 MR. SMITH: Your Honor, at this point, VoiceBox
15:14:19 16 offers Mr. Peck as an expert witness in the field of
15:14:22 17 computer source code analysis.

15:14:23 18 MR. HADDEN: No objection.

15:14:24 19 THE COURT: All right. He will be so
15:14:26 20 recognized.

15:14:27 21 MR. SMITH: Thank you, Your Honor.

15:14:28 22 BY MR. SMITH:

15:14:29 23 Q. Mr. Peck, first of all, what is source code?

15:14:30 24 A. So source code are a set of commands that are given
15:14:32 25 to the computer to execute, to perform a function. Text

Peck - direct

15:14:39 1 code can be textual form typed in by a person.

15:14:49 2 Q. And when you did you start looking at source code in
15:14:53 3 this case?

15:14:53 4 A. I began looking at source code in this case after
15:14:57 5 July 2020, when I joined the case.

15:15:00 6 Q. And what generally was your assignment for you when
15:15:06 7 you joined the case?

15:15:07 8 A. Generally I was asked to examine Amazon Alexa source
15:15:13 9 code to identify certain features in the source code that
15:15:19 10 perform the system function and report back on that.

15:15:21 11 Q. How did you go about reviewing the code, for example,
15:15:27 12 was it -- did you go somewhere to do that?

15:15:29 13 A. That's right. So this source code was produced by
15:15:34 14 Amazon on to a computer that I understand was located in
15:15:40 15 Amazon's counsel's offices, and I was able to access that
15:15:43 16 computer by a remote computer and examine the source code
15:15:47 17 that way.

15:15:48 18 Q. And was there any way for you to get any evidence
15:15:54 19 from the source code that you were looking at that you could
15:15:58 20 bring to the trial?

15:15:59 21 A. Yes, that's right. There was a process where I could
15:16:03 22 print out source code that I thought was of relevance, and
15:16:08 23 make it available for this trial.

15:16:10 24 Q. And did you hear -- strike that. Were you here for
15:16:12 25 Dr. Polish's testimony earlier?

Peck - direct

15:16:18 1 A. Yes, I was.

15:16:19 2 Q. And were you asked to compare the source code to the
15:16:25 3 patent claims like -- or to the patent claims in this case?

15:16:30 4 A. No, I was not.

15:16:31 5 Q. What was your role as you understood it relative to
15:16:37 6 Dr. Polish?

15:16:37 7 A. I understood that Dr. Polish would be performing that
15:16:40 8 comparison between the source code and the claims.

15:16:43 9 Q. And aside from looking at source code, did you look
15:16:48 10 at any other types of evidence in the case?

15:16:51 11 A. Yes. I attended depositions from Amazon's witnesses.
15:16:57 12 I read several deposition transcripts. And I reviewed
15:17:02 13 Amazon technical documents.

15:17:04 14 Q. And those depositions, what sort of employees were
15:17:07 15 you going to depositions for?

15:17:09 16 A. These were Amazon engineers who worked on the Amazon
15:17:14 17 Alexa system. There were several witnesses who worked on
15:17:19 18 different parts of the Amazon Alexa system, including the
15:17:23 19 NLU, the ASR, and something called ranking arbitration as
15:17:30 20 well as the shopping.

15:17:32 21 Q. Based on your analysis of the source code, would you
15:17:35 22 say that the diagram that Amazon has been showing that they
15:17:38 23 say indicates Alexa, was that accurate based on the source
15:17:42 24 code analysis that you did?

15:17:45 25 A. No, I don't think that's entirely accurate.

Peck - direct

15:17:48 1 Q. Okay. Well, for one thing, did you take a look at a
15:17:54 2 source code for what we have been referring to as the ASR in
15:17:57 3 this case?

15:17:58 4 A. Yes, I did. I reviewed source code for two different
15:18:03 5 versions of Amazon Alexa ASR, there was an older version and
15:18:08 6 a newer version that was put to use later.

15:18:10 7 Q. And did you review any--strike that.

15:18:14 8 Did you find any source code for an NLU?

15:18:17 9 A. Yes, I did.

15:18:19 10 Q. And did you review that code for the NLU, too?

15:18:23 11 A. Yes, I reviewed that source code for the NLU.

15:18:27 12 Q. And were you able to identify source code for reusing
15:18:34 13 information from a prior utterance?

15:18:37 14 A. Yes, I did identify a source code that uses
15:18:41 15 information from a prior utterance.

15:18:44 16 Q. Now, Mr. Peck, I'm going to show you a document here
15:18:49 17 on the screen here. My understanding is it's sensitive
15:18:56 18 information from Amazon. So we don't have extra copies.
15:19:00 19 But I'm just going to put it up on the Elmo for you to take
15:19:04 20 a look.

15:19:08 21 And first of all, could you take a look at the
15:19:11 22 bottom here and just identify the exhibit there, exhibit
15:19:14 23 number there in the middle?

15:19:18 24 A. Yes. So this source code is stamped with a Bates
15:19:22 25 stamp that reads AMZ_VB_SC print_000074.

Peck - direct

15:19:32 1 Q. Was this some of the evidence that you were able to
15:19:37 2 collect from the Amazon Alexa source code computer?

15:19:42 3 A. Yes, it was. And you can see at the very top, it's
15:19:47 4 hard to see but there is a patent name that's at the very
15:19:53 5 top and that patent name includes the NLU. Then also in the
15:20:01 6 code you can see there is a number of statements that say
15:20:04 7 import and they say Amazon dots blue shift dot NLU for
15:20:10 8 example, several lines, 11 and 19, for example.

15:20:13 9 Q. The first thing you were referencing was that name up
15:20:17 10 here, you said?

15:20:17 11 A. Yes, that's right, I can see that there now. You can
15:20:21 12 see there is an NLU in the package name in the beginning, a
15:20:27 13 name of this particular source code at the file is at the
15:20:30 14 end, rule based context interpreter dot JAVA.

15:20:35 15 Q. At this point the plaintiff VB Assets would move into
15:20:42 16 evidence PTX-541(a)?

15:20:45 17 MR. HADDEN: No objection.

15:20:52 18 THE COURT: It's admitted.

15:20:54 19 (PTX Exhibit No. 541(a) was admitted into
15:20:58 20 evidence.)

15:20:58 21 BY MR. SMITH:

15:20:58 22 Q. At a general level, what does the source code in
15:21:00 23 Exhibit 541(a) do based on your review?

15:21:05 24 A. So generally it adds information to current
15:21:08 25 interpretations from previous interpretations.

Peck - direct

15:21:11 1 Q. And I think part of the file name here is called it's
15:21:17 2 called a rule based context interpreter, is that right?
15:21:21 3 A. Yes, that's correct.
15:21:23 4 Q. And is this code part of the NLU?
15:21:29 5 A. Yes, it's part of the NLU.
15:21:32 6 Q. And why don't we go to line 26. And do you see that
15:21:44 7 kind of here, line 26, there is a text that's kind of green
15:21:49 8 and there is kind of some asterisk next to it. Do you see
15:21:53 9 that?
15:21:53 10 A. Yes.
15:21:53 11 Q. What is that type of text in the source code?
15:21:56 12 A. Yes. So this is what's called a comment. And a
15:22:01 13 comment is a description that's left by a source code
15:22:04 14 developer. To convey information to one who is reading and
15:22:08 15 writing the source code. In this case, it reads class merge
15:22:12 16 current turn NBest with discourse context using rules.
15:22:17 17 Q. So you're saying this comment would be something the
15:22:21 18 Amazon engineers would put into the code?
15:22:25 19 A. Yes, that's correct.
15:22:29 20 Q. Do you see here at the very end it says context using
15:22:32 21 rules. Do you see that?
15:22:36 22 A. I see that.
15:22:39 23 Q. And so based on the comment here, is the source code
15:22:42 24 that you looked at that follows consistent with how it's
15:22:45 25 being described by the Amazon engineers with the comment?

Peck - direct

15:22:46 1 A. Yes, it is. And this source code file is making use
15:22:51 2 of rules as a way to accomplish what I described earlier as
15:22:57 3 its function.

15:22:58 4 Q. Is this an example of Alexa using manual rules?

15:23:03 5 A. Yes, it is.

15:23:05 6 Q. Now, Mr. Peck, in the course of your analysis of this
15:23:13 7 code, were you able to figure out approximately when this
15:23:20 8 source code file was added to the Amazon computer that you
15:23:26 9 looked at?

15:23:27 10 A. Yes, I recorded the date in my report. That date was
15:23:31 11 August 31st, 2020.

15:23:34 12 Q. So you found examples of manual rules on the Amazon
15:23:38 13 computers in August 2020?

15:23:42 14 A. That's correct.

15:23:47 15 Q. Now, why don't we go to line, the next page here, you
15:24:01 16 see here line 79?

15:24:07 17 A. I see that.

15:24:07 18 Q. And then if you go over there is some text here.
15:24:12 19 When you see this text here on line 79, what is that text?

15:24:16 20 A. So this text is actual source code that's executed by
15:24:22 21 the computer when it runs. And this is one statement, one
15:24:28 22 operation that takes place in the source code.

15:24:32 23 Q. And so this is how -- this is code that Alexa would
15:24:38 24 actually use when it's running?

15:24:38 25 A. Yes, that's correct.

Peck - direct

15:24:39 1 Q. And do you see where it says get rules, do you see
15:24:43 2 that?

15:24:43 3 A. I do see that.

15:24:45 4 Q. What does that refer to?

15:24:46 5 A. So this is what's called a function call. It's
15:24:52 6 retrieving a set of rules to use in part of this operation.

15:24:58 7 Q. And does this operation relate to what we heard
15:25:03 8 earlier from Dr. Polish about context and using past
15:25:11 9 information to fill in the gap for what the user wants?

15:25:17 10 A. Yes, it does. This component is named the
15:25:21 11 rules-based context interpreter. It's taking information
15:25:24 12 from previous interpretations and adding to current
15:25:29 13 interpretations.

15:25:31 14 Q. Now, Mr. Peck, was this code file that we're looking
15:25:36 15 at the only example of Amazon Alexa using manual rules?

15:25:41 16 A. No, there were many other examples.

15:25:45 17 Q. Let me put on the document viewer the next document.
15:25:54 18 And do you see here, if we go down to the very bottom,
15:25:58 19 Mr. Peck, do you see it's labeled PTX-541(b)?

15:26:02 20 A. I see that.

15:26:05 21 Q. And are you able to read the real small text at the
15:26:10 22 very top?

15:26:12 23 A. Yes, I can read that.

15:26:13 24 Q. Okay. Sorry this is an eye exam test. Is this one
15:26:17 25 of the files that you were able to obtain from the Amazon

Peck - direct

15:26:22 1 **Alexa computer when you did your analysis?**

15:26:24 2 A. **Yes, it was.**

15:26:26 3 Q. **Okay. And --**

15:26:29 4 **MR. SMITH: At this point, Your Honor, we would**
15:26:31 5 **move PTX-541(b) into evidence.**

15:26:40 6 **MR. HADDEN: No objection.**

15:26:41 7 **THE COURT: Thank you. It is admitted.**

15:26:41 8 **(PTX Exhibit No. 541(b) was admitted into**
15:26:43 9 **evidence.)**

15:26:43 10 **BY MR. SMITH:**

15:26:48 11 Q. **Mr. Peck, is this code that we're looking at here in**
15:26:53 12 **Exhibit 541(b), is this part of the NLU of Alexa?**

15:26:58 13 A. **Yes, it is. In the patent name, NLU indicating its**
15:27:06 14 **an NLU. The name of this file is the contextual content**
15:27:14 15 **carry over dot JAVA. As well as I see references in the**
15:27:19 16 **actual code informing that, indicate that it's from the NLU.**

15:27:23 17 Q. **Does this indicate that Alexa uses this content?**

15:27:31 18 A. **Yes, that's correct.**

15:27:32 19 Q. **And were there other indications here in the code**
15:27:35 20 **that it's from the NLU?**

15:27:37 21 A. **Yes. For example, at line 10, there is an import**
15:27:45 22 **statement, you can see that it says**
15:27:52 23 **comment.amazon.Blushift.NLU, that indicates to you that this**
15:27:53 24 **is NLU source code.**

15:27:55 25 Q. **Let me go the line 63 of this. Do you see some is**

Peck - cross

15:28:17 1 something that is public class, contextual intent carrier

15:28:25 2 IPMPL. Do you see that?

15:28:25 3 A. Yes.

15:28:26 4 Q. What does that refer to?

15:28:30 5 A. This is the name of this class.

15:28:34 6 Q. And what does this class do generally.

15:28:39 7 A. So this is class is deciding which intents are to be
15:28:45 8 carried forward into the current set of intents being
15:28:48 9 considered.

15:28:51 10 Q. Why don't we go down here do you see line 71 where it
15:29:01 11 says intent carryover engine, rules engine, do you see that?

15:29:01 12 A. I see that.

15:29:07 13 Q. And based on your analysis, did you determine that
15:29:12 14 Alexa as an entire engine devoted to rules?

15:29:16 15 A. Yes, in this particular model, there is a particular
15:29:21 16 engine put in use that uses rules to perform its function.

15:29:24 17 Q. Is this file that we just looked at Exhibit 541(b)
15:29:30 18 another example of Alexa using manual rules in 2020 or
15:29:38 19 later?

15:29:39 20 A. Yes, it is.

15:29:42 21 MR. SMITH: Thank you, Mr. Peck. Pass the
15:29:47 22 witness.

15:29:48 23 THE COURT: Cross.

15:29:52 24 MR. HADDEN: You can leave that up.

15:29:57 25 CROSS-EXAMINATION

Peck - cross

15:29:58 1 BY MR. HADDEN:

15:30:02 2 Q. Good afternoon, Mr. Peck.

15:30:04 3 A. Good afternoon.

15:30:06 4 Q. Now, you're not an expert in Natural Language
15:30:10 5 Understanding, are you?

15:30:12 6 A. I'm not an expert on Natural Language Understanding,
15:30:17 7 I'm a practicing engineer of over 25 years with experience
15:30:20 8 in software and hardware development.

15:30:22 9 Q. Thank you, sir.

15:30:23 10 And you're not offering any opinion to the jury
15:30:27 11 here today that Amazon infringes any of these patents, are
15:30:31 12 you?

15:30:31 13 A. No, I am not.

15:30:33 14 Q. And you're not offering any opinion to the jury today
15:30:36 15 that these patents are valid, are you?

15:30:38 16 A. No, I am not.

15:30:40 17 Q. Thank you.

15:30:41 18 Your assignment, if I understand it correctly,
15:30:44 19 was to answer questions from VB Assets's lawyers, is that
15:30:50 20 right?

15:30:52 21 A. Yes, that's correct.

15:30:54 22 Q. And Dr. Polish didn't ask you any questions, did he?

15:31:00 23 A. I received communication from counsel about what
15:31:04 24 parts to look at. Dr. Polish testified today about that
15:31:08 25 process.

Peck - cross

15:31:09 1 Q. Okay. But when you were doing your analysis, you
15:31:11 2 weren't talking to Dr. Polish, correct?

15:31:13 3 A. No, I didn't talk to Dr. Polish directly. My
15:31:18 4 instructions came from counsel.

15:31:22 5 Q. Can we look at JTX-001, please, Mr. Patterson. Claim
15:31:30 6 13.

15:31:37 7 A. I have that in front of me.

15:31:48 8 Q. Now is it fair to say that between you and
15:31:55 9 Dr. Polish, you're the one who knows most about how Alexa
15:32:00 10 source code operates?

15:32:01 11 A. I would say I reviewed the source code for Amazon
15:32:06 12 Alexa.

15:32:08 13 Q. If we look at this Claim 13, did VB Assets' counsel,
15:32:12 14 did they ask you to go find out if there was Alexa source
15:32:17 15 code that accumulated short-term shared knowledge about the
15:32:20 16 current conversation?

15:32:24 17 A. So I recall my report addressing questions that
15:32:28 18 counsel presented me, those particular questions are in my
15:32:32 19 report. I don't recall this point being a particular
15:32:36 20 question being asked.

15:32:39 21 Q. Okay. So even though this claim requires computer
15:32:43 22 code that accumulates short-term shared knowledge, VB
15:32:47 23 Assets's lawyers didn't ask you to try to find that in
15:32:50 24 Alexa; correct?

15:32:53 25 A. No, the questions that I was asked, I don't think

Peck - cross

15:32:55 1 relate to the claim language here. They were another terms
15:33:01 2 that were questions.

15:33:01 3 Q. If we look at the next element C, which requires
15:33:06 4 accumulating long-term shared knowledge, is it also the case
15:33:10 5 that VB Assets's lawyers didn't ask you to find out whether
15:33:14 6 Alexa has source code that accumulates long-term shared
15:33:17 7 knowledge?

15:33:17 8 A. I don't remember a question with those exact terms in
15:33:21 9 it.

15:33:21 10 Q. Okay. If we go to the next element, identify a
15:33:24 11 context associated with the utterance wherein the
15:33:30 12 conversational speech engine identifies the context
15:33:31 13 associated with the utterance from the short-term shared
15:33:37 14 knowledge and the long-term shared knowledge, is it also the
15:33:41 15 case that VB Assets's lawyers didn't ask you to find out
15:33:41 16 whether or not the Alexa source code does that?

15:33:48 17 A. Yeah, I don't remember a question posed in those
15:33:52 18 terms.

15:33:52 19 Q. Okay. And the same with element E, establish an
15:33:52 20 intended said meaning for the utterance, and then continues,
15:33:52 21 do you see the text there, sir, is it true that VB Assets's
15:34:02 22 lawyers didn't ask you to try to find out whether the Alexa
15:34:02 23 source code does this?

15:34:02 24 A. That's correct, I don't recall such a question being
15:34:12 25 asked.

Peck - cross

15:34:12 1 Q. Okay. And if we go to the last element, generating a
15:34:15 2 response to the utterance, is it also true that the VB
15:34:19 3 Assets's lawyers didn't ask you to find out whether or not
15:34:22 4 the Alexa source code does this?

15:34:25 5 A. Yes, I don't recall a question like this being asked.

15:34:30 6 Q. Let's look at JTX-002, sir, the '703 patent, Claim
15:34:42 7 25. If we look here, sir, in particular there is an element
15:35:00 8 -- I can use this as well, thank you, Mr. Patterson.

15:35:02 9 There is an element here E, determine without
15:35:05 10 further user input after the receipt of the user input, a
15:35:09 11 context based at least on the one or more words or phrases,
15:35:14 12 do you see that element, sir?

15:35:16 13 A. I see that.

15:35:17 14 Q. Did VB Assets's lawyers ask you to find out whether
15:35:21 15 or not the Alexa source code did that?

15:35:25 16 A. I don't recall the question being put in these terms.

15:35:31 17 Q. Okay. If we go to the next element, F, sir, identify
15:35:34 18 without further user input after the receipt of the user
15:35:38 19 input, the product or service to be purchased on behalf of
15:35:41 20 the user based at least on the determined context. Did VB
15:35:44 21 Assets 's lawyers ask you to try to find out whether or not
15:35:48 22 the Alexa source code does that?

15:35:51 23 A. I don't remember a question like this being posed to
15:35:55 24 me.

15:35:58 25 Q. Okay. Let's go to the '176 patent, please,

Peck - cross

15:36:01 1 Mr. Patterson. This is JTX-003, Mr. Peck. Look at Claim
15:36:11 2 40. Claim 40 has this piece at the end, an adaptive
15:36:16 3 misrecognition engine configured to determine that the
15:36:18 4 conversational language incorrectly interpreted the words or
15:36:22 5 phrases, and it continues, do you see that language,
15:36:24 6 Mr. Peck?

15:36:24 7 A. I see that.

15:36:26 8 Q. Did VB Assets's lawyers ask you to try to figure out
15:36:29 9 whether or not the Alexa source code performs that step?

15:36:31 10 A. No, I don't recall a question like that being posed
15:36:35 11 to me.

15:36:36 12 Q. Let's look at JTX-005, sir, this is the '097 patent.
15:36:41 13 If we could go to Claim 23. This claim it requires the last
15:36:51 14 element, requires interpreting the natural language
15:36:58 15 utterance based on the advertisement and responsive to the
15:37:01 16 existence of a pronoun in the natural language utterance,
15:37:05 17 determine whether the pronoun refers to one or more of the
15:37:08 18 product or service, or a provider of the product or service?

15:37:11 19 Did VB Assets's lawyers ask you to try to find
15:37:15 20 out whether or not the Alexa source code did that.

15:37:22 21 A. No, I don't recall a question put in those terms to
15:37:25 22 me.

15:37:26 23 Q. Thank you, sir. From your review of the Alexa NLU
15:37:32 24 source code, it's true, isn't it, that NLU generates
15:37:36 25 multiple interpretations at a given utterance, right?

15:37:41 1 A. Yes, that's correct.

15:37:42 2 Q. Thank you, sir.

15:37:44 3 And that context interpreter code that you were
15:37:48 4 shown earlier by counsel, that code takes the interpretation
15:37:54 5 that has already been part of the NBest list of
15:37:58 6 interpretation and reorders and re-ranks them, is that
15:38:04 7 correct?

15:38:04 8 A. Yes, that's one of the things that takes place within
15:38:07 9 that piece of code.

15:38:09 10 MR. HADDEN: Thank you for your time, sir. No
15:38:12 11 further questions.

15:38:12 12 THE COURT: All right. Redirect?

15:38:14 13 MR. SMITH: No redirect, Your Honor.

15:38:16 14 THE COURT: Thank you, sir. You're excused.
15:38:19 15 What's next?

15:38:20 16 MR. YOON: Yes, Your Honor, at this time, VB
15:38:23 17 Assets will play by videotape deposition, the deposition
15:38:26 18 testimony of Philippe DiCristo, who is the former senior
15:38:31 19 science manager at Amazon from 2016 to 2022.

15:38:32 20 THE COURT: Thank you.

15:38:42 21 (Videotape deposition of Philippe DiCristo:)

15:38:52 22 Q. Dr. DiCristo, could you please state your full name
15:39:02 23 for the record?

15:39:02 24 A. Yes. My full name is Philippe Jack Joel DiCristo.

15:39:08 25 Q. Doctor, you were the chief scientist at VoiceBox

15:39:12 1 Technologies, correct?

15:39:13 2 A. This has been my title at VoiceBox Technologies.

15:39:16 3 Q. And you were the VP of speech and NLU R & D at

15:39:24 4 VoiceBox Technologies, correct?

15:39:24 5 A. That is also the title I own at VoiceBox.

15:39:27 6 Q. Okay. And NLU is that an abbreviation for Natural

15:39:33 7 Language Understanding?

15:39:33 8 A. Yes, it is.

15:39:35 9 Q. And you were at VoiceBox from July 2003 to

15:39:40 10 September 2016.

15:39:43 11 Is that fair to say?

15:39:45 12 A. Yes. I don't remember if it's the -- the dates

15:39:49 13 specific there, but that -- that sounds right. Yeah, that

15:39:52 14 sounds accurate.

15:39:54 15 Q. And you were employee number nine at VoiceBox?

15:39:58 16 A. That's what I recall.

15:39:59 17 Q. And you were at VoiceBox for over 13 years?

15:40:02 18 A. I was at VoiceBox for a long time, yes.

15:40:08 19 Q. And over 13 years; correct, sir?

15:40:11 20 A. Over 13 years, probably.

15:40:13 21 Q. Now, at VoiceBox, you led a team of 100 engineers and

15:40:17 22 scientists designing and implementing new speech recognition

15:40:22 23 and natural understanding algorithms, is that fair to say?

15:40:24 24 A. Yeah, we were building a product that leveraged

15:40:30 25 technologies such as speech recognition and natural link --

15:40:40 1 language understanding.

15:40:41 2 Q. Dr. DiCristo, during the time at VoiceBox, you did
15:40:45 3 lead a large team of engineers and scientists; correct?

15:40:49 4 A. I did lead a large team of people, which included
15:40:52 5 engineers, scientists, program managers, TPM, and so on,
15:40:57 6 technical program managers and so on.

15:41:00 7 Q. What was VoiceBox Cybermind?

15:41:02 8 A. Cybermind was a product that we developed and that
15:41:13 9 leveraged existing technologies such as speech recognition
15:41:16 10 and Natural Language Understanding, and allowed people to --
15:41:19 11 to communicate with the machine and turn some command into
15:41:25 12 actions.

15:41:26 13 Q. When you prepared your LinkedIn profile, you believed
15:41:31 14 that the Cybermind was an Amazon-like system; correct?

15:41:37 15 A. Well, I think the "like" -- you know, when we say
15:41:41 16 like, of course you can take into different interpretation
15:41:45 17 here. It's open for interpretation.

15:41:47 18 But on the surface, they have like appearance.
15:41:50 19 Of course, their implementation could be quite different.

15:41:57 20 Q. But you described Cybermind as the Amazon Echo-like
15:42:02 21 system; correct?

15:42:04 22 A. Again, I think like is very -- it's Echo-like.
15:42:09 23 Right. Like, is there -- there is different flavors of
15:42:13 24 like.

15:42:13 25 And as -- as a person, as a customer without any

15:42:17 1 technical background, you could consider that they look
15:42:19 2 alike.

15:42:20 3 Q. And they operated alike, correct?

15:42:22 4 A. That would -- that's actually very vague. They are
15:42:26 5 -- I think they are -- they are very different on the -- on
15:42:29 6 the way they are implemented in terms of code is different.
15:42:32 7 The system that they use to recognize speech is different.
15:42:35 8 There a lot of differences that we could go into.

15:42:39 9 Q. But the Cybermind, the first version of it came out
15:42:42 10 in 2006, correct?

15:42:43 11 A. So the Cybermind product was actually never
15:42:46 12 productized, but it was demoed. And I definitely -- I
15:42:51 13 definitely think I remember even from the video that in
15:42:54 14 2006, we had something that looked like that.

15:42:58 15 Q. And the -- to your knowledge, the Amazon Echo product
15:43:04 16 was publicly announced in the 2014 time frame; correct?

15:43:11 17 A. I don't recall when exactly the Amazon system came
15:43:15 18 out, so I think it's hard for me to say. 2014 or 15 or
15:43:20 19 around that time frame.

15:43:23 20 Q. In 2013, IEEE ranked VoiceBox Technologies number 13
15:43:30 21 in patent power for the computer software industry. Do you
15:43:34 22 see that?

15:43:38 23 A. Yes, I do.

15:43:39 24 Q. And you put that statement in your LinkedIn profile;
15:43:42 25 correct?

15:43:39 1 A. I did put that statement in my LinkedIn profile.

15:43:43 2 Q. And so you understood that at least in the 2013 time
15:43:48 3 frame, the IEEE had ranked VoiceBox Technologies as having
15:43:53 4 the 13th most significant patent portfolio in the computer
15:43:59 5 software industry; correct?

15:44:00 6 A. So I remember actually seeing a document that was
15:44:03 7 actually provided by Mike Kennewick. That was a link where
15:44:07 8 the IEEE had ranked different companies of something they
15:44:12 9 call patent power. And that seems like a good thing to put
15:44:16 10 on your LinkedIn profile.

15:44:19 11 Q. So sir, you -- you began working after VoiceBox for
15:44:23 12 Amazon in October 2016. Is that fair to say?

15:44:26 13 A. I began to work for Amazon in October 2016.

15:44:31 14 Q. And when did you stop working for Amazon, sir?

15:44:35 15 A. I stopped working for Amazon on July 1st, 2022, --
15:44:40 16 January 1st. I'm sorry. I don't know why I said July 1st.
15:44:44 17 January 1st, 2022.

15:44:51 18 Q. Okay. Dr. DiCristo, looking at Exhibit 48, do you
15:44:56 19 see the top e-mail is from Rich Kennewick, dated April 30th,
15:45:00 20 2012?

15:45:03 21 A. Yes, I can see the E -- I can see that.

15:45:07 22 Q. And the subject there is: "Next
15:45:11 23 steps-VoiceBox/Intel." Do you see that?

15:45:15 24 A. Yes, I see that.

15:45:19 25 Q. And it says: "Bob, Michael, and Philippe; can we

15:45:21 1 meet today around 4:30 to discuss the two docs Intel has
15:45:28 2 sent us." Do you see that?

15:45:30 3 A. I can see that.

15:45:31 4 Q. And when you were working with Intel for VoiceBox,
15:45:34 5 was it your understanding that -- that Intel had an interest
15:45:37 6 in a speech-enabled system?

15:45:39 7 A. So I don't fully recall the -- the Intel project
15:45:44 8 itself. Maybe it's a bit far. But that's -- usually
15:45:48 9 customers were interested in some type of assistant-type
15:45:52 10 system based on NLP.

15:45:54 11 Q. If you'll look at the Intel ideal system document.
15:46:01 12 If you'll look at page 91949. One of the things that Intel
15:46:04 13 identified was: "Use of context."

15:46:17 14 Do you see that?

15:46:18 15 A. Okay. So can you repeat the question?

15:46:21 16 Q. Do you see the Intel document, in terms of
15:46:25 17 identifying the ideal system, number seven included: "Use
15:46:29 18 of context."

15:46:31 19 Do you see that?

15:46:32 20 A. Yes, I do.

15:46:34 21 Q. And that includes two types of history: "History of
15:46:38 22 the current conversation." And "history of prior
15:46:42 23 conversations by current user." Do you see that?

15:46:45 24 A. I can see that.

15:46:46 25 Q. And it says:

15:46:48 1 "Useful for personalization/preference setting
15:46:53 2 over time."

15:46:54 3 Do you see that?

15:46:55 4 A. I can see that -- that text from Intel, yeah.

15:46:58 5 Q. In VoiceBox, is agents use context that included both
15:47:03 6 the history of the current conversation and prior
15:47:07 7 conversations; correct?

15:47:10 8 A. It's a bit -- it's a bit vague. I mean, there are --
15:47:14 9 there are some implementation detail of it. I think I
15:47:17 10 mentioned that the agents had -- that the context basically
15:47:20 11 is all about prior information provided, which could be a --
15:47:25 12 a private conversation, and they -- they could take
15:47:28 13 advantage of it at that time.

15:47:31 14 Q. And so VoiceBox agents could take advantage of using
15:47:35 15 context that included prior conversations from the user;
15:47:38 16 correct?

15:47:41 17 A. Like I said, I think an agent had the
15:47:44 18 responsibilities to determine if a -- a request -- they can
15:47:47 19 respond to a request. And they would use information
15:47:50 20 available, which that we call these contexts.

15:47:52 21 Q. And that information available could also include the
15:47:55 22 prior conversations; correct?

15:48:00 23 A. Like, I don't remember exactly the whole
15:48:04 24 implementation detail of how -- what it would entail what
15:48:08 25 the context structure was. And as I said, it's more -- at a

15:48:12 1 high level, the context is general information of prior
15:48:15 2 event, basically, at the time of the request.

15:48:18 3 Q. And those prior events could include prior
15:48:22 4 conversations, correct?

15:48:23 5 A. Again, it's prior information that was available
15:48:26 6 before that -- that I know for -- that -- that conversation.

15:48:29 7 Q. And so prior information could include information
15:48:34 8 that came from prior conversations, correct?

15:48:39 9 A. I'm not sure I understand the question, because I
15:48:42 10 guess, like I said, it depends on how we define context. As
15:48:45 11 I mentioned, I define context as prior information that was
15:48:50 12 either provided by the system or by a person. And an agent
15:48:53 13 could leverage that information if they were designed to do
15:48:56 14 so, or if that was relevant.

15:49:02 15 Q. And looking at Item 10 in the Intel documentation, it
15:49:06 16 says: "Learning from interactions-wants system to learn
15:49:12 17 from previous conversation."

15:49:14 18 Do you see that?

15:49:15 19 A. I can see that.

15:49:18 20 Q. And one of the capabilities that the VoiceBox system
15:49:22 21 had and its agents had was the capability of learning from
15:49:25 22 previous conversations, correct?

15:49:26 23 A. So I guess it's hard for me to answer, because it's
15:49:31 24 -- like you see, learn is in quote marks, so learn has a lot
15:49:35 25 of vague notion of it. But I can say that actually, there

15:49:39 1 were no artificial intelligence in that -- in that -- at
15:49:44 2 that time.

15:49:44 3 Q. But the operation of the VoiceBox system could adapt
15:49:48 4 over time based on prior conversations, correct?

15:49:52 5 A. I don't recall that capability.

15:49:57 6 Q. And Dr. DiCristo, why don't you just take a moment to
15:50:01 7 look at Exhibits 55, 56, and 57. And when you've had a
15:50:06 8 chance to look at those text messages, I'll ask you a
15:50:09 9 question. Okay?

15:50:11 10 A. Okay.

15:50:12 11 Q. Dr. DiCristo, these are texts that you exchanged with
15:50:17 12 Kelley Price in the January 2006 to January -- sorry --
15:50:23 13 January 6, 2017, to January 9, 2017, time frame; correct?

15:50:30 14 A. Yes, this is correct.

15:50:35 15 Q. And these are screen shots of the texts that you
15:50:42 16 exchanged, correct?

15:50:43 17 A. This is correct.

15:50:45 18 Q. And sir, with regards to this, Ms. Price was a
15:50:49 19 VoiceBox employee; correct?

15:50:50 20 A. Kelley Price was a -- dealing with human resources,
15:50:52 21 as I previously stated.

15:50:57 22 Q. And so, she was the human resources at VoiceBox;
15:51:02 23 correct?

15:51:03 24 A. She was a human resources at VoiceBox. She was a
15:51:07 25 human resources employee at VoiceBox, yeah.

15:51:12 1 Q. And with regards to this text here, there is a
15:51:18 2 reference on Exhibit 57; right? There is a reference here
15:51:28 3 to -- looking at Ms. Price, it says: "Hey, can I forward an
15:51:34 4 invite to the Amazon event tomorrow night to folks who were
15:51:38 5 laid off, and maybe some who weren't?" Do you see that?
15:51:43 6 That's at 12:26 p.m.

15:51:46 7 A. Yes, I do.

15:51:49 8 Q. And I'd now like to mark from Tab 6 as Exhibit 58 a
15:51:55 9 document that shows eventbrite.com, bearing Bates numbers
15:52:02 10 VoiceBox 8212.

15:52:09 11 And Dr. DiCristo, do you see Exhibit 58 is a
15:52:14 12 document where the top says: "Eventbrite.com, do you see
15:52:20 13 that?

15:52:23 14 A. Yes, I do.

15:52:24 15 Q. And then it says, the description it says the
15:52:26 16 executive leadership team for Amazon's voice and advanced
15:52:29 17 shopping hosts an informal event to discuss our vision for
15:52:31 18 the future, with drinks and appetizers." Do you see that?

15:52:37 19 A. Yes, I do.

15:52:40 20 Q. Understood, sir. What I wanted to ask you was, you
15:52:41 21 understand that this event is the event that Ms. Kelley is
15:52:42 22 referring to in Exhibit 1 -- in Exhibit 57; correct?

15:52:52 23 A. Kelley Price is -- is -- probably was aware of that
15:52:57 24 event and was probably interested in sending some of the
15:53:00 25 people there.

15:53:01 1 Q. I'm just saying that the event -- the -- the Amazon
15:53:06 2 event that Ms. Kelley Price was referring to in Exhibit 57
15:53:10 3 was the event described in Exhibit 58 that lists you as an
15:53:15 4 attendee, but you did not attend; correct?

15:53:18 5 A. Well, as I mentioned, this was an event organized,
15:53:23 6 like, by my team at that time. I did not participate. And
15:53:27 7 I -- Kelley Price was probably interested in sending people
15:53:31 8 to that event.

15:53:33 9 (End of videotape.)

15:53:36 10 MR. YOON: Your Honor, at this time we would
15:53:40 11 like to move into evidence exhibit PTX-42 and 48.

15:53:45 12 MR. HADDEN: No objection.

15:53:47 13 THE COURT: Thank you. They're admitted.

15:53:49 14 (PTX Exhibits No. 42 and 48 were admitted into
15:53:49 15 evidence.)

15:53:49 16 MR. YOON: Your Honor, now at this time we would
15:53:51 17 like to play the video testimony of Rino Caruccio, who is
15:53:57 18 the vice-president of financial analysis for devices at
15:54:01 19 Amazon.

15:54:02 20 MR. HADDEN: I'm sorry, we have other exhibits
15:54:05 21 for that depo designation we would like to move in.

15:54:09 22 MR. YOON: I can do that for you.

15:54:12 23 MR. HADDEN: That would be great.

15:54:12 24 MR. YOON: Your Honor, this was the one we had
15:54:14 25 to add. The parties would also like to move into evidence

15:54:19 1 exhibit PTX-42, 48, 55, 56, 57, and 58.

15:54:28 2 MR. HADDEN: No objection.

15:54:31 3 THE COURT: All right. Thanks. They are
15:54:32 4 admitted.

15:54:33 5 (PTX Exhibits No. 42, 48 55, 56, 57 and 58 were
15:54:34 6 admitted into evidence.)

15:54:34 7 MR. YOON: And now, Your Honor, we would like to
15:54:36 8 play to deposition testimony of Rino Caruccio, who is the
15:54:41 9 vice-president of financial analysis for devices at Amazon.

15:54:41 10 THE COURT: All right.

15:54:48 11 (Videotape deposition of Rino Caruccio:)

15:54:50 12 Q. Mr. Caruccio, Exhibit 173 is an e-mail from someone
15:54:55 13 named Andy Vu dated September 8, 2021, with the subject
15:55:02 14 line, Re: OP1 outputs review, ten-year P&L, LTVLF and
15:55:11 15 IBVLF. Do you see that?

15:55:11 16 A. Okay. I have it, yes. I see the e-mail.

15:55:14 17 Q. Mr. Caruccio, are you familiar with an OP1, what an
15:55:21 18 OP1 is at Amazon?

15:55:23 19 A. Yes, I am.

15:55:24 20 Q. What is that?

15:55:25 21 A. OP1 is a mechanism within the Amazon company usually
15:55:30 22 held in September/October time frame whereby businesses,
15:55:40 23 products, review their strategy including investment needed,
15:55:45 24 financial projections, financial forecast for the next 12 to
15:55:51 25 18 months.

15:55:53 1 Q. What are some of the ways that this strategy benefits
15:55:58 2 the whole company system?

15:56:00 3 A. Again, in my personal opinion, when a customer
15:56:03 4 engages with a -- an Amazon device such as an Echo, there
15:56:09 5 are -- there is value in terms of music that they may
15:56:14 6 purchase from our Amazon music business. It would be
15:56:20 7 products that they may buy, you know, on our Amazon
15:56:24 8 marketplace and our consumer business. It could include
15:56:28 9 advertising that we would gain from advertising--
15:56:34 10 advertisers being willing to advertise on our devices.
15:56:40 11 There are sometimes some subscriptions that we provide or
15:56:45 12 garner. There are skills or third-party Alexa-enabled
15:56:51 13 devices that we might be able to engage with. There are
15:57:00 14 some modernization opportunities with, you know, partners,
15:57:10 15 stake holders, so there are -- those are some of the ones
15:57:20 16 off the top of my head that we would garner.

15:57:26 17 Q. Are you familiar with the term get big, with respect
15:57:32 18 to Alexa or EFD?

15:57:33 19 A. Yes, I'm familiar with the term get big.

15:57:36 20 Q. And what do you understand about it?

15:57:39 21 A. As -- as kind of a strategic overview of the Alexa
15:57:45 22 business and as a way of categorizing some of the key themes
15:57:51 23 that the Alexa business needs to think about, they decided
15:57:57 24 their -- categorized their strategy into three buckets, get
15:58:03 25 big, get close, get fit. And as -- and used that as kind of

15:58:15 1 a theme in terms of determining where to invest and where to
15:58:19 2 prioritize.

15:58:25 3 (End of videotape.)

15:58:28 4 MR. YOON: Your Honor, at this time, we would
15:58:30 5 seek to move into evidence exhibit PTX-173.

15:58:34 6 MR. HADDEN: No objection.

15:58:35 7 THE COURT: Thank you. It is admitted.

15:58:35 8 (PTX Exhibit No. 173 was admitted into
15:58:39 9 evidence.)

15:58:39 10 MR. YOON: At this time, Your Honor, the
15:58:41 11 plaintiff will now present the video deposition testimony of
15:58:45 12 Vinod Krishnan, who is the director of engineering and
15:58:49 13 science for Alexa Shopping at Amazon.

15:58:54 14 (Videotape deposition of Vinod Krishnan:)

15:59:00 15 Q. All right. In your folder, for the record,
15:59:03 16 Exhibit 78 is a document about with Bates numbers ending in
15:59:07 17 58040. Does the Alexa Shopping team use Wikis to document
15:59:15 18 the Alexa Shopping technology?

15:59:21 19 A. As a team, Alexa shop be uses many -- many
15:59:27 20 technologies to capture the thought process. Wikis could be
15:59:42 21 one of those.

15:59:42 22 Q. And so Exhibit 78, we're looking at a Wiki for a
15:59:46 23 document in the technology of Alexa Shopping, right?

15:59:50 24 A. It looks like this Wiki, or this document, captures a
15:59:55 25 version of -- of Alexa Shopping.

16:00:04 1 Q. And for the record, Exhibit 80 is an e-mail and
16:00:08 2 attachments, the Bates number on the first page ends in
16:00:15 3 342249.

16:00:17 4 Mr. Krishnan, do you recognize Exhibit 80 to be
16:00:22 5 an e-mail?

16:00:23 6 A. Exhibit 80, the first part of Exhibit 80 is an
16:00:28 7 e-mail, but then later on it turns into a document.

16:00:36 8 Q. Okay. And do you see that you received Exhibit 80,
16:00:42 9 your name is on there in the recipients?

16:00:45 10 A. Yes. A lot of names. Yeah.

16:00:51 11 Q. And you received the e-mail around August 30th of
16:01:01 12 2018?

16:01:02 13 A. Yes.

16:01:04 14 Q. And if you look at -- so Michelle Solano sent the
16:01:09 15 e-mail and she says please find attached the docs for
16:01:14 16 today's 2:00 p.m. PT 2019 NA consumer OP1: Alexa Shopping,
16:01:21 17 do you see that?

16:01:23 18 A. I see that.

16:01:24 19 Q. And there are 1, 2, 3 attachments that all have OP1
16:01:30 20 Alexa shopping, and 2019 OP1 in the file name?

16:01:32 21 A. I see all three of them.

16:01:32 22 Q. Okay. If you could now go to Exhibit 84, which has
16:01:42 23 an ending Bates number of 85508. And do you recognize this
16:01:52 24 to be a Wiki page from the Alexa Shopping Wiki that is
16:01:52 25 entitled "Dialog Platform"?

16:02:00 1 A. Yes.

16:02:02 2 Q. And Exhibit 87 is -- Exhibit 87 is the -- this is an
16:02:09 3 e-mail attaching the 2022 OP1; correct?

16:02:15 4 A. That's correct.

16:02:18 5 Q. An e-mail you received?

16:02:21 6 A. Yes.

16:02:26 7 Q. And just like the other OP1's, the 2022 OP1 was
16:02:34 8 presented to Amazon senior leadership?

16:02:39 9 A. It was presented to Amazon consumer and Alexa senior
16:02:44 10 leadership.

16:02:47 11 (End of video.)

16:02:50 12 MR. YOON: Your Honor, at this time we would
16:02:53 13 like to move into evidence exhibit PTX-78, PTX-80, PTX-84,
16:03:01 14 and PTX-87.

16:03:03 15 MR. HADDEN: No objection.

16:03:10 16 THE COURT: Is it clear what the corresponding
16:03:12 17 exhibit is with the script.

16:03:15 18 MR. YOON: I believe so, Your Honor.

16:03:17 19 THE COURT: I have been trying to follow it, I
16:03:19 20 just want to make sure that some day we don't have a
16:03:21 21 question as to what exhibit was talked about versus what
16:03:22 22 exhibit you entered.

16:03:23 23 MR. YOON: Yes, the exhibits that were talked
16:03:24 24 about in the transcript are the videos, are the ones that
16:03:32 25 are put into evidence.

16:03:34 1 THE COURT: With the same number? My problem is
16:03:37 2 there is a deposition number that's mentioned, no one knows
16:03:40 3 what the correlation is between the deposition exhibit and
16:03:43 4 the exhibit you just put in.

16:03:45 5 MR. YOON: Yes, Your Honor. It's our practice
16:03:47 6 in our deposition numbers, our exhibits and our exhibit
16:03:51 7 numbers are one in the same. We see sequentially numbered
16:03:54 8 our deposition exhibits and they should be the same as our
16:03:57 9 exhibit numbers.

16:03:58 10 THE COURT: Well, if at any point they're not,
16:04:00 11 make sure we have on the record, what the correlation is.

16:04:04 12 MR. YOON: Will do, Your Honor.

16:04:05 13 THE COURT: Thank you.

16:04:06 14 MR. YOON: And lastly, we are now playing the
16:04:08 15 deposition testimony of Scott Hayden who is the
16:04:10 16 vice-president of intellectual property at Amazon.

16:04:13 17 (Videotape deposition of Scott Hayden:)

16:04:14 18 Q. I think earlier in your testimony you mentioned you
16:04:21 19 looked at the Comverse patent purchase agreement, is that
16:04:22 20 right?

16:04:22 21 A. Yes.

16:04:22 22 Q. And why don't we -- figure out where that is, what
16:04:32 23 was the motivation to enter a patent purchase agreement with
16:04:40 24 Comverse?

16:04:40 25 A. So knowing that Alexa was coming and that we really

16:04:43 1 didn't have time to secure patents on our own technology, we
16:04:47 2 wanted to make sure that we had some assets that we could
16:04:51 3 counter claim or use in discussions or negotiations with
16:04:56 4 others. And we bought a small patent portfolio with
16:05:05 5 Comverse.

16:05:05 6 Q. Exhibit 158 is a document entitled objections and
16:05:10 7 responses of defendants to plaintiff VB Assets LLC's first
16:05:15 8 set of interrogatories, numbers 1 through 14?

16:05:20 9 A. I see that.

16:05:20 10 Q. And have you seen Amazon's interrogatory responses
16:05:24 11 before today?

16:05:24 12 A. I may have seen one subsection of one of these, but I
16:05:31 13 don't recall this one.

16:05:32 14 Q. Why don't we go to page 21 of Exhibit 158.

16:05:40 15 A. Okay.

16:05:41 16 Q. And the bottom of page 21, do you see there is a
16:05:44 17 sentence that says "Amazon became aware of U.S. Patent Nos.
16:05:49 18 '8,886,536; 8,073,681; and 9,015,049 in 2015." Do you see
16:06:05 19 that?

16:06:05 20 A. Yes.

16:06:06 21 Q. And do you understand that the three patents I just
16:06:10 22 quoted from the interrogatory response have been referred to
16:06:14 23 in this case as the '536, the '681, and the '049 patents?

16:06:22 24 A. I do.

16:06:24 25 Q. Do you know how Amazon became aware of the those

16:06:29 1 three patents in 2015?

16:06:32 2 A. My understanding is those were cited in prosecution
16:06:36 3 of our own patent applications.

16:06:40 4 Q. And does -- and do you have any other facts about the
16:06:43 5 context for how those patents came to be cited in Amazon
16:06:50 6 patents?

16:06:50 7 A. A patent examiner would have thought they needed to
16:06:54 8 be cited and cited them. Often times it's got the right
16:06:58 9 words in a search result. Sometimes it's something they are
16:07:02 10 aware of. I don't know why or how that came about.

16:07:06 11 Q. Do you know if the citation was from the patent
16:07:10 12 examiner or if it was from the patent prosecution counsel of
16:07:14 13 Amazon?

16:07:15 14 A. I don't. I don't know.

16:07:17 15 (End of videotape deposition.)

16:07:22 16 MR. YOON: Your Honor, at this time we would
16:07:24 17 like to move into evidence PTX-158.

16:07:27 18 THE COURT: So you got a forty-page document of
16:07:31 19 their interrogatory responses that has a whole bunch of
16:07:34 20 stuff in there that's not related to what he just talked
16:07:37 21 about. Why are we doing this?

16:07:39 22 MR. YOON: I apologize. That was what was used
16:07:42 23 at deposition. We can excerpt it so it's just one or two
16:07:45 24 pages.

16:07:47 25 THE COURT: I'm not admitting this. You can

figure out what you want to excerpt it to, talk with them and we'll talk about it on Monday.

MR. YOON: Understand, Your Honor.

At this time we'll be calling Mr. Brett Reed.

THE COURT: How about we give the jury a break, let you go a little early. I think we're making good time. We'll be fine. And it's Friday afternoon and some of us are getting tired. So I'll just remind you don't talk to anyone about the case, which you probably want to, and have safe travels and we'll see you on Monday morning.

COURTROOM DEPUTY: All rise.

(Jury exiting the courtroom at 4:08 p.m.)

THE COURT: All right. So I don't think that's going to be a problem, but I'm not putting in a bunch of stuff that I don't know how it's going to be cited some day as evidence, so let's figure out how to deal with that one.

Anything we need to talk about.

MR. YOON: Only procedurally, Your Honor, two things. One is that I had a discussion with the local counsel. I think we were trying to have a discussion this weekend of how to make things more efficient for the Court on Monday, as counsel indicated we don't have a claim construction issue anymore, and so hopefully this weekend we can come back with a proposal to you to make Monday evening or Tuesday much more efficient.

16:09:28 1 THE COURT: All right. I appreciate that.

16:09:31 2 Anything else?

16:09:31 3 MR. HADDEN: No, Your Honor.

16:09:32 4 COURTROOM DEPUTY: Court is adjourned.

5 (Court adjourned at 4:09 p.m.)

6

7 I hereby certify the foregoing is a true and
8 accurate transcript from my stenographic notes in the proceeding.

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/s/ Dale C. Hawkins
Official Court Reporter
U.S. District Court

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