In the Matter Of:

APPLE INC. vs

SMITH INTERFACE TECHNOLOGIES

LOREN TERVEEN, PH.D

September 11, 2025

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC., :

Petitioner,: Case No.

v. : IPR2024-01083

SMITH INTERFACE TECHNOLOGIES, LLC, :

Patent Owner.:

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REMOTE STENOGRAPHIC DEPOSITION OF

LOREN TERVEEN, PhD

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Deposition of LOREN TERVEEN, held remotely, via videoconference at:

VIA VIDEOCONFERENCE

Pursuant to agreement, before Giselle Mitchell-Margerum, Registered Professional Reporter, Certified Reporting Instructor, Licensed Court Reporter (TN), Certified Court Reporter (GA), Certified Court Reporter (NJ), Certified Court Reporter (WA), Certified Shorthand Reporter (OR), Certified Shorthand Reporter (CA), Alabama Certified Court Reporter (ACCR), Certified Court Reporter (NM).

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Examination by DAVID HOLT 83

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P R O C E E D I N G S

COURT REPORTER: Dr. Terveen, please raise your right hand.

Do you swear to tell the truth, the whole truth, and nothing but the truth?

THE WITNESS: I do.

COURT REPORTER: Okay. We can start.

LOREN TERVEEN

Having been duly sworn testified as follows:

EXAMINATION BY ATTORNEY WALLIS:

Q. Good morning, Dr. Terveen. Thank you for being here. Before we start, can you just state your full name for the record, please?

A. Loren Gilbert Terveen.

Q. And since you have been deposed a few times, I'm not going to waste our time on the ground rules. I just ask two things. One, can we agree to not talk over each other?

A. Yes.

Q. Okay.

So if I ask a question, and you let me finish, and you are finishing an answer, I'll let you finish as well. Is that agreeable?

A. Yes.

Q. All right. And I'll try and take a break

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about every hour or so. But if you need to take a break before then, just let me know. The only thing I ask is that you finish answering a question before you decide to take a break.

Is that agreeable?

A. Yes.

Q. Okay. And this deposition involves IPR2024-0163, which challenges the validity of U.S. Patent No. 10,642,413.

Is that your understanding?

A. Yes.

Q. Okay.

And if I refer to this patent as the '413 Patent, you understand what I'm referring to. Correct?

A. Yes.

Q. Okay.

Is there any reason that you couldn't give confident testimony today? So just medication or anything like that?

A. No.

Q. Okay. And where are you located today?

A. In Minneapolis.

Q. Okay. And is anyone in the room with you right now?

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A. No.

Q. Okay.

Do you have any documents or applications open on your computer, or any paper copies in front of you of anything?

A. No.

Q. All right. And with that, I think we can get started.

I'm going to upload an exhibit for you to look at. Okay. And I should have sent that in the chat. It looks like it just went through?

A. Yes.

Q. Let me know if you can access that.

A. Okay. I have it and I've opened it up.

Q. Okay. And this is a copy of your supplemental declaration that was submitted in this proceeding?

Is that correct?

A. Yes.

Q. Okay.

And, for the record, this is referred to as Exhibit 1023. Correct?

A. Yes.

Q. And how -- approximately how much time did you spend preparing this declaration?

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A. I really don't recall right offhand. Some number of hours.

Q. All right. And then after you submitted this declaration, did you, I guess, spend any other time with counsel on this proceeding in this case? Either preparing for this deposition, or anything else?

A. Yes. I did spend more time with counsel.

Q. Okay.

And approximately how much time after you submitted your declaration did you spend with counsel?

A. Well, on this matter, particularly regarding the '413 Patent, I don't know. Talking, just speaking -- you know, video conferencing -- four or five hours, I suppose. I don't really recall.

Q. Okay.

And turning to page eight of your declaration -- and I guess before or while you do that, to clarify for the record, when I reference your declaration, I know you have submitted two declarations in this proceeding.

So any time I reference a declaration, and I don't explicitly say "supplemental" or "original,"

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can we agree to refer to just "declaration" generally as talking about your supplemental declaration?

A. Yes.

Q. Okay. Great. So if we turn to page eight of your declaration, it's discussing limitations 1.e.ii and 1.e.iii.

Is that correct?

A. Yes. And looking at it, the corresponding limitations 101.e.ii and 101.e.iii.

Q. Okay. And these limitations relate to the claimed limitations that are discussing a first duration of contact.

Is that correct?

A. Those claimed -- those limitations do refer to a first duration of contact. I don't have the whole set of claims in front of me, so beyond that, you know, I don't recall the details by memory.

But yes. I do know they mention the first duration of contact.

Q. Okay.

And I'll go ahead and add a copy of the '413 Patent into the record so you can view it.

A. Okay. Okay. I've got that as well.

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Q. And in your declaration, it looks like you are treating the limitations regarding claim 1.e and claim 101.e similarly. So is it fair to say that if we are just discussing claim one today, that your positions would also apply to the claim 101.e limitations?

A. Well, as described right here in my supplemental declaration, yes. My opinions there do apply to both, I guess, 101.e and one -- excuse me -- 1.e and 101.e.

Q. Okay.

And then referring just to claim one, there is also a limitation which you have identified as 1.e.i. And that is where a first duration of contact is introduced.

Is that correct?

A. Let's see. I'm confident that's right. But just to dot my I's and cross my T's, I'm just going to verify that.

[Witness reviewed document.]

A. Yes. That's correct.

Q. Okay.

And just to be a little bit more generic, there is essentially one limitation that introduces a first duration of contact. And then two

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subsequent limitations that have features that are in response to the first duration of contact. Correct?

A. That's correct.

Q. Okay.

And so, looking at paragraph 11 of your declaration, it seems you are citing to the first instance of contact on a first menu item, and then a second instance of contact on a second separate menu item, as meeting the limitations -- the subsequent 1.e limitations.

Is that correct?

A. Could you ask that question again, please?

Q. Yeah. So I guess first, let's refer to your paragraph 11. And then this paragraph, you discuss a first instance of contact and a second instance of contact.

Is that correct?

A. I do mention, as I'm discussing this, that there could be a first instance of contact and a second instance of contact. Yes.

Q. Okay.

And so, in this paragraph, the first instance of contact is on a first menu item, and then the second instance of contact is on a second

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separate menu item. Correct?

A. That's what I described in this paragraph.

Q. Okay.

And so, these two instances of contact on two menu items, in your opinion, satisfy the limitations 1.e that we were discussing earlier. Correct?

A. Well, as I lay out in the subsequent paragraph, starting with paragraph 12, I say that one way that limitations 1.e -- 1.e.i, and 1.e.iii could be satisfied is with what I described as a first instance of contact and a second instance of contact, as I then described in those paragraphs and explained in those paragraphs.

Q. Okay.

And so, moving on to your paragraph 13, this is referencing the first instance of contact again. Correct?

A. Right. As I say in paragraph 13, "Expanding on my above example, the first instance of contact," and then I go on to explain. So yes. I am talking about the example of the first instance of contact in paragraph 13.

Q. Okay.

And you provide another example that this

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first instance of contact would be akin to a user tapping on a menu slot in Hinckley's bezel menus. Correct?

A. Yes. I explain that this first duration of contact would be, as I wrote, akin to a user tapping on a menu slide in Hinckley's bezel menus.

Q. And I'm going to share Exhibit 1006, which is the Hinckley patent, into the chat.

A. Okay. I have Hinckley as well.

Q. Perfect. And the menu slot that you reference in paragraph 13, does that correspond to the slots 612, 614, 616, 618, and 620, shown in Hinckley's Figure 6?

A. Let me just look at that.

[Witness reviewed document.]

A. I don't recall whether I cited to Figure 6 particularly in either my -- either my supplemental or my original declaration. I do recall the figures of Hinckley I cited to for my opinion.

So without either refreshing my memory to see if I refer to Figure 6, or looking at it in more detail and reading about it, I'm not going to talk about Figure 6. Because I just don't have a recollection of it right offhand.

Q. It looks like at the end of the sentence

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in your paragraph 13, you are making a citation to Exhibit 1004, paragraph 74 and 77. Right?

A. Yes.

Q. Okay.

The Exhibit 1004 in this proceeding is on -- is it safe to assume that this is a typographical error and you meant to reference figure -- or Exhibit 1006, which is Hinckley?

A. That seems likely.

Q. Okay.

And if we go to, I guess paragraph 74 of Hinckley, would that, I guess, confirm that you meant to cite Hinckley instead of Ahn?

A. Let me check that.

[Witness reviewed document.]

A. Yes. I -- that does make it clear that when I cited Exhibit 1004, that was a typo. It should have been Hinckley's Exhibit No. 1006.

Q. Continuing with that paragraph 74 of Hinckley that's discussing slots 612, 614, 616, 618, and 620 of Hinckley's Figure 6. Correct?

A. Yes. Paragraph 74 does discuss those icons or slots as Hinckley describes them.

Q. Okay.

And so, is it fair to say that the menu

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slot that you referenced in paragraph 13 would be one of those slots 612 through 620, shown in Figure 6 of Hinckley?

A. Well, if I look at the sentence -- the last sentence in paragraph 12, it reads this would be akin to a user tapping on a menu slot in Hinckley's bezel menus, and Hinckley's device, accessing the functionality associated with a menu icon, where "any type of functionality can be associated with the icons of slots."

And so, you know, Hinckley has various examples of bezel menus with bezel slots. And so, Figure 6 is one such example. But there's other examples, again, that have, you know, menu slots -- bezel menus with menu slots.

Q. Okay. And so, in this -- I guess this particular example, just to kind of clarify, because I think I understand what you just said.

But in this particular example in Figure 6, the icons, you know, 612 through 620, or actually, the slots 612 through 620, would correspond to the menu slot as you use in paragraph 13 for this particular bezel menu in Hinckley. Correct?

A. I apologize. I sort of lost track of your

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question. I think I got it, but could you just repeat it, please?

Q. Sure. So I'm just trying to get an understanding of the menu slots and what that actually means when I reference Hinckley.

And so, looking at Figure 6, the menu slots that are referred to in this figure are those slots 612 through 620. Correct?

A. That is correct.

Q. Okay.

And then for paragraph 14 in your declaration, where you reference the second instance of contact, you say this second instance of contact would be akin to a user tapping and holding on or near a radial menu icon of a menu slot in Hinckley's bezel menus. Correct?

A. Yes.

Q. And then I think there is the same issue where you cited to Exhibit 1004, but it should be Exhibit 1006.

Does that seem fair?

A. I'm sure that's accurate. Yes.

Q. And then if we turn to, I guess paragraph 106, which you cited there?

A. Uh-huh.

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Q. This is talking about a bezel menu 1710. Correct?

A. Yes. In this case, paragraph 106 is talking about a bezel menu 1710. That's correct.

Q. And that bezel menu is shown in Hinckley's Figure 17. Correct?

A. Yes.

Q. Okay.

And so, looking at Figure 17's example, the radial menu icon that you reference in your paragraph 14 would correspond to the icon 1714 in Hinckley's Figure 17. Correct?

A. Well, I'm -- I think that's not quite the way I would put it. Again, if I look at the last sentence in paragraph 14, where I say:

"This would be akin to a user tapping and holding on or near a radial menu icon of a menu slot in Hinckley's bezel menus."

So that's a general teaching of Hinckley. The fact that a user can tap and hold on or near a radial menu icon of a menu slot. And I gave a particular example from Hinckley, in which I cited to paragraphs 106 to 109.

Q. And in the example of Hinckley that you cite, the radial menu icon corresponds to the icon

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1714 that is shown in Figure 17 of Hinckley.
Is that correct?
A. In, I guess those paragraphs 106 to 109, the radial -- radial menu icon that I referred to in those paragraphs is denoted as radial menu icon 1714.
Q. And in this example, the menu slots are identified as 1712. Correct?
A. In the paragraphs that I cited here, paragraphs 106 to 109 of Hinckley, it is this example of Hinckley uses 1712 to refer to the menu slots.
Q. And so, reading your paragraphs 13 and 14, is it fair to say that the first instance of contact would occur somewhere on the icon 1712? Or the slot 1712? And that the second instance of contact would occur on the icon 1714?
A. Well, I think I may be -- let's see. I think what I say more clearly, or more specifically, is the first duration of contact could appear -- I'm sorry. Again, could I have you repeat that question? I think it got a little complicated for me.
Q. Sure. So your paragraphs 13 and 14 reference first instance of contact and a second

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instance of contact.
Is that correct?
A. That's correct. Yeah.
Q. And is it fair to say the first instance of contact in these paragraphs would occur on the slot 1712, and the second instance of contact would occur on the radial menu icon 1714?
A. Well, more specifically, the first instance of contact could appear in this example on menu slot 1712. And the second instance of contact could appear -- could occur, as I wrote in paragraph 14, on or near radial menu icon 1714.
Q. And in the example that you just discussed, would it be fair to say that the icon 1712 is one menu item, and the icon 1714 is another menu item?
A. Well, as -- that's not quite right. As I discuss later in my declaration, I mean, starting at paragraph, I guess 18, and with the heading above that, that what I say there is that Hinckley's menu icon, or radial menu icon 1714, is a constituent part of menu slot 1712. And so, that these are not two different icons.
Q. So is the explanation that you are providing in paragraphs 13 and 14 different from the

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explanation that you are providing in paragraph 18?
A. No.
Q. So let's refer to paragraph 13. It's talking about, in the first sentence, there is -- the first instance of contact, and it's on the first menu item.
Is that correct?
A. Yes.
Q. And we agreed that in the example of Hinckley's Figure 17, that this would be a contact on the slot 1712. Correct?
A. Yes.
Q. Okay.
And then, in paragraph 14, we are talking about a second instance of contact that's on a second menu item. Correct?
A. That's what I wrote in paragraph 14.
Q. And then the example of Hinckley's Figure 17, that would be a contact on radial menu icon 1714. Correct?
A. That's correct.
Q. And so, is it fair to say in those two examples, that the icon 1712 would be one menu item and the icon 1714 would be another menu item?
A. Well, what I'm -- let me sort of back up

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to explain. So obviously, in this -- in my supplemental declaration, I was replying to Dr. Rosenberg's declaration.
And in this section that we've been discussing, which I labeled as "A," and the heading was, Dr. Rosenberg's arguments concern the scope of limitations 1.e.ii, and 1.e.ii3, and the corresponding 101 limitations. So I labeled that and then I was addressing his arguments here.
And what we argued, as I say in paragraph nine, is that these 1.e limitations, quote:
"Describe logical function or steps to process instances of user input on a touch screen that begins from a common starting point. The start of a 'first duration of contact.'"
And then I say I disagree.
And so, in that part A of my declaration, I was explaining that the claim limitation did not require -- did not require the first duration of contact to only happen on, as Dr. Rosenberg said, a common starting point.
Okay. So that was -- that was the point of it. And then, in the rest of my argument for this -- my response to Dr. Rosenberg, I was positing that if you wanted to consider menu icon -- excuse

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me -- menu slot 1712 and radial menu icon 1714 as separate items, which actually, Dr. Rosenberg did, then -- then they would still satisfy the claim -- the claim limitations 1.e, as we were discussing.

So, really, in this -- what we have been discussing, I was replying to one of Dr. Rosenberg's arguments. And then later on, including in paragraph 18, which you referenced, I was referring to a different one of his arguments.

So -- so that's why I structured my declaration as I did. It was a response to Dr. Rosenberg's different arguments.

Q. And in the response to Dr. Rosenberg's argument in your Section A, that includes these paragraphs 13 and 14 that we have been talking about, is this position the same position that you advanced in your first declaration?

A. In paragraphs 13 and 14?

Q. And I can put that in the chat if you need that.

A. Let me think for a minute and then I -- I may ask to look at that, my original declaration.

[Witness reviewed document.]

A. I can't recall if I made that argument in my original declaration. As I said, this was a

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reply declaration where I was responding to Dr. Rosenberg's opinions.

So, of course, that might have led me to have to make a response to something that I had not covered in my original declaration. I can't recall if this was one thing that I had made explicit in my original declaration or not.

ATTORNEY WALLIS: And I will upload your original declaration into the chat.

THE WITNESS: Okay. I have it.

BY ATTORNEY WALLIS:

Q. And if we could go to page 74?

A. Okay.

Q. And there is the sentence -- it's actually the first sentence of page 74. It says:

"From at least these teachings, a POSITA would have understood and found obvious that, in at least one implementation of Hinckley's menus and gestures, tapping the icon 1712 would have triggered one action, while a tap-and-hold gesture on the radial menu icon 1714 portion of icon 1712 would have triggered a different action."

Is that correct?

A. That is -- that is a correct reading of the sentence. Yes.

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Q. Okay. And so, in your paragraphs 13 and 14 of your subsequent declaration, that is consistent with the sentence I just read from your original declaration on page 74.

Is that right?

A. Well, in paragraphs 13 and 14 of my -- of my reply declaration, I was making a different point.

So I want to emphasize, as I wrote in my reply declaration, starting in paragraph 18, I -- as I wrote in paragraph 18, I disagree that Hinckley's description of the menu slot 1712 is, quote, "including a radial menu icon 1714 indicates that there are two distinct user interface objects, as Dr. Rosenberg is using that term."

So, that paragraph 18 in my declaration is making the exact same point that I made in paragraph 107 on page 74 of my original declaration. But as I said in paragraphs 13 and 14, I was simply making a different point in addressing one of Dr. Rosenberg's arguments from his declaration.

So I was making a different point. So it wasn't inconsistent. It was simply making a different point.

Q. So you are saying that paragraphs 13 and

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14 of your reply declaration are different than the sentence we were talking about in paragraph 107 of your original declaration?

A. Well, they were making a different point. Not that there is -- in paragraph 107 of my original declaration, I quote Hinckley. And as part of that quote, I refer to the radial menu icon 17 portion of icon 1712, which is -- I agree with that. I'm consistent with that between my original and my reply declaration.

In paragraphs 13 and 14 of my reply declaration, I was replying to an opinion of Dr. Rosenberg. And in this case where he -- I was making the point that limitations -- the 1.e limitations do not require instances of user input on a touch screen that, quote, "begin from a common starting point."

And in order to do that, I talked about the meaning of the claim limitations, how they were written, and then I gave an example from Hinckley, where Dr. Rosenberg sort of referred to the -- how should I put it -- the menu slot and the radial menu icon as being different things.

No. I don't agree with that, as I went on to write in -- starting in paragraph 18, but under

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his interpretation, I'm saying that the claim limitations 1.e would still be met, because the first contact does not have to begin from a common starting point.

So, yeah. I simply was responding to his argument in paragraphs 13 and 14, and in Part A of my supplemental declaration. Because that was a new argument that I had to respond to.

So it was a new thing I had to do in my reply declaration, that I had not had to do in my original declaration.

Q. So in paragraph 13 of your supplemental declaration, and paragraph 107 of your original declaration, the first instance of contact is tapping the icon 1712 for both of those positions. Correct?

A. Yes. For example. That was the example I gave from Hinckley. A tap on the menu -- on the icon or slot 1712.

Q. And so, for paragraph 14 of your supplemental declaration, and paragraph 107 of your original declaration, the second instance of contact is tapping and holding on radial menu icon 1714. Correct?

A. It's tapping or holding on or near radial

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menu icon 1714. And again, as I write it in that last paragraph, the -- or, excuse me, in the last sentence of paragraph 14, this would be akin to a user tapping or holding on or near a radial menu icon of a menu slot in Hinckley's bezel menus.

So, this would be -- so, for example, referring to Figure 17, and using the numbers from that, it would be akin to a user tapping and holding on or near a radial menu icon 1714 of a menu slot 1712 in Hinckley's bezel menu.

So, that is essentially what I wrote in paragraph 107 of page 74 of my original declaration.

Q. Does page 74 of your original declaration say "or near?"

A. Let's see. That does not say that. I know that I say -- I give the full quote from Hinckley, other places in my original declaration and in my reply declaration, which does include the language of a tap and hold on or near the radial icon 1714.

Q. So, it's referring now to your paragraph 16 of your reply declaration. You have provided a figure that's an annotated --

A. Yes.

Q. -- version of Figure 18 of the

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'413 Patent. Correct?

A. Yes.

Q. Okay. And in this example, there's five menu items. Correct?

A. Yes.

Q. Okay.

And so, in this example, there is a first menu item that would be associated with the first operation, and then a second menu item that would be associated with a second operation.

Is that correct?

A. Well, each -- let's see.

[Witness reviewed document.]

A. Well, if you go through -- I need to give another detail. Because like if you go through the annotated flowcharts, first, the touch location was determined, and then the properties of the gesture had to be determined.

So was it a short gesture -- short duration gesture or a longer duration gesture? And then based on those things, both of those things -- then an operation is determined.

So both the -- where the item occurred in this case, and then the property -- excuse me -- where the gesture occurred and then the properties

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of the gesture, particularly its duration, are used to determine what operation is done by the system.

Q. And so, for each of these five menu items that the corresponding touch location, as you said, would be different for each of them?

Is that correct?

A. Well, I'm -- let's see. I think what -- the best way to answer that question is just to go back to the previous paragraph, paragraph 15, in my declaration, and it's a sentence in the middle of that paragraph, where I write:

"While the process of Figure 18 includes determining attributes of the touched event -- 'touch event,' (for example, duration or location), the process of Figure 18 does not require that multiple instances of contact have, quote, a 'common starting point.'"

And so, that's what I'm illustrating in my annotated version of Figure 18, which is included in paragraph 16. And so, I'm showing a first item and a second item that, in this example, do not have to have a common starting point on the screen.

Q. And in this example that you have illustrated in paragraph 16 of your supplemental declaration, you highlight a first item and a second

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1 **item. Correct?**
2 A. That's correct.
3 **Q. And these -- I guess the first item would**
4 **be associated with one operation and the second item**
5 **would be associated with another separate operation.**
6 **Is that correct?**
7 A. Well, it isn't simply that the items are
8 associated with a particular operation. It's a
9 particular -- it's a particular type of gesture on a
10 particular item.
11 And so, as I just -- as I showed in this
12 annotated figure, simply with reference to the flow
13 chart in Figure 18 of the '413 Patent, what I
14 illustrated is a short duration contact on a first
15 item leads to one operation, and a long duration
16 contact on a second item leads to another operation.
17 And this is consistent with the language
18 of the 1.e limitations that we have been discussing.
19 **Q. And so, I guess for the example on the**
20 **left, the first operation would be associated with a**
21 **tap on the first item.**
22 **Is that fair?**
23 A. That is the example I gave here. So if
24 you look sort of at what I labeled as, I used the
25 numbering two in my annotations, I say -- and this

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1 is referring to a gesture on the first item -- I say
2 the duration is short so the gesture is a tap.
3 So that's what I said in this example.
4 **Q. And so, in this example, if the user**
5 **contacts the first item and continues to hold, would**
6 **the same first operation be performed?**
7 A. Well, that's -- no. That would be
8 inconsistent with this example. Because this
9 example is literally illustrating two things. One,
10 going -- and both of them know directly from the 1.e
11 claim limitations. Namely, that as I write, that --
12 trying to think of the best language I have here.
13 That limitations 1.e.ii and 1.e.iii could
14 be satisfied with contacts on different items.
15 Okay? And then, 1.e.ii requires a duration of
16 contact that's less than a threshold and 1.e.iii
17 requires a duration of contact that's greater than a
18 threshold.
19 So literally, that is what I'm
20 illustrating. So that's what this example does.
21 **Q. So I think I understand what you are**
22 **saying, but just to clarify, you are testifying that**
23 **a tap on the first item would perform a first**
24 **operation, but if you hold the first item, then that**
25 **first operation would not be performed. Correct?**

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1 A. Well, I'm not exactly sure what you are
2 asking. So I want to go back to the opinion that
3 I'm explaining here in this part of my declaration.
4 My reply declaration. Namely, the part that I gave
5 the label "A" to.
6 And I guess, just to be clear for the
7 record, it's -- yeah; V(a), or Roman numeral V(a).
8 What I'm saying is that when you look at the
9 language of claim one, particularly the parts E that
10 we have talked about, and I'm actually just going to
11 look at the language so I am not being fuzzy here.
12 So claim one talks about a first duration
13 of contact on at least one of the -- one or more
14 first menu items. Okay.
15 So what I've been talking about -- excuse
16 me. So that's 1.e.i. And then, 1.e.ii talks about
17 the first duration of contact not surpassing a
18 threshold. And 1.e.iii talks about the first
19 duration of contact surpassing the threshold.
20 And so, what Dr. Rosenberg said, 1.e.ii
21 and 1.e.iii required the contact in both cases to be
22 on a common starting point. And that is what I
23 disagreed, and what I was talking about. Okay?
24 So it's not required that they -- that
25 both of those limitations are satisfied by a contact

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1 on the same starting point, the same item. But they
2 could be satisfied by a contact on the same items.
3 Just not required that they -- the contact be on the
4 same item.
5 And then, of course, when you read again,
6 on to 1.e.ii and 1.e.iii, you see that in the first
7 case, the duration of the contact does not surpass a
8 threshold. And in the second case, the duration of
9 the contact does surpass a threshold.
10 So that's what I was explaining in this
11 part of my reply declaration, including with the
12 examples I gave, and including with my annotated
13 version of Figure 18 from the patent.
14 **Q. Okay.**
15 ATTORNEY WALLIS: I think we have been
16 going for about an hour. Do you want to take five
17 minutes and meet back here at 10:05 Central Time?
18 THE WITNESS: Sure. Sounds good.
19 (Short break.)
20 BY ATTORNEY WALLIS:
21 **Q. Welcome back, Dr. Terveen. Did you talk**
22 **to anyone while we were on break?**
23 A. No.
24 **Q. I'm going to have you look at the Hinckley**
25 **reference that I had previously put in the chat. If**

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you could pull that up?

A. Okay. Yup. I've got it.

Q. In this reference, Hinckley discloses the use of bezel gestures to allow for expanded functionality.

Is that correct?

A. It discloses it describes the use of bezel gestures. Certainly, I don't recall right offhand if it used the term, "expanded functionality," but it does definitely describe the use of bezel -- bezel menu gestures. Yes.

Q. And could you just describe what a bezel gesture is for me?

A. Yeah. I'm going to -- I think to be careful, I'm going to look at my declaration and see how I described it there, since that's obviously what -- you know, what's important to my opinion.

So, I mean, a bezel gesture, at the most basic level, is a touch gesture like a -- using your finger, or stylus, or pen, or whatever, that begins at the bezel, and then moves -- it can move inward -- and then it moves from the bezel on to the rest of the screen.

Q. Okay. And so, for these bezel gestures, the -- I guess the device would be receiving an

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input on the bezel of the device?

Is that fair?

A. Well, I think that I want to be careful, because I want to check my recollection of exactly how Hinckley describes them. So I am going to take a look at Hinckley to refresh my memory.

Q. And I guess more specifically, if we look at paragraphs -- looks like starting at 59, "Use of bezel as input mechanism?" And it continues?

A. Yes. I see that.

Q. And so, I guess at least in Hinckley's paragraph 60, it's saying the bezel of a device can be utilized as an input mechanism, and you would understand that to be consistent with describing these bezel gestures?

Is that fair?

A. As that paragraph says, in one or more embodiments, the bezel of a device can be utilized as an input mechanism.

Q. And so, in paragraph 61, it discloses specific examples of such input that is received on the bezel.

Is that correct?

A. Paragraph 61 includes examples of inputs on the bezel.

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Q. And it describes tapping as a bezel input. Correct?

A. Yes.

Q. And it also describes holding as an input. Correct?

A. Let's see. I think so. I'm just looking at them.

[Witness reviewed document.]

A. Yes.

Q. And Hinckley teaches that these inputs could be received on any side of the bezel and be associated with a functionality that is, I guess mapped to a specific side?

Is that correct?

A. I mean, Hinckley talks about input received on the right side of the bezel, and input received on the left side of the bezel, and so on. So, yeah. Hinckley contemplates that the input could come from different sides.

Q. And Hinckley also contemplates that one of those sides or regions could be mapped to no functionality?

Is that correct?

A. Are you referring to something specifically in figure -- in paragraph 61?

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Q. Sure. So it seemed like you were reading, I guess the sentence, "Input received on the left side of the bezel and then right side of the bezel," and so on. And then that next sentence starts with "furthermore."

It seems to be saying that it might be that one of the sides has been mapped or associated with no functionality at all. Is my understanding correct?

A. Well, yeah. That sentence that I think -- the sentence that I believe you are referring to reads:

"Furthermore, input received in different regions of a bezel side might be mapped to different functionality or to no functionality at all."

And then it goes on. But that does suggest that some -- or Hinckley there is describing that inputs in some regions might not be mapped -- might be mapped to no functionality at all.

Q. And then following, the next sentence says:

"Some bezel edges may be left unassigned or may be insensitive to touch-and-hold, so that inadvertent operations will not be triggered."

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Is that correct?

A. Yeah. Hinckley describes that as one possibility. That, you know, within the scope of what Hinckley is describing, some bezel edges may be left unassigned or may be insensitive to touch or hold.

So that's one option that Hinckley would describe -- that Hinckley does describe.

Q. So, I guess it's saying that some regions or sides could just not be assigned or could be insensitive to certain gestures, and that would help prevent user errors or inadvertent operations?

A. That's what that sentence says. Some bezel edges may be left unassigned or may be insensitive to touch or hold, so that inadvertent operations will not be triggered.

So what Hinckley is saying there is that a designer -- being guided by Hinckley's teaching, in certain context, you might decide not to assign, or to make particular parts of a bezel in this case insensitive to any gestures, to particular gestures.

Q. And so, one such functionality associated with the bezel gestures would be the -- I guess the deployment of a bezel menu?

Is that correct?

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A. A bezel gesture can be used to bring up or deploy a bezel menu. That's correct.

Q. And so, I know you had previously -- or we had previously discussed the paragraph 74, which was referencing Figure 6 of Hinckley.

A. Yes.

Q. And Figure 6 shows an example of bezel menu. Correct?

A. Let's see. Yes.

Q. And so, this bezel menu can be operated in both a novice mode and an expert mode? Is that correct?

A. Yes. Hinckley describes both novice and expert modes for its bezel menus.

Q. And so, in the novice mode, the user -- referencing Figure 6, I guess, the user can tap one of the icons, you know, 612 through 620, to create an object.

Is that correct?

A. Are you sort of referring to a particular part of Hinckley here?

Q. Yeah. So I'm looking at paragraph 77.

A. Okay. Yes. That's -- paragraph 77 describes that -- describes that:

"In the novice mode, after the user

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gestures to reveal the bezel menu 610, in this case, the user can lift their finger, whereupon the bezel menu can remain open for a configurable interval (or indefinitely)."

So in this case, they have used a gesture to open the menu, and then the user can tap on a desired menu item associated with one of the icons or slots, 612, et cetera.

Q. And that tap on the desired menu icon accesses the functionality associated with that particular icon. And then at least in the example in paragraph 77, that would be creating an object on the canvas.

Is that fair?

A. What paragraph 77 says:

"For example, tapping on a particular icon or slot may cause an object to be created on the canvas."

So, in this example, a tap on a particular icon or slot may cause an object to be created on the canvas.

Q. And then it says in the following sentence, that:

"This tap will cause the object to be created or appear in a default location on the

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canvas."

Right?

A. Well, to be clear about all the caveats or the context, it says:

"In at least some embodiments in the novice mode, objects that are accessed from the bezel menu appear in default locations on the canvas."

Q. Hinckley also describes creating an object via the expert mode, following that example that is used to create an object in the novice mode.

Is that correct?

A. Hinckley -- yes. Hinckley also describes the use of the expert mode in the subsequent paragraphs as well.

Q. And then paragraph 78, it's using the expert mode to perform the same function. Is that right?

A. Let's see. Well, to be clear, the function that is described in 78, in the first sentence, it says:

"In the expert mode, once the user is familiar with the location of commonly used items accessible from the bezel menu, the user can perform a continuous finger-drag that crosses through the

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slot or icon and onto the canvas to create and drag an associated object (or tool, or interface mode) to a specific desired position or path, in a single transaction."

So, this -- in the expert mode, again, they are describing the creation of an object, as was described in the novice mode example as well.

Q. And so, both the novice and expert mode result in the creation of the object, but as described in paragraph 78, I guess the expert mode -- I guess provides additional functionality that enables, I guess, the positioning or placement of the object in the same gesture?

Is that right?

A. I think -- yeah. I think the way to put it is Hinckley is teaching different possibilities. And the part of paragraph 78 that I just read describes the possibility of creating and then dragging the object to position it.

While in the description of the novice mode, Hinckley says that at least in some embodiments in the novice mode, objects that are accessed from the bezel menu appear in default locations on the canvas.

So, you know, Hinckley is talking about

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different possibilities here. Yeah. I think without limiting it -- you know, without limiting it to just those possibilities.

Q. So looking at, I guess Figure 7 of Hinckley, this is showing the expert mode of this object creation example?

A. Let me get to Figure 7 and look at that. So I see Figure 7, and I am just going to -- excuse me. I've got a lot of windows here -- look at the -- look at the description of that. Let's see.

[Witness reviewed document.]

A. Yes. That's correct. This is an example of Figure 7 in -- or excuse me, example -- Figure 7 is showing an example of this -- of how expert mode would work.

Q. And I guess consistent with the first sentence in paragraph 78, and following the arrow in Figure 7, you would, I guess, start on the bezel and then bring your finger down and cross through the slot into the canvas.

So the gesture would start on the bezel, go through the slot, and then on to the rest of the screen. Correct?

A. In this example, yes. That's right. In the example -- excuse me, in the example of

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Figure 7.

Q. And then this example in Figure 7, the menu would already be open once you -- when you are performing this drag or this gesture, sorry. Correct?

A. Are you -- are you asking -- let's see, referring to Figure 7 -- are you asking whether the menu 610 would have already been exposed?

Q. Yes.

A. No. I don't think that's the case, necessarily. I think, you know, I think what Hinckley is teaching that as the -- that the -- I think Hinckley's teachings include the case, at least, where the bezel menu is not exposed, and you make the -- you make the gesture.

And what we see in Figure 7 is, as you make the gesture, the menu 610 gets exposed, and immediately, the action associated with -- with -- in the example in Figure 7, the gesture associated -- or excuse me, the operation associated with menu slot 614 is performed as you continue the motion through that area of the bezel menu.

So, I think that's what's being described, if you -- in that first sentence of paragraph 78, where it says:

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"In the expert mode, once the user is familiar with the location of commonly used items accessible from the bezel menu, the user can perform a continuous -- a continuous finger-drag that crosses through the slot or icon and onto the canvas."

So, yeah. I think that's the idea of exposing the -- of the menu in this case, 610, not being exposed, and then it exposes as the user moves their finger as they do that gesture, that's certainly consistent with Hinckley's teachings.

Q. So if the menu is not exposed when you started this gesture, would your finger cross through the slot? So I guess in this example in Figure 7, 614, and the first sentence at paragraph 78, it says "a continuous finger drag that crosses through the slot."

A. Well, my understanding is that it would cross through the slot. Because as you're literally making that gesture that's shown in figure 610 with that arrow -- as you are making that gesture, you are revealing the menu 610.

So, literally, it's being revealed and your finger is crossing through slot 614 as it's being revealed.

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So I think that is certainly one -- one, how should you say -- one embodiment or interpretation of what Hinckley is teaching, as opposed to other embodiments like in paragraph 79, where the bezel menu is not necessarily revealed at all.

Q. And so, paragraph, I guess 79, which looks to be discussing Figure 8, I guess, is it your opinion that in paragraph 79, as shown in Figure 8 of Hinckley, that the bezel is not shown at all, and you perform this -- the same gesture to create the object, but in paragraph 78, it's a different embodiment where, I guess, the menu is shown when you perform that gesture?

A. Yeah. Yes. And I describe that in my -- in my reply declaration. I guess it's paragraph 37, where I describe that as well. Yeah.

Q. And I guess, how -- taking a step back, how is the bezel menu 610 opened or exposed in these examples?

A. Well, it's exposed -- let's look at paragraph 73. It says:

"In one or more embodiments, the bezel menu can be accessed through a bezel gesture, in which a finger of user's hand 606 touches the bezel

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and then moves across the bezel and onto the display device 608 in the direction of the illustrated arrow.

This can allow bezel menu 610 to be dropped down at which time it can become fully opaque."

So the menu -- the bezel menu is exposed through a gesture.

Q. Is that the same gesture that's used in the expert mode?

A. Well, I think so, for multiple reasons. If you look at Figures 7 and 8, and Hinckley -- let's see. Excuse me. Let me -- it gets kind of complicated. I want to just be -- be clear as I look at these things.

[Witness reviewed document.]

A. So the way that -- what Hinckley is teaching here is a gesture -- a bezel gesture that we know when Hinckley describes the novice mode, the user has made a gesture to reveal the bezel menu.

And the way Hinckley describes that, and we read this part, the user gestures to reveal the bezel menu, and the user can lift their finger. So that gesture had to come down and reveal the menu.

Now, we -- as we described in -- as I

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explained with respect to Figure 7, which illustrates, I guess one example or embodiment of the expert mode, again, you have a gesture that can reveal the menu and then you keep going.

It's a continuous gesture. That's the key difference from the novice mode, that the user didn't pause and lift their finger and sort of wave. Instead, there is a continuous gesture. The menu is revealed, and you have continued through a particular menu slot to access the functionality with it.

But yeah. It would be at least for the beginning of the gestures, whether you are a novice of expert mode, it would be the same gesture, and then in expert mode, you would continue -- you wouldn't pause.

You would continue on through the menu slot. And then to access the operation or the default operation associated with it.

Q. And when you say "pause," do you mean, I guess temporal pause or a distance pause?

A. Let's see.

[Witness reviewed document.]

A. I think the way I should be careful. So at paragraphs 77 says:

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"In the novice mode after the user gestures to reveal the bezel menu, the user can lift their finger."

So the way I think about that is they have made the gesture. The menu is revealed. And then they lift their finger. So that's what actually happened, as opposed to them continuing on through it, which is the way things would happen in the -- in the expert mode.

Q. So looking at Figure 6, this is depicting an example of opening the bezel menu. Correct?

A. Yes.

Q. Okay.

And if the user touches the bezel, moves through, I guess the 604 shown in the top illustration of Figure 6, and then goes down and lifts their finger, then the bezel menu will be revealed. Correct?

A. Yes. Right. I think just what it says in paragraph 73:

"The bezel menu can be accessed through a bezel gesture in which a finger of user's hand 606 touches the bezel and then moves across the bezel and onto the display device 608 in the direction of the illustrated arrow. This can allow bezel menu

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610 to be dropped down..."

Yeah. So that's what's described there.

Q. The gesture opening the bezel menu, is that limited by distance in any way? And I'll give you an example to try and make this more clear.

If I start at the bezel, and go down half-way through the screen, as shown in the -- in Figure 6, would that open the bezel menu?

A. Are you referring to Figure 6 specifically? I'm not sure I understood your question.

Q. Yeah. Sorry. I'll try to rephrase it. To be more clear.

Figure 6 shows the bezel menu exposed. Correct?

A. Yes.

Q. And when the bezel menu is exposed, the slots probably extend down 25 percent of the height of the screen?

Is that fair?

A. Some -- some fraction of the display screen. I don't know if it's 25 percent. 30 percent. Something.

Q. Okay.

A. I don't know. Somewhere in there, maybe.

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Q. Can we agree it's less than half? That --

A. So that --

Q. -- seventy-five percent?

A. At least as shown in that -- in the bottom half of Figure 6, the bezel menu takes up less than half of the display screen 608 in that example.

Q. And continuing with that illustration, if I start a gesture on the bezel screen and move my finger down to where it ends, probably half-way down the display screen 608, will the bezel menu be displayed? Will that gesture result in the bezel menu being displayed?

A. And I -- there is not what -- I'm not quite sure if you are asking -- are you asking if the -- if there was -- if the user -- I mean right now, as shown in figure -- as illustrated in the bottom part of Figure 6, the tip of the user's finger is at the bottom of one of the menu slots.

Are you saying if the user's finger were -- fingertip were lower on the display? I'm trying to understand what you are asking.

Q. Right. So if you are referring to Figure 6, there is an arrow that illustrates, you know, where the gesture starts, and then there is the finger. If the finger continues sliding

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downward, I guess will that -- what will occur?

A. Well, I think, you know, Hinckley is talking about various embodiments of -- various embodiments of its invention. And in paragraph 76, it says:

"In at least some embodiments, different gesture modes can be utilized to access functionality associated with the bezel menu 6."

So, for example, one gesture mode can be a novice mode and another gesture mode can be an expert mode. And then in paragraph 77, what Hinckley says there:

"In the novice mode, after the user gestures to reveal the bezel menu 610, the user can lift their finger, whereupon the bezel menu can remain open for an interval -- a configurable interval (or indefinitely)."

And so, I think all Hinckley is saying is that in novice mode, there is a bezel gesture, starts on the bezel and then moves down through the visual affordance, which it also refers to.

And that reveals the bezel menu. And at some point, it literally -- it says, after the user gestures to reveal the bezel menu, the user can lift their finger.

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So, I think all Hinckley is saying, that -- is that after the menu is revealed, if the user lifts their finger, then the bezel menu remains open. And that's -- Hinckley is not saying that the user has to lift their finger only precisely after they have revealed it and they can't move their finger anymore.

I think Hinckley just doesn't say that. All it says is that the user lifts -- lifts finger and then the bezel menu remains open. So that's all Hinckley says.

Q. So I guess referring to the last sentence in paragraph 78, which is discussing the expert mode?

A. Yes.

Q. The user can also lift a finger and then at least in some embodiments, the bezel menu can remain open in the expert mode.

Is that correct?

A. Yes. Paragraph 78 is referring to the expert mode, and describing a gesture that happens in the expert mode. And then as you said, it's saying that, at this point, the user can lift a finger, go on and do some annotations.

And then:

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"In at least some embodiments, the bezel menu 610 may or may not remain fully open after a particular functionality has been accessed."

So Hinckley, I guess, contemplates or teaches both possibilities, that the bezel menu can remain open, or cannot -- may or may not remain open.

Q. And the bezel menus that we have been talking about, in I guess Figures 6 through 8, they don't depict a radial menu icon. Correct?

A. None of these examples show a radial menu icon in Figures 6 through 8.

Q. And so, is it fair to say that the novice and the expert modes of the bezel menu are independent of the inclusion of any radial menu or radial menu icon?

A. Well, I -- if by "independent," you mean novice and expert mode could be used with bezel menus that had radial menu icons, and, therefore, radial menu submenus, and bezel menus that did not have radial menu icons, I would agree.

I think the novice and expert mode could be used in either of those situations.

Q. And then, there are bezel menus that do include these radial menu icons, like that shown in Figure 17. Correct?

A. Yes.

Q. And I guess referring to the paragraph discussing radial menus, it looks like it starts at paragraph 104, with the heading, "Radial Menus."

A. Yes.

Q. I guess referring to Figure 17, it shows a version -- a top version without a radial menu, and then a bottom version with the radial menu exposed.

Is that fair?

A. Yes.

Q. And so, in the -- I guess starting at the top example without the radial menu exposed, a user can access the functionality of one of the slots 1712 by tapping on that slot.

Is that correct?

A. Let's see. Yes. Tapping on the -- I just want to make sure I have the exact language that -- excuse me -- that Hinckley uses here.

[Witness reviewed document.]

A. Excuse me, I'm -- oh. I see the problem. Yeah. You -- I think I know what you asked. But basically, Hinckley says that tapping on the bezel menu slot will access some functionality.

And I think Hinckley goes on to say that it could be whatever functionality the system designer wanted to associate with it.

Q. And so, a user can also access functionality that's associated with the radial menu icon, or I guess the radial menu, by, I guess manipulating or selecting the radial menu icon 1714.

Is that correct?

A. Yes. Hinckley -- I mean, Hinckley described that, I think pretty clearly, that a user can -- you know, a user can access a radial menu through a -- is able to do it through a tap and hold on the radial menu icon 1714.

And I think it says that that's -- the radial menu icon 1714 portion of icon or slot 1712.

Q. And the icon -- the radial menu icon 1714 is smaller in size than the icon 1712. Right?

A. Yes. It's a -- it's only a part of -- well, it's only a portion of the whole display -- I guess the part of the display screen that is menu slot 1712.

Q. Would you say it's a relatively small portion?

A. Well, my -- I mean, as illustrated in Figure 17, radial menu icon 1714 is -- I mean, certainly takes up less than half of the area of 1712.

I don't think Hinckley necessarily specifies how big or small, or restricts how big or small 1714 -- radial menu icon 1714 must be. But as I said in the illustrated examples, it is, you know, certainly less than half of the whole area of menu slot 1712.

Q. And I guess as a general principle, is it easier to select objects that are larger, as compared to objects that are smaller? You know, all things being equal, other than the size?

A. Yes. It's well-known, and really obvious, in a user interface, it's easier -- one of the factors that affects how easy it is to select an object or how quickly you can select an object is its size.

Q. And so, you would agree that a user specifically trying to touch the radial menu icon 1714, as it's depicted in Hinckley's Figure 17, would have a higher risk of error than a user trying to just select the portion of slot or icon 1712? Or --

A. Well, all things being equal, it's easier to select a larger area than a smaller area. Again, I think Hinckley teaches a couple things that I

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1 think are important to keep in mind.
2 That Hinckley, you know, talks about a tap
3 and hold on or near the radial menu icon 1714. So
4 it's talking about a tap and hold on or near that
5 radial menu icon. And then it's talking about a tap
6 on the whole menu slot 1712.
7 So it's talking -- it's giving examples of
8 two different gestures. A tap and a tap and a hold.
9 And it's also saying that the tap and hold with
10 respect to radial menu icon 1714 doesn't have to be
11 only just precisely on it, but it also can be near
12 it.
13 **Q. And so, there is a sentence at the end of**
14 **paragraph 107 that says:**
15 **"In some embodiments, tapping on the**
16 **radial menu icon triggers a default action which may**
17 **or may not be different than the action associated**
18 **with tapping on the bezel menu slot."**
19 **Do you see that?**
20 A. Yes.
21 **Q. So is this describing, I guess, two**
22 **alternative embodiments? Or can you provide me with**
23 **what your understanding of -- what that sentence is**
24 **saying?**
25 A. I think my understanding is simply based

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1 on the -- just the plain language. And I'll read it
2 again. And then I guess just explain it.
3 "In some embodiments, tapping on the
4 radial menu icon triggers a default action which may
5 or may not be different than the action associated
6 with tapping on the bezel menu slot."
7 So, what Hinckley is saying is remember,
8 before we were talking about a tap on the radial
9 menu -- or, excuse me, a tap on the menu slot 1712
10 and a tap and hold on the radial menu icon 1714.
11 Now, Hinckley is just talking about one
12 gesture -- a tap -- and saying that a tap on the
13 radial menu icon could trigger a default action
14 which may or may not be different than the action
15 associated with tap on the bezel menu slots.
16 So Hinckley is saying, look, consistent
17 with my teachings, somebody who's designing a system
18 could design it so that the tap on the radial menu
19 icon portion of the menu slot has a different action
20 than the default action from tapping on the rest of
21 menu slot 1712, or it could be the same action.
22 So, that's -- that's what that sentence is
23 saying. Hinckley is saying you could -- "if you are
24 building a system, you could do it both ways,
25 according to my teachings."

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1 **Q. And are those alternative embodiments? Or**
2 **alternative ways, you said? I mean, I guess what**
3 **I'm getting at here is there is -- there is this**
4 **"may or may not."**
5 **And so, I guess in your testimony, is it**
6 **your understanding that there is a kind of one way**
7 **to build it, or it's the same, and then another way**
8 **to build it or it's different?**
9 A. Well, let me try to explain again and I
10 think it will answer your question. And I'm going
11 to give the -- I'm going to first start with a
12 perspective of the user of the system.
13 So, if I tap on somewhere on menu slot
14 1712, something will happen. Something could
15 happen. I suppose you could design a system so that
16 nothing happened, but that's not very interesting.
17 Not very useful.
18 So something will happen if you tap on a
19 menu slot. And that includes that something will
20 happen if you tap on the portion of the menu slot
21 covered by the radial menu icon. Something will
22 happen.
23 And in a user's perspective, either it
24 will be when I tap on an area of the menu slot that
25 is the radial menu icon portion -- either that

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1 action will be the same thing that happens if I tap
2 on another portion of the menu slot, or it will be
3 different.
4 Literally, there is no other logical
5 possibilities. It's got to be one or the other.
6 And so, as a system designer, you are going to
7 design it, one way or the other.
8 So then, to answer your question, I think
9 Hinckley is saying, I mean, maybe the language is a
10 little inartful the way it's written, but Hinckley
11 says:
12 "In some embodiments, tapping on the
13 radial menu icon triggers a default action which may
14 or may not be different than the action associated
15 with tapping on the bezel menu slots."
16 It's got to be one or the other. It may
17 or may not be different. It's almost just a logical
18 requirement. It has to be the same or it has to be
19 different. There is no other possibility.
20 **Q. Okay. I think I understand you. So like**
21 **you said, from a systems designer, you basically can**
22 **do implementation A, that may be different, and then**
23 **you can do implementation B, that may not be**
24 **different.**
25 **Is that a fair characterization?**

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A. I think that's what a person of ordinary skill in the art would understand Hinckley to be saying. Yes.

Q. Okay. And I guess referring to your paragraph 21 of your reply declaration?

A. Okay. I'm there.

Q. The first sentence, you kind of quote this language, and you have a dot, dot, dot, that eliminates the possibility that it may be different.

And so, am I correct in interpreting that as you are relying on, I guess the implementation or the tapping on the icon 1714 may not be different, i.e., the same, as the tap on the other portion of the slot 1712?

Is that correct?

A. Well, here, for the -- let's see. I want to just look at that paragraph and see where I am in my report. Yeah.

[Witness reviewed document.]

A. Right. So again, in my report, I'm replying to Dr. Rosenberg's opinions. And as part of my reply here, I'm talking about the -- I guess, if you will, I'm talking about the teaching of Hinckley, that tapping on the default menu icon triggers a default action, which may not be

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different. Which may not be different than the action associated with tapping on the bezel menu slot.

So that was one of the possibilities that Hinckley contemplated. And here in my reply to, you know, Dr. Rosenberg, I'm talking about that possibility. And I think maybe just the next sentence there is probably useful.

"In other words, tapping anywhere inside menu slot 1712, including the radial menu icon 1714, would activate a default operation (e.g., launching an application), whereas tapping and holding on or near the radial menu icon 1714 of menu slot 1712 opens the radial menu 1715."

So, I'm just talking about that teaching of Hinckley here as part of my reply or my response to Dr. Rosenberg.

Q. And so, this interpretation, I guess only -- well scratch that. Let me start again.

The last sentence of Hinckley's paragraph 107 has kind of embodiment A and embodiment B, are two different embodiments, and then your paragraph 21, you are relying on one of those, in which the default action may not be different.

And then that embodiment, as you said,

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tapping anywhere inside menu slot 1712, including the radial menu icon 1714, would activate a default operation.

Is that fair?

A. In these first several sentences of paragraph 21 of my declaration, I am -- as part of my reply to Dr. Rosenberg, I am referring to the case where -- as Hinckley taught, the case where tapping on the radial menu icon triggers a default action which may not be different than the action associated with tapping on the bezel menu slot.

So, yes. This is a case where I'm talking about the possibility that Hinckley related where tapping anywhere on the menu slot 1712, including the radial menu icon 1714, would lead to the same action.

Q. So moving to paragraph 108 of Hinckley, this is discussing performing or accessing functionalities of radial menu 1715 after it is open. Correct?

A. Yes.

Q. And so, we had been discussing, I guess that you can do a tap and hold on the icon 1714 to open or expose this radial menu 1715. Correct?

A. Yes.

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Q. And so, in that scenario, if you tap and hold, the radial menu 1715 will appear, and then you can lift your finger up. And then according to the first sentence of paragraph 108, you have to touch back down and then stroke in a particular direction to access kind of the various functionalities.

Is that correct?

A. Yes. I think you just paraphrased that first sentence, and I would agree with that first sentence. I mean, that's what Hinckley says.

Once the radial menu 1715 is exposed, the user can access various functionalities or commands by touching down on or near the radial menu icon and stroking in a particular direction.

So, since that says the user can access functionality by touching down and then stroking, that implies that the user -- that the user's finger was not the contact before, because it says you have to -- the user is now touching down. Yeah.

Q. And so, when a user touches down and strokes their finger in a direction that's associated with one of the five, I guess cross-hatched squares that are shown in Figure 17, that would result in the action that was associated with the slot being replaced by the functionality

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1 **associated with the cross hatch square?**
2 **Is that consistent with your**
3 **understanding?**
4 A. I think -- I think you are referring to
5 the last sentence of paragraph 108, or last two
6 sentences of paragraph 108.
7 "In at least some embodiments, each icon
8 or slot 1712 has a default functionality or command.
9 By selecting a particular radial menu functionality
10 or command, the default functionality or command may
11 be replaced by the selected functionality or
12 command."
13 Yeah. The -- yeah. I think, so what
14 Hinckley is talking about here is a way through
15 using the radial menu to change the default
16 functionality of the menu slot that the radial menu
17 is associated with.
18 **Q. Okay. And I guess -- just as an example,**
19 **I guess to help me illustrate things or clarify**
20 **things in my own head.**
21 **Let's say you start -- you know, you get**
22 **this thing out of the box. First time operating it.**
23 **You pull out the menu. You know, the slot 1712 will**
24 **have a default action that's associated with, you**
25 **know, one function.**

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1 **You can then use the radial menu, via the**
2 **radial menu icon, to select a different**
3 **functionality, and then you can tap on the slot**
4 **after that and it will be essentially a second**
5 **function instead of the default function.**
6 **Is that correct?**
7 A. That seems like a correct description
8 of -- as Hinckley said, how its invention could
9 operate in at least some embodiments. Yeah. In at
10 least some embodiments, an icon or slot 1712 has a
11 default functionality.
12 And then in at least these embodiments,
13 you could change that default functionality by
14 selecting a particular functionality through a
15 radial menu.
16 **Q. Okay.**
17 **And so, I guess depending on what the user**
18 **had done in the past, you know, whenever you click**
19 **on the slot 1712, it could result in different**
20 **actions being performed, depending on kind of how**
21 **it's configured or set up. Right?**
22 A. Could you ask that question again?
23 **Q. So, under the interpretation we have been**
24 **discussing in Hinckley's paragraph 108, there could**
25 **be a time where a user taps 1712 and it performs one**

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1 **action, and another time, depending on how it's**
2 **configured, where a user could tap 1712 and it would**
3 **perform a second distinct action. Correct?**
4 A. Because Hinckley talks about -- again,
5 this is all in certain embodiments, but because
6 Hinckley talks about a menu slot having a default
7 action that can be triggered by tapping, and because
8 Hinckley says the default action can be changed
9 through this particular means, then that means --
10 then that implies that at different points in time,
11 tapping on a menu slot would lead to different
12 actions because the default action has been changed.
13 **Q. Okay. I'm going to drop Exhibit 1004 into**
14 **the chat that references the Ahn reference.**
15 THE WITNESS: Since we are shifting and we
16 have been going over an hour, I'd actually like a
17 break at this point.
18 ATTORNEY WALLIS: Sure. Is five minutes
19 all right?
20 THE WITNESS: Yeah. Yeah. There's fine.
21 ATTORNEY WALLIS: Okay. Good.
22 (Short break.)
23 BY ATTORNEY WALLIS:
24 **Q. All right, Dr. Terveen. Now turning to**
25 **the Ahn reference that I put in the chat for you, I**

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1 **think you said you were able to get that open.**
2 **Right?**
3 A. Yes. I've got it open.
4 **Q. Okay.**
5 **And Ahn -- if we'll go to Figure 18?**
6 **Well, let's backtrack just a bit. Ahn describes a**
7 **way of opening its menus via a, I guess, directional**
8 **pattern or via directional keys. Correct?**
9 A. That's one thing Ahn describes.
10 **Q. And in opening a menu via these**
11 **directional keys, a user would hit a prospective**
12 **key, and then thereafter, a menu would appear on a**
13 **side of the screen that was associated with that**
14 **respective key.**
15 **Is that correct?**
16 A. Yeah. That's one teaching of Ahn.
17 **Q. And then Ahn teaches opening the same**
18 **menus via touch gestures. Correct?**
19 A. Yes. That's another teaching of Ahn.
20 **Q. And referring to Figure 15 of Ahn, a user**
21 **can swipe to open one of these menus, and in the**
22 **example in Figure 15, it's menu 1500.**
23 **That's correct?**
24 A. Let's see. I think -- I think Ahn
25 illustrated opening -- or one -- Ahn illustrated

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opening menus with a touch gesture, with respect to Figure 15's menu. That's correct.

Q. And Figure 18, and corresponding paragraphs 118 and 119 describe opening the same menu 1500. Correct?

A. Correct. Paragraphs 118 and 119 describe ways to open a menu. And they are referring specifically to the example of opening the menu shown in Figure 15.

Q. The Figure 18, I guess, has two illustrations. An A and a B. Is that correct?

A. Yes.

Q. Are these two different embodiments? Or are these -- I guess, so let's restart that. So strike that.

Are these two different operations? Or are these two different portions of the same operation?

A. I believe a person of ordinary skill in the art, reading these paragraphs 118 and 119, and looking at Figure 18(a) and (b), would think of these as being two different operations or gestures.

Q. Okay.

So I guess let's start with the first operation. And that would be illustrated in

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Figure 18(a). Correct?

A. Yes.

Q. And that would be described in paragraph 118. Correct?

A. Yes.

Q. Can you just describe, I guess, how this works?

A. Yes. I may be going back -- I'll start with paragraph 117, because this is sort of setting up -- it's setting up both paragraphs 118 and 119.

So paragraph 117, it says:

"In the above-described implementations, if the touch and drag operation of a specific direction is performed in the touch input device 10, an identifier for notifying the user that an item list matched to the specific direction is displayed in the display can be displayed in the display 40 --"

The language got kind of involved there.

"The identifier may be graphical in form, such as an icon. For example, the identifier may be a specific icon for notifying a start position of the touch and drag operation."

So the icon or identifier, then -- that is referred to in paragraph 117, in paragraph -- well

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let's just talk about paragraph 118, which refers mostly to Figure 18(a).

It's that shaded -- shaded area in figure -- in the Figure 18 that is referred to with a number 1800.

So then, what Figure 18 -- excuse me -- what paragraph 118 goes on to say is that Figure 18 illustrates an example of a screen for displaying a graphical display for notifying a start position of a touch and drag operation to a user.

So it's -- for example, referring to Figure 18(a), if the user drags in a right direction after touching the screen, a graphical shadow 1800 is displayed in the display 40, and the menu list 1500 shown in Figure 15(b) can be displayed in the display 40.

In this case, as the user drags the graphic shadow 1800, the menu list 1500 can be displayed along the dragged graphic 1800.

So I am going to explain that maybe in a little simpler language. Figure 18(a) is showing a case where the user is dragging in a right direction. So starting on the left edge of the screen. Because that graphical shadow 1800 shows -- it notifies the start position of the touch and drag

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operation.

And then, as the user drags the graphic shadow rightward, the menu list can be displayed along the dragged graphic. So the menu is being dragged in as the user is -- as the user is dragging -- as the user is doing a drag gesture.

So, that's maybe complicated language, but basically, Figure 18(a) is describing a case where -- or is illustrating a case where the user can drag in a menu from the left side of the screen, using a rightward drag -- rightward drag or swipe of their figure.

Q. Does the user -- or I guess, is graphic shadow 1800 always shown? Or does the user have to bring it out by dragging in a right direction?

A. Well, I think here, you have to -- I think a person of ordinary skill has to read the paragraph 117 to understand the purpose of the graphical shadow 1800.

So the graphical shadow 1800 is -- its purpose is to notify a start position of a touch and drag operation to a user. That's what it says in paragraph 118. It said the same thing in paragraph 117. The identifier may be a specific icon for notifying a start position of the touch and drag

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1 operation.
2 So when you read that, you see that the
3 icon or indicator, which an example of that is the
4 graphical shadow 1800, needs to be visible. Because
5 its purpose is to indicate to the user the start
6 position of a touch and drag operation.
7 **Q. So read, I guess, the first sentence --**
8 **actually, let's read the second sentence of**
9 **paragraph 118.**
10 **"For example, referring to Figure 18(a),**
11 **if the user drags in a right direction after**
12 **touching the screen, a graphical shadow 1800 is**
13 **displayed in the display."**
14 **Is that describing me dragging, and then**
15 **the graphical shadow appearing? Or are you saying**
16 **the graphical shadow is already there?**
17 A. I think the graphical shadow is already
18 there. I think, again, when a person of ordinary
19 skill in the art reads these paragraphs and
20 understands what the purpose of the graphical shadow
21 is, it would have to be displayed in order to serve
22 that purpose. Namely, to notify the user of the
23 start position of the touch and drag operation.
24 So, I think maybe that language is a
25 little funny. But that's -- the language you just

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1 read might be a little funny, but I think that's
2 what a person of ordinary skill in the art would
3 understand it to mean. Because of the purpose of
4 the graphical shadow.
5 **Q. And so, I guess reading the first**
6 **paragraph of -- or first sentence of paragraph 117,**
7 **if the touch and drag operation of a specific**
8 **direction is performed in the touch input device, an**
9 **identifier for notifying the user that an item was**
10 **matched to the specific direction is displayed in**
11 **the display.**
12 **It's your understanding that this is not a**
13 **kind of if/then functionality? Where if the touch**
14 **and drag operation is performed, an identifier for**
15 **notifying the user is displayed?**
16 A. I think the way a person of ordinary skill
17 in the art would interpret that language, especially
18 in light of Figure 18, which shows that the
19 graphical shadow is displayed -- I think that would
20 indicate that at least one implementation that's
21 consistent with that is that the graphical shadow is
22 displayed in order to notify the user of the start
23 position for touching and dragging a menu on to the
24 screen.
25 Because, you know, that's -- that's what

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1 the user is trying to do. They are trying to drag a
2 menu -- get a menu on to the screen.
3 And the graphical shadow's purpose is to
4 show that that's -- that something is available for
5 them to do, and that the start position of the
6 gesture is, well somewhere on the -- in this case,
7 the left edge of the screen.
8 **Q. And so, I guess your interpretation, or**
9 **your understanding is that a POSITA would not read,**
10 **you know, paragraph 117 or 118 literally, as kind of**
11 **if/then operations, but they would understand that**
12 **the device, or the graphical shadow 1800 is there to**
13 **begin with?**
14 **Is that correct?**
15 A. I said that is a certainly -- yes. A
16 POSITA would understand it that way. Because of the
17 purpose of the graphical shadow.
18 And if we just sort of think about the
19 second sentence in paragraph 118:
20 "For example, referring to Figure 18(a),
21 if the user drags in a right direction after
22 touching the screen, a graphical shadow 1800 is
23 displayed in the display 40."
24 And I think what's again a consistent
25 interpretation of that, in light of the teachings

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1 here in these paragraphs, is that it is displayed,
2 but it doesn't mean it wasn't displayed before the
3 user started dragging in a right direction. That's
4 not -- that's not required, that it was not
5 displayed before the user started dragging.
6 And furthermore, if it wouldn't be
7 displayed, then how would it serve the purpose of
8 notifying the user of where you needed to drag in
9 order to bring out the menu?
10 **Q. But that paragraph 118 uses, I guess a**
11 **different description for the menu, where it says it**
12 **can be displayed. Is that right? Whereas the**
13 **graphical shadow is displayed.**
14 A. Well, you are referring to the sort of
15 last part of the second sentence of that paragraph.
16 But if we go to the third and final sentence, it
17 reads:
18 "In this case, as the user drags the
19 graphic shadow 1800, the menu list 1500 can be
20 displayed along the dragged graphic 1800."
21 So that's certainly teaching a case where
22 as you are dragging the menu -- as you are dragging
23 the graphic shadow, you are also -- the system is
24 also displaying the menu list alongside it.
25 Yeah. That's just what that language

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would -- that's how a person of ordinary skill in the art would understand that language, when it says the menu list can be displayed along the dragged graphic 1800.

That would have to mean it's being displayed while the user is doing the dragging.

Q. And I know we had briefly discussed kind of Figure 15 before. And in Figure 15, this graphical shadow is not depicted. Correct?

A. That's correct. I mean, I -- Ahn shows, I think Figure 15 shows what that menu 1500 would look like.

And then in Figure 18, in these paragraphs that we have been discussing, it shows a way that -- or -- yeah -- a way that you could actually bring out or -- what would you call it, reveal the menu in Figure 15.

Q. So is it fair that Figure 15 and Figure 18 are both illustrating ways to reveal menu 1500, but that Figure 18 has the graphical shadow displayed? Whereas Figure 15 does not?

A. Let's see. I think, you know, Ahn describes different menus and different techniques -- different types of menus. Different techniques. We discussed already that menus can be

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revealed through pressing a key or from gestures.

And then Ahn also teaches through its Figure 18, and through these paragraphs we have been discussing, the use of an indicator like the graphical shadow, for giving a user a clue that as to the start position of -- of a gesture that would let you reveal a menu.

So, Ahn discloses various things. And here in these paragraphs, and in Figure 18, it's showing one particular way of revealing a menu, which is aided through the use of this graphical shadow technique.

Q. And in Figure 18, the graphical shadow would always be on a display?

A. Well, we have discussed that a person of ordinary skill in the art would understand it to be visible as an aid to the -- to the -- to knowing where to start the gesture to reveal the menu.

I mean, I -- so it certainly is -- it certainly is displayed here, as we've been discussing. I mean, I suppose that you could have a different mode of the interface where you choose not to display it, but certainly, I'm talking about, or these paragraphs are talking about a case where it is displayed.

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Q. And so, I guess Figure 15 and Figure 18 are alternative embodiments, since that graphical shadow is not shown in Figure 15?

A. Let's see, if I -- I should probably check the exact description of Figure 15. I see when I'm glancing at Figure 15, that it may show the finger moving without any graphical shadow.

So it could be that that's a different -- it's just a different technique, but I do want to look at what it says about Figure 15, just to be clear that I'm not being too restrictive.

[Witness reviewed document.]

A. I mean, when I look at paragraph 104, it seems to me unless I'm not searching -- I'm not finding everything when I search, all it says about Figure 15(b) is a menu list matched to a right direction is set to be displayed at the left side of the display 40, Figure 15(b).

Yeah. So I mean, when it talks about Figure 15 there, it's certainly not showing any use of a graphical shadow. So I certainly -- Figure 15, in its description in paragraph 104 doesn't talk about the use of a graphical shadow.

Q. And so, revert back to paragraph 118. That first sentence. It says:

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"Figure 18 illustrates an example of a screen for displaying a graphical display."

Would that be, I guess, more clear, if it said Figure 18 illustrates an example of a screen, I guess, where graphical shadow is displayed? Because it seems to me, I guess what I'm getting at is for displaying at least, in my reading, seems not clear that it's already displayed.

A. Yeah. I think I'll simply say again, when a person of ordinary skill in the art reads these paragraphs, and understands what they are clearly saying the purpose of the graphical display is, namely, for notifying a start position of a touch and drag operation, literally, if the graphical shadow or -- is not displayed, then it doesn't serve the purpose of notifying the user of the start position of a touch and drag operation.

So I think, could you have come up, or could the people who wrote this, which I guess were all -- the people who wrote this patent, or Koreans who work for LG, could they have written clearer English?

Maybe like just saying Figure 18 illustrates an example of a screen that displays a graphical display for notifying a start position of

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a touch and drag operation? Yes.

I think the language could have been -- the language in certain places could have been clearer.

But when you read these paragraphs as a whole, which do clearly outline the purpose of the graphical display, I think you realize it's hard to see how it could serve -- the graphical shadow 1800 could serve that purpose without it being displayed.

Q. So paragraph 118 discloses, I guess a right swipe, and then paragraph 119 discloses a different operation that's a left swipe. Correct?

A. I believe so. So paragraph 119 starts:

"Further, for example, referring to Figure 18(b), if the user touch drags to the left..."

And then it goes on to explain -- explain that example.

Q. And so, in that example, in the operation, you would, I guess start off of the shadow and then move on to it. And as you get to the shadow, the menu would appear.

Is that correct?

A. Well, I think what it says is you would start -- it says the user touch drags to the left.

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And so, it would have to be possible for the user to touch drag to the left so their finger can't be at the extreme left side of the screen.

So maybe -- maybe you start your finger at the right edge of the graphical shadow, or a little further -- or further inward on the screen? I think that detail is not clearly specified here. It simply says you are swiping left. Or it describes that you are swiping or touch dragging to the left.

Q. Okay.

ATTORNEY WALLIS: I think that's all the questions that I have, David. I can pass the witness.

ATTORNEY HOLT: All right. I think I only have maybe one question. Or one, I guess, maybe issue on which to touch.

EXAMINATION BY ATTORNEY HOLT:

Q. Dr. Terveen, could you please open up Exhibit 1006? The Hinckley reference?

A. Yes. Okay. I've got it.

Q. Okay. Can you go to paragraph 45, please?

A. Yes.

Q. I'd ask that you have a look at paragraph 45. We were previously talking about bezel gestures and where the bezel is, and how a bezel gesture

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works with respect to the bezel.

If you wouldn't mind for me, please reading paragraph 45? And then I'll hone you in on a sentence to ask a question, if that's okay?

A. Sure. Sure. Let me do that. Okay.

[Witness reviewed document.]

A. Okay. I've read that.

Q. Okay. There is a sentence maybe about, I don't know, two thirds of the way down that paragraph that says:

"Any suitable technology can be utilized to sense an input on or adjacent bezel 103."

Do you see that?

A. Yes.

Q. Okay.

What would a POSITA have understood that sentence, and maybe particularly in context of this overall paragraph, to mean with respect to how a bezel gesture would be detected?

A. Well, it says -- so, that sentence reads:

"Any suitable technology can be utilized to sense an input on or adjacent bezel 103."

It goes on to say, in the next paragraph:

"For example, in at least some embodiments, the digitizer or sensing elements

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associated with display device 108 can extend underneath bezel 103."

And so, I think in this case, it's talking about technologies that sends a -- they are able to sense a gesture that starts on the bezel and moves on to the screen.

But it also, because the sentence you asked me to read says "any suitable technology can be utilized to sense an input on or adjacent bezel 103," suggests that it's talking about recognizing an input that is adjacent to the bezel. Namely, or for example, starting at the edge of the display screen, right adjacent to the bezel at the edge of the display screen.

Q. Okay.

So how would that then implicate the description of the bezel gestures through the remainder of the document?

A. Well, I think what that means is, so again, what I said is that this is describing a case where the so-called bezel gesture is recognized from the edge of the display screen.

It means that in the rest of the document -- in the rest of Hinckley, when it's describing the use of bezel gestures, that does not

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only refer to cases where they -- those gestures started on a bezel outside of the display screen area.

Q. Okay. Thank you. I have no further questions.

ATTORNEY WALLIS: No questions for me. We can go off the record.

COURT REPORTER: Mr. Holt, can I get your order please, for the transcript?

ATTORNEY HOLT: We'll just take a standard delivery of the final transcript. No rush. No rough.

COURT REPORTER: Okay. Thank you. That's it. Thank you.

(Whereupon, the deposition adjourned at 11:59 a.m.)

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REPORTER'S CERTIFICATE

I, GISELLE MITCHELL-MARGERUM, the undersigned, a Registered Professional Reporter, Certified Reporting Instructor, Licensed Court Reporter, and Certified Court Reporter, do hereby certify:

That the witness, LOREN TERVEEN, before examination was remotely duly sworn to testify to the truth, the whole truth, and nothing but the truth.

That the foregoing deposition was taken remotely stenographically by me on Thursday, September 11, 2025, and thereafter was transcribed by me, and that the deposition is a full, true, and complete transcript of the testimony, including questions and answers, and objections, motions and exceptions made by counsel.

That reading and signing was not requested; and that I am neither attorney nor counsel for, nor related to or employed by, any of the parties to the action in which this deposition was taken; and that I have no interest, financial or otherwise, in this case.

IN WITNESS WHEREOF, I have hereunto set my hand this 17th day of September, 2025.

GISELLE MITCHELL-MARGERUM, RPR, CRI, CCR, LCR, ACCR, CSR
CALIFORNIA CSR 14424

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CERTIFICATE OF DEPONENT

I, LOREN TERVEEN, hereby certify that I have read the foregoing pages, numbered 1 through 86, of my deposition of testimony taken in these proceedings on Thursday, September 11, 2025 and, with the exception of the changes listed on the next page and/or corrections, if any, find them to be a true and accurate transcription thereof.

Signed: .....
Name: LOREN TERVEEN
Date: .....

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ERRATA SHEET

Case Name: Apple Inc. v. Smith Interface Technologies, LLC
Witness Name: LOREN TERVEEN
Date:

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Subscribed and sworn to before me this date day of month , 2025.

_____
LOREN TERVEEN

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