UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

QUALCOMM INCORPORATED,
Patent Owner.

Cases IPR2018-01250 and IPR2018-01251
Patent 8,447,132 B1

Record of Oral Hearing
Held: October 10, 2019

Before TREVOR M. JEFFERSON, DANIEL J. GALLIGAN, and AARON W. MOORE, *Administrative Patent Judges.*

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The above-entitled matter came on for hearing on Thursday, October 10, 2019, commencing at 12:30 p.m., at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

P R O C E E D I N G S

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USHER: All rise.

JUDGE JEFFERSON: Oh, you may be seated while I get the Judge.

JUDGE GALLIGAN: Good afternoon, this is Judge Galligan. Can you hear me?

JUDGE JEFFERSON: We can hear you. We -- about a second away from seeing you.

JUDGE GALLIGAN: Thank you.

JUDGE JEFFERSON: There we go.

JUDGE GALLIGAN: Good afternoon. I'm Administrative Patent Judge Galligan joining from the Texas Regional Office, and before you are Judges Jefferson and Moore, and this is a hearing for two IPRs, IPR2018-1250 and
2018-1251 involving U.S. Patent 8,447,132. Petitioner is Apple and Patent Owner is Qualcomm. May I have appearances for each side, please? And please step up to the podium and make sure the light is green.

MR. RENNER: Okay, yes, sir. Yes, Your Honor, this is Karl Renner from Fish & Richardson. I'm joined by colleagues, Tim Riffe and Kim Leung, and I guess I'll say it as in before, we'll reserve 30 minutes in terms of our direct for redirect. Thank you.

JUDGE JEFFERSON: So 30 minutes for both?

MR. RENNER: Yes.

JUDGE JEFFERSON: Thank you. Patent Owner?

MR. ROBINSON: Good afternoon, Your Honor, Eagle Robinson for Patent Owner. With me are Darren Smith and Erik Janitens, and we'd like to reserve 20 minutes for surrebuttal, please.

JUDGE GALLIGAN: Thank you. We issued an order in both of these cases. We are having one hearing for both cases and each side will have 1 1/2 hours of argument, total, so that's 3 hours total of argument time for this hearing. Petitioner, you bear the burden of persuasion in showing that the challenged claims are unpatentable. You will proceed first; Patent Owner may respond. Petitioner, you may have rebuttal time, you reserved 30 minutes, and Patent Owner, you may have surrebuttal time. With that, Petitioner, you may begin.

MR. RENNER: And, Your Honors, locally, can we approach with demonstratives?

JUDGE JEFFERSON: Yes. Yes. Thank you.

JUDGE GALLIGAN: Oh, and because I'm remote, please, when you're presenting, let me know what slide number you're on, and any other paper, please reference explicitly. Thank you.

MS. LEUNG: Yes, Your Honor. May it please the Board, my name is Kim Leung and I, along with my colleagues, Karl Renner and Tim Riffe, are on behalf of Petitioner Apple, Inc. Two IPRs were instituted against the 132 Patent, IPR2018-1250 which we'll refer to the 1250 IPR, and IPR2018-1251 which we'll refer to as the 1251 IPR. Slide 2, please. So rather than walking step-wise through each ground and claim, we'll try to focus in our limited time together on a subset of the issues that might benefit from a discussion today. For purposes of this discussion, we'll focus on issues 1 to 4. If the Board would like us to address any particular issue first, or any of

the other issues, we can certainly do that; please let me know. Otherwise we'll proceed in the order listed here in the Table of Contents.

Slide 5, please. So let's talk a little bit about the 132 patent. So we see how the first line of this excerpt from the 132 patent, that the 132 patent recognized that techniques for detecting faces and other arbitrary objects and patterns and image are known in the art, and you'll also see as we've highlighted in this particular slide that the 132 patent acknowledged that techniques of dynamic range correction were known, and according to the 132 patent, though, these techniques of dynamic range correction do not take into consideration or use of the content of the image, but the record demonstrates that dynamic range correction which considers and uses the content of the image was also well known at the time of the 132 patent.

Slide 7. Specifically the 1250 petition which is based on the Needham reference establishes that dynamic range correction considers and uses the content of the image was well known. Needham is about dynamic range correction using the content of the image which are detected image features.

Slide 8, please. The 1251 petition which includes grounds based on Zhang and Konoplev shows the broad reach of the claims to another type of correction, specifically a correction applying different amounts of blurring to different portions of an image.

Slide 9. Now that we've provided a brief overview of the 132 patent and the grounds and the references, let's go ahead and address the issues. So the first issue we have here by patent owner is whether the prior art discloses the determined correction is matched to the predetermined type of object recited in Claim 1.

Slide 10. Now, on the left side is the slide. We've highlighted portions of Claim 1 that Patent Owner disputes. Specifically Patent Owner argues that the prior art doesn't show that the correction is matched because the prior art is lacking one, a cause/effect relationship, or, two, a type of correction that is predetermined or assigned to a particular image feature. Now, even if Patent Owen is correct that the claim to match requires this interpretation, Patent Owner is incorrect that the prior art lacks these disclosures. So on the next few slides, we'll walk through how the prior art discloses a claimed match correction by disclosing either a cause/effect relationship or that the correction is predetermined or assigned to the object.

Slide 11. So with respect to the Needham reference, Patent Owner acknowledges that Needham discloses matching, but doesn't agree that every paragraph of Needham that Petitioner cited in the briefings describes matching. So I'm going to go and take you through --

JUDGE GALLIGAN: Counsel, can you tell me where Patent Owner said that it agrees that Needham discloses matching?

MS. LEUNG: Yes, so at the 1250 Patent Owner surreply page 3, and the 1250 Patent Owner response pages 11, Patent Owner specifically says, "When Needham matches a correction to an object in an image," so acknowledging that Needham does disclose matching in some portion. Needham does not also apply a different amount of the same correction to a second portion of the image.

JUDGE GALLIGAN: Thank you.

MS. LEUNG: You're welcome. So I'm going to take you through a few portions of Needham that disclose matching. So first here, we have portions of Needham that disclose a cause/effect relationship. So as I've

highlighted in the top right of the slide here in an excerpt of Needham, Needham describes a feature description includes a feature type. Now, the feature type indicates a type of object, and Needham gives several examples such as a human face, a person, a car, a building, the sky, those are just some of the examples that Needham's given. And then in the next excerpt, Paragraph 24, Needham describes a correction parameter which defines a correction operation and operational parameters used during the correction operation. Now, Needham gives examples of correction operations in Paragraph 31, which is the next excerpt on the right-hand side, and some of those examples of correction operations include increasing the brightness in an image, and enhancing the visual contrast in an image, and those are types of corrections.

So based on these paragraphs, 30, Paragraph 24, and Paragraph 31 of Needham, Needham describes a type of object and a type of correction. Needham further says in Paragraph 26 which is the bottom excerpt on the right, that based on the feature description the correct unit performs one or more specified correction operations. So, in other words, a correction operation which is the type of correction is performed based on the feature description which includes the feature type. So Needham shows this cause/effect relationship between the feature type and the correction operation. The feature type, when it's detected, causes a specified correction operation to be performed. So there is a cause and effect relationship.

Slide 12. In this slide, we'll show that Needham also meets Patent Owner's interpretation that match requires a particular type of correction be predetermined or assigned to a particular image feature. Now, Needham describes in several paragraphs a correction operation being predetermined

for a feature type, so in Paragraph 19, which we've mistakenly cited as Paragraph 20, but the top paragraph on the right there, that's Paragraph 19, describes a correction operation such as maximizing dynamic range being defined on an image feature such as a detected human face. So there's a correction type that's defined on a feature type.

Paragraph 20, the next excerpt on the right-hand side, discloses a correction operation is defined for each image feature, of multiple image features in a single image, so this paragraph is describing when there's one image and there is multiple different image features in there, and each image feature can have a correction operation defined for it. So, for example, there is maximizing dynamic range here described in this paragraph, and that is defined for a human face, and then there is also increasing the brightness which is defined for the sky.

The next excerpt from Needham, Paragraph 35, indicates that there is a corresponding correction operation for each detected image feature, and the correction operation is stored in a way that is linked or assigned to the correction operation so that it can -- so the correction can be retrieved for the image feature.

JUDGE MOORE: So is that corresponding the matching? Where exactly is the matching?

MS. LEUNG: Correct. So the corresponding is -- the corresponding and the retrieved show that it's matched, because it has to be stored some way that there is some link between the image feature and the correction operation that the unit knows to retrieve that particular corresponding operation for the image feature.

JUDGE MOORE: Well, that looks to me like it's matching features with correction parameters.

MS. LEUNG: Well, when the feature is matched to the correction parameter, then the correction parameter would be matched to the feature.

JUDGE MOORE: So the correction parameter --

MS. LEUNG: The correction parameter includes a -- correction parameters includes an operation type, so within the correction parameter there -- the correction parameter defines an operation type and also operational parameters so when it retrieves a correction parameter, it also retrieves a corresponding correction type.

JUDGE MOORE: So the correction types are separate and then the matching is between the feature type and the correction parameter which is an amount of the correction that is applied?

MR. LEUNG: No, the correction parameter is not separate from the correction operation. The correction parameter is -- defines the correction operation and also the operational parameters, so it's kind of an umbrella and underneath is the type of correction and also the operational parameters which indicates the amount of correction, so the correction parameters encompasses both the correction type and amount.

JUDGE MOORE: But the feature description and the feature type don't, themselves, include the correction?

MS. LEUNG: They don't, themselves, include a correction.

JUDGE MOORE: Okay.

MS. LEUNG: So from these disclosures in Needham, Needham shows that the determined correction is predetermined or assigned to a feature type.

Slide 13. Now, with respect to Nonoka and Konoplev, Patent Owner disputes that they disclose a claimed matching, but the record has established that Nonoka and Konoplev disclose a cause/effect relationship between the correction and a type of physical object. So on the left of the slide is Figure 8 of Nonoka which is one Nonoka's processing techniques, and on the right is a portion of Figure 1 of Konoplev which shows a flow diagram of Konoplev's processing technique, or a portion of it, and so I've shown in each of Nonoka and Konoplev applies a correction in response to detecting the face. So in other words, a correction is triggered based on the face being detected. Now, this is shown in Nonoka's Figure 8 where Nonoka determines whether a face is detected in step S11, and if the answer there is yes, a face is detected, that triggers the optimization processing of step S17.

So there, there is a cause/effect relationship where the detection of the face causes the optimization processing step S17 to be performed. Now, similarly, in Konoplev's Figure 1, when Konoplev finds a face at Step 150, it takes the yes branch, and it goes to Step 160 where it processes the facial areas to reduce wrinkles. So in other words, a detected face in Konoplev triggers wrinkle reduction to be performed, so there's a cause/effect relationship there where when the face is detected, it causes the wrinkle reduction to be performed.

So in both Nonoka and Konoplev, it doesn't matter that there is a correction that was performed before the face was detected, what matters is that when the face is detected there is a trigger -- there is a correction that it triggers and that correction is applied to the face. Now, this can be the same correction that was done previously. It doesn't matter. As long as the face is

detected and it triggers a correction whether it's the same correction as before or a different correction, then there is a cause/effect relationship there. The face causes a correction to be applied. And Claim 1 doesn't preclude that there could be some processing that happens before the correction is applied to the face.

Slide 14. So the next question here is whether the references disclose applying different amounts of the match correction to different portions of the image.

Slide 15. So we've highlighted the language here in Claim 1 that Patent Owner disputes, and there is no dispute here as to what the highlighted claim language means. There is a first amount of the correction that is applied to the first portion of the image, and there is a second amount of the correction that is applied to the second portion of the image, and the amounts applied to the first portion and the second portion are different. Nobody disputes that. Patent Owner also doesn't dispute that Nonoka and the Zhang/Konaplev combination discloses applying different amounts of the correction to different portions of the image.

So with respect to this particular limitation, Patent Owner only challenges Needham's disclosure and the combination of Needham and Nonoka, so we'll address Patent Owner's challenge to Needham's disclosure next, and then the combination of Needham with Nonoka will be addressed later when we discuss the motivations to combine.

JUDGE GALLIGAN: And, Counsel, because we're talking about both of the cases at the same time, it looks like that's how you're presenting, I did have a question on the 1251 case. In our decision on institution on pages 11 to 13, we discussed what we considered the two different

contentions for Patent Owner -- sorry -- for Petitioner as to how the determining steps were done in Claim 1, and the first -- we talked about the first way the Petitioner contended was the Zhang feathering process teaches determining and applying a correction for the first portion, and we went through that and we determined -- we had questions on the sufficiency of that showing, and I was looking at the reply. Is Petitioner just focusing that on the second of the two on ways that contended which was Konoplev's disclosure in combination with Zhang?

MS. LEUNG: Correct. So we are now focusing on that disclosure.

JUDGE GALLIGAN: So for purposes of writing a final, we can disregard the first one?

MS. LEUNG: Correct.

JUDGE GALLIGAN: Thank you.

MS. LEUNG: Slide 16. So with respect to Needham's disclosure, Patent Owner argues that Needham describes distinct approaches. So what Patent Owner argues is that when Needham matches a correction to an object, that's implicitly implying that they agree that Needham matches a correction to an object. Needham does not also apply a different amount of that same correction to a second portion of the image. And so we're going to show how Needham does when it matches a correction to an object also apply a different amount of that match correction to the first portion and the second portion of the image.

So I'm going to take you step-by-step through Figure 8 here of the flow chart of Needham, and we're going to be going through this several times, so bear with me. So at the top of the corner is Paragraph 35 which describes a portion of the flow chart as shown in Figure 8 here, and Figure 8

shows the steps performed by the correction unit to correct detected features in an image. So Paragraph 35 actually relates to the branch where you would take to go down the flow chart for correcting individual image features. And as we discussed earlier, Paragraph 35 discloses a correction being matched to the detected image feature because there is -- when an image feature is detected, it retrieves the corresponding correction parameter which includes the correction type.

So let's start with going down this flow chart for just generally what Paragraph 35 says. So when Needham determines that there is a detected feature to correct at Step 840. It's where it says, "More feature to correct." It'll go down and retrieve the correction parameter at Step 860 and apply that correction type that's in the correction parameter to the image feature, and then Steps 860 and 870 are repeated again for each detected image feature in the image. So in Paragraph 22 on the right, Needham describes an example of how this method of correcting features in a single image would be applied so that the same correction is applied to different image features but in different amounts.

So in Paragraph 22, there are two types of detected image features. There's a human face and there's a building. So let's walk through Figure 8 here with these two types of image features. So at Step 810, the correction unit obtains the feature description and the weight for the detected human face, and it obtains a feature description and the weight for the building. So as Needham describes in Paragraph 22, the human face feature has a higher weight than the building. So at Step 840, the correction unit determines that there is a detected face to correct and it proceeds to Step 860 where it retrieves the corresponding matched correction parameter, and that

correction parameter includes the correction type which in this case is dynamic range correction, or maximizing dynamic range, and the correction parameter also includes the operational parameter which is the intensity dynamic range.

So the correction type that's retrieved here for the face is maximizing the dynamic range, and that the parameter that it's using is the intensity dynamic range, so how -- what spanned the dynamic range it's going to be using.

JUDGE MOORE: So, does feature description include a correction parameter for all available corrections?

MS. LEUNG: The feature description for the face?

JUDGE MOORE: I'm sorry?

MS. LEUNG: The feature description for the human face?

JUDGE MOORE: In the end, the feature description for a given feature type; does that include a parameter -- sorry -- a correction parameter for each available correction type?

MS. LEUNG: The feature description doesn't include any correction parameters. The correction parameters are separate from the feature descriptions.

JUDGE MOORE: Where are the correction parameters?

MS. LEUNG: The correction parameters are retrieved later, after it obtains a feature descriptions.

JUDGE MOORE: And how are they connected to the feature type? Maybe I missed something.

MS. LEUNG: The feature descriptions include the feature type.

JUDGE MOORE: Correct. And so where -- how does that connect it to the parameters?

MS. LEUNG: Based on the feature descriptions, it retrieves the corresponding parameters needed to correct that feature type.

JUDGE MOORE: What in the feature description connects it to the parameters?

MS. LEUNG: Needham doesn't disclose that there is anything in the feature descriptions that connect it to the parameters, but implicitly they would have to be linked or assigned somehow so that Needham would know that it needs to retrieve a certain operational parameter, correction parameter for that feature type.

JUDGE MOORE: Okay.

MS. LEUNG: Okay, so at Step 810 -- I'm sorry -- I forgot where I was, so I'll just start here again. At Step 810, the correction unit obtains a feature description and a weight for the face which the feature description indicates that the detected type is a face. And a feature description and a weight for the building and that feature description indicates that the detected type is a building. And in Paragraph 22, Needham indicates that the human face has a higher weight than the building. So at Step 840, the correction unit determines that there is a detected human face and image that it needs to correct, so it'll retrieve the correction parameters for it at Step 860.

Now, the retrieved correction parameters includes the correction type which is maximizing dynamic range and it includes the operational parameter which is the dynamic range that it's going to be correcting for. And at Step 870, it will correct the human face using the retrieved correction

type and the operational parameter, and it returns to Step 840 for the building feature, and for the building feature it'll similarly performs steps 860 where it retrieves the corresponding correction parameters which is, again, for this particular example, maximizing dynamic range the same one as it did for the human face over a dynamic range parameter for the building. But in this case, since the -- well, in this case, it'll do the correction differently in different amounts because the weight for the face is higher than the weight for the building.

So in this case, once Needham has corrected both the face and the building features in the image, the face would have gotten a larger correction than the building feature because the face had a higher weight than the building feature. And so Needham applies different amounts of the same correction which was matched to the face to both the face and the building feature.

Slide 17. So Patent Owner doesn't agree that Paragraph 22 discloses different amounts of correction. Patent Owner says that Paragraph 22 is ambiguous and but we disagree. And Dr. Bovik here explains quite clearly how Needham applies different amounts of correction to the detected face and the detected building. Now, let's take an example here so that we can visualize this a little bit more. So in the example of Paragraph 22, Needham doesn't say that in this particular example that it's a backlit scene where the face is darker than the building or that a flash is used so the face would be brighter than the building, so let's assume that the image is evenly lit, and the face and the building have the same amount of light on them, the same brightness, the same darkness, so let's say they have the same initial dynamic range.

So taking Dr. Bovik's example in this scenario, the larger dynamic range used for the face would correspond to a higher increase in the brightest value. So let's say the face and the building both start off with the same dynamic range, and so since the face has a higher rate, it would get a larger increase in the brightest value, so let's say it goes out to here. The building having a smaller weight than the face, we're going back to the initial because they both have the same initial dynamic range, would have a smaller increase in the largest value and the brightest value. And so in this scenario, the face would get a larger correction than the builder, and there would be different amounts of correction applied to the face and the building.

Slide 18, please. So despite this explanation provided by Dr. Bovik, Patent Owner argues that Needham doesn't give the starting dynamic ranges of the human face and the building, so we don't know that they get different amounts of correction because we don't know what the starting dynamic ranges are. Well, Paragraph 22 of course doesn't give the starting dynamic range, but I provided one example where if the starting dynamic ranges were the same, there would be different amounts of correction, but Needham does say that it does take the starting dynamic range into consideration. So in specifically Paragraph 32 here, Needham says that the dynamic range may be defined as a function of statistical properties of one or more image features detected from the input image.

And then in Needham Paragraph 26, which Petitioner has cited in other portions of their briefings, Needham states that the statistical properties can include maximum and minimum intensity values, which is the starting dynamic range. So all this evidence shows that Needham discloses determining a correction that is matched to the predetermined type of

physical object and applying that match to correction to different portions of the image in different amounts. So Needham anticipates Claim 1, and the Needham/Nonoka combination renders obvious Claim 1.

Slide 19, please. My colleague, Mr. Riffe, will address issue 3 which is whether Konoplev is prior art.

MR. RIFFE: Good afternoon, Your Honors. Again, my name is Tim Riffe and I'm on behalf of Petitioner, Apple. As my colleague, Ms. Leung, just discussed earlier, Konoplev discloses that the determined correction is matched to the predetermined type of physical object. We've also established in the record that the Zhang/Konoplev combination teaches applying different amounts of the determined correction to different portions of the image which Patent Owner did not dispute. However in another attempt to defeat the combination of Zhang and Konoplev, Patent Owner takes issue with whether Konoplev itself is prior art to the 132 patent.

Well, Konoplev's filing date is after the filing date of the 132 patent; we acknowledge that, but the claim's benefit from priority to the earlier filed provisional application, and we'll walk through the reasons why. Petitioner in our petition in the claim chart in accordance with Dynamic Drinkware, we showed where in the provisional application support was provided for Konoplev's claims, and we'll touch base on what the challenges are with respect to those claims in a few minutes.

Can we go to Slide 21, please. Now, Patent Owner takes issue specifically with one specific element of Claims 1 and 13, and that's Element E, which recites processing the converted image using wrinkle-reducing parameters. Now, first Patent Owner alleges that Konoplev does not provide a written description of parameters necessary for wrinkle reduction. Well,

let's review briefly what's required to satisfy the written description requirement. As Your Honors know, to satisfy the requirement the patent specification must describe the claimed invention in sufficient detail that one of skill in the art will reasonably conclude that the inventor had possession of the claimed invention.

There really should be no question here that the inventor of Konoplev's provisional had possession of processing the converted image using wrinkle- reducing parameters because as we can see, Konoplev's provisional describes specifically processing the image through a smoothing filter using such wrinkle-reducing parameters. So what does Konoplev's provisional describe as the wrinkle-reducing parameters, if we go to Slide 21? The parameters include, first, an initial radius, second, a final radius, and they describe what's referred to as an imperfection reduction mode which we've highlighted on Slide 21, which defines the values for the initial radius and final radius. Now, for wrinkle reduction, the parameters would be the wrinkle reduction mode, and, again, the corresponding wrinkle-reducing radii which they referred to as the initial and final radius.

Slide 22, please. Next Patent Owner argues that Konoplev's provisional does not provide an enabling disclosure of using these wrinkle-reducing parameters. Now, we've just discussed that Konoplev's provisional describes a smoothing filter using filtering parameters including an initial radius and a final radius for wrinkle reduction, and here in these paragraphs with Konoplev's provisional, it describes how the initial and final radii are actually used to a person of skill in the art. Konoplev's provisional says that you start with an initial radius and you apply it to the image, and then you

increase the radius by a predetermined amount and apply that to the image, and this is repeated until the radius increases to what it's termed as the final radius.

Now, in addition, at Paragraph 44 of Konoplev's provisional which we cited in our briefing, Konoplev describes that a level to which the pixel needs to be colored over is determined by the reverse proportion of a difference of a tone used for coloring over and the color of the pixel. This is describing the characteristics of the process used for wrinkle reduction. It up goes further to say that the analogous parameters are used for wrinkle identification while a higher level of the pixel coloring over is used.

Now, this shows that the differences in pixel tones as described by Konoplev's provisional are used for both the identification of the wrinkles and for the process of wrinkle reduction, i.e., this is coloring over that Konoplev's provisional describes. And the reason I note that is I believe Patent Owner in some of their briefing noted that Konoplev's provisional really just goes to the identification of the wrinkles. Well, that's not true. By this coloring over process, one can imagine that if it finds a wrinkle in the image, part of the wrinkle-reduction is doing this pixel coloring over process described in Konoplev.

Now, what Patent Owner is complaining about at bottom is that Konoplev's provisional does not provide specific values for the initial radius and the final radius, but this is not a requirement of 112. Go to Slide 23. Now, both Petitioner and Patent Owner provide an analysis of the Wands factors in the briefings, and we'd like to emphasize that a person of skill in the art would have known how to process an image using wrinkle-reducing

parameters and even the examiner recognizes this during the prosecution of the 132 patent.

For example, as we've shown in some excerpts -- excuse me -- on Slide 23, the examiner specifically cited to the Simon reference which disclosed removing permanent imperfections such as wrinkles. Simon specifically mentioned that there is no magic number that would work on all images. Rather the radius of the filters, a function of face size and the size of the face feature. In this case, wrinkles that one wishes to reduce. In Paragraph 90 of Simon, it said the spatial size of the skin texture that the skin texture enhancing filter smooths is a function of the size of the face, and it goes on to state at Paragraph 93 that the radius of the blur filter is chosen as a function of face size and the size of the skin features that one wishes to detect.

Go to Slide 24. This is another example of commonly known techniques for reducing wrinkle features in images and this was from the Gonzales prior art reference which we cited to and discussed in our briefing. Now, the Gonzales textbook describes how smoothing filters are applied to an image. Gonzales also mentions that the reduction of what they called irrelevant details, for example, wrinkles and blemishes, would involve a radius referred to as the size of the filter mask, and that is larger than the pixel regions that include the irrelevant details such as the wrinkle, as an example. Therefore Gonzales also establishes that the radius is a function of the size of the wrinkle and provides very specific equations that were well-known at the time of Konoplev's provisional.

Now, Konoplev's provisional determines the coordinates of the face and therefore a person of skill in the art understanding what was available to

him or her at the time, would have known how to calculate the radius of these various filters described in Konoplev's provisional to reduce wrinkles based on the size of the face by these commonly known techniques from Gonzales and as the examiner recognized during prosecution such as in Simon, so lots of prior art available to the person of skill in the art at the time, again, harkening back to a premise that I used with, I think, Judge Moore and Judge Jefferson earlier today, a patent applicant is not required to describe every single underlying feature of its invention.

People with skill in the art come to the table with a certain amount of knowledge, and that's why we're saying that we're in the position we are today because Konoplev clearly shows how to do the wrinkle-reducing parameters, talks about the use of these radii, and people of skill in the art understood that these radii could be based on the size of the face. No undue experimentation required there. It's application specific, but certainly within the scope and skill of a person of skill in the art. Thank you, Your Honor. Without any questions, I'll turn it back over to Ms. Leung.

MS. LEUNG: Thank you, Your Honors. So I'll be talking about the motivations to combine. So Patent Owner challenges every combination of references that Petitioner has set forth based on the motivations to combine them. Slide 26, please. So Grounds 1A in the 1250 Petition and Ground 2A in the 1251 Petition cover Independent Claim 1 while the remaining grounds, 1B, 1C in the 1250 Petition and 2B and 2C in the 1251 Petition cover the dependent claims. So for the sake of time here we'll be focusing on Grounds 1A and 2A during this discussion.

Slide 27, please. So let's start with the Needham and Nonoka combination asserted in Ground 1A. So we'll be addressing three issues here

raised by Patent Owner with respect to this combination. The first issue being that Nonoka provides no benefit to Needham's already maximized dynamic range correction and the second issue is that a POSITA would have had no expectation of success combining the architectures of Needham and Nonoka, and third, that Nonoka's gains are not usable in Needham's system.

Slide 28, please. So with respect to the first issue that Nonoka provides no benefit to Needham's system, let's take a look again at Needham Paragraph 22, and this is the example of correcting the face and the building in a single image using the correction type of maximizing dynamic range based on weights. So as discussed earlier, Needham doesn't mention here whether this is a backlit scene, so it doesn't take into account whether the person is in a backlit scene. So if Needham's processing was set for the scenario that we described earlier where the image was evenly lit and it did the correction of maximizing dynamic range based on just the weights, there could be a possibility that the person who was in a backlit scene might not become bright enough to be seen.

So Nonoka provides the functionality where it applies different amounts of gain to the person in the landscape portion and it applies enough gain that the person in a backlit scene can be seen. And in doing so, Needham improves the visibility of the person in the backlit scene which enables both the person in the landscape portion of the image to be more easily distinguished and perceived.

Slide 29, please. So with respect to the second issue of combining the architectures of the two systems, Patent Owner here argues that a POSITA would not expect success from combining the corrections and architectures of these two systems because Nonoka describes a two-path system, one from

monitoring the image -- one for the monitored image and one for the photographed image. Now, here Petitioner didn't propose to combine the two architectures of the systems, rather what Petitioner relies on are specific teachings of Nonoka that are applicable to processing of digital image data to correct dynamic range correction.

So here, Needham is not concerned with how do you process a monitored image differently than a photographed image. What Needham is concerned with here is applying a correction as in Paragraph -- the example in Paragraph 22, applying a correction to do two different image features, but in different amounts. And so Needham, a person of ordinary skill looking to implement -- looking for more details, implement or improve Needham's system would look to the features of Nonoka that relate to applying different amounts of correction to different portions of an image in the same image, not in two different images.

And a POSITA would have known how to combine those teachings of Nonaka into Needham's system so that Needham's system would apply different amounts of gain to different portions of the image to form the dynamic range correction and incorporating those teachings of Nonaka into Needham, would not require bodily incorporation of Nonaka's two-path system into Needham. All that's needed is Nonoka's teachings that you can have two different amounts of gain for two different portions of the image. We don't need to include Nonoka's teachings of how to process a monitored image differently than a photographed image. And those two processing paths are not required to incorporate Nonoka's teachings of different amounts of corrections into Needham's system. And, indeed, bodily

incorporation is not a requirement for obviousness as we have shown in the briefings.

Slide 30, please. With respect to the third issue raised by Patent Owner which is that Nonoka's gains are dependent on the scene already brightened enough to identify the face, so the pre-brightening which doesn't exist in Needham would make it so that Nonoka's wouldn't be useable in Needham because Needham doesn't do pre-brightening, and the gain would depend on the pre-brightening that Nonoka does. And that's not true. Nonoka doesn't require the gains to be dependent on pre-brightening. Nonoka doesn't require pre-brightening in every single scenario. If the scene in the original image is already bright enough that a face can be detected, then Nonoka doesn't need to perform pre-brightening.

So pre-brightening is only performed if Nonoka can't detect the face on the first attempt, and this is shown in Nonoka's Figure 8 on the right-hand side of the slide when it detects the face, it goes down the yes branch and just goes straight to optimization processing where it applies the different amounts of gain. And if
pre-brightening was required for every single image that Nonoka processes there would be no yes branch here. It would go directly to the no branch where the pre-brightening process is performed. Alternatively if pre-brightening was required in every single processing, then that pre-brightening processing would come before the face detection, and neither case is sure here. There's no pre-brightening before the face detection in this case and there is a yes branch which means that there are case scenarios where it doesn't need to do the pre-brightening. So in sum, all of Patent

Owner's arguments regarding the motivations to combine Needham and Nonoka fail.

Slide 31, please. So next we'll address the Zhang/Konoplev combination asserted in Ground 2A in the 1251 Petition. So we'll be addressing two issues raised by Patent Owner here. The first one is that Zhang is directed to image capture and Konoplev is directed to post-processing, and the second issue that we'll be addressing is that Konoplev computationally complex after the fact digital enhancements would have been impractical and unnecessary to implement in Zhang's image capture process.

Slide 32. So as to the first issue, that Zhang is directed to image capture and Konoplev is directed to post-processing, and that would make them inappropriate to combine, Patent Owner ignores the explicit teachings of Zhang and Konoplev. So I've shown here both Zhang and Konoplev explicitly mention that their teachings are applicable to digital cameras which at that time were used for image capture and both Zhang and Konoplev explicitly mention that their techniques are applicable to mobile cell phones which can be used for both image capture and post-processing, and indeed Konoplev says that these devices have sufficient memory and can perform calculations needed for implementing the image enhancement method.

So contrary to Patent Owner's arguments both references are directed to both image capture and post-processing and so it would be appropriate to combine them.

Slide 33, please. So Patent Owner's second argument is that Konoplev's operations are computationally complex and suited to only post-

processing. Now, these arguments ignore the similarity between Zhang and Konoplev. Now, here we have the abstract of Zhang and Konoplev shown on this slide. Now, the yellow highlighting shows that Zhang and Konoplev have similar goals. They both aim to enhance a portrait in a digital image. Now this is desirable both for images being captured and for images after they are captured, so this is a desirable enhancement for both image capture and post-processing. Zhang/Konoplev also have similar processing steps. Shown in the pink highlighting, they both detect a head or a face in the image, so they both do some kind of object detection.

Zhang says defining a head region; Konoplev says facial images are detected. And then shown in the blue highlighting, they both perform similar processing on the image once the object is detected. Zhang blurs a background. They're highlighted in blue. It says Zhang says blurring the background. Konoplev says the imperfections are automatically corrected, and as we discussed earlier the way that is done is by applying smoothing to the image, and blurring and smoothing are both different amounts of the same correction which Patent Owner doesn't dispute.

And finally as shown in the orange highlighting, they both combine image data to create the corrected image. Zhang says blending the foreground, the transition region, and the background to form a new digital image. Konoplev says the corrected image is combined with the original image. So Zhang/Konoplev are really not as different as Patent Owner makes them out to be.

So unless Your Honors have any questions on anything that we've discussed here or on any of the remaining motivations to combine issues

raised by Patent Owner, we'll rest on our papers and reserve time to address any issues that Patent Owner may raise.

JUDGE JEFFERSON: Nothing further.

MS. LEUNG: Thank you.

JUDGE GALLIGAN: Thanks. You have about 40 minutes of rebuttal time.

MS. LEUNG: Thank you.

JUDGE GALLIGAN: You may proceed.

MR. ROBINSON: Thank you. Good afternoon, Your Honor, may it please the board. It's worth taking a moment to review exactly what the 132 Patent claims and describes. I'll skip ahead to Slide 6, to begin with.

With the 132 Patent, Independent Claim 1, the only challenged independent claim is shown. It's important to note what this claim recites, and that's a method of sequentially and interrelated steps.

We know from the language of this claim, and the language of each of these steps, that they necessarily proceed in a step-wise fashion from start to finish.

First, determining whether a portion of an image represents a physical object of the predetermined type. Let me simplify this a little bit; each one of Petitioner's invalidity grounds depends on the object of the predetermined type being faces. So, I'm just going to refer to that as "faces" going forward.

So, the first step is determining wither a first portion of the image represents a face. The second step is determining a correction to apply based on the determination that the image includes a face.

That is the cause and effect. If there is a face, then you determine this correction. In addition to that, the correction is matched to the type. So, those are two separate requirements of this second step.

The fact that a correction corresponds to a face doesn't mean that correction was determined because there was a face detected in an image. And again, we know that this second step has to occur after the first, because it refers to the determination in the first step, that the face is in the image.

The third step is applying that determined and matched correction to the face. So, we know this has to occur after the second step because it's the determined correction. It's already been determined based on the presence of a face. We know that it's matched because that determined correction is matched to the face.

And then finally, the fourth step is applying a second amount of the correction. It's that same correction to a second portion of the image, that's not the face. This has to occur sequentially. The plain language of the claim requires it.

So, this is a method of Step 1, Step 2, Step 3, Step 4, in that order, without exception. It cannot be anticipated merely because, as Petitioner asserts, a system might perform each of these steps independently, independent fashion.

Now, to be clear, that's not a concession that Needham, or the Needham Nonaka, or the Zhang Konoplev systems would necessarily be capable of performing all of these steps. But Petitioner absolutely has not shown that any of those, Needham or Zhang, anticipates this claimed method of these steps in this order.

And Petitioner has not shown that it would have been obvious to modify or use any of those systems in the prior art to perform this claimed method: these steps, in this order.

Now, I think it's probably easiest to go ahead and refer back to Petitioner's demonstrative Slide Number 16. This slide shows Needham's Paragraph 22. If you refer to the Petition, Needham's Paragraph 22 is the only part of Needham that Petitioner mapped to the application of different amounts of the same correction to the image. This is the only paragraph.

Now, why that's important is, despite there being correction to a face and to a building, Dr. Bovik conceded in his deposition testimony that the correction of adjusting intensity dynamics range is applied to this image, in Paragraph 22, regardless of whether there's a building in it, regardless of whether there's a face in it.

So, there is no way that modifying the intensity dynamic range could have been selected or determined based on the existence of a face in that image. It's simply impossible.

Judge Moore, to your question earlier, and Petitioner's counsel conceded, Needham does not include anything about a correction in a feature description. And so, merely finding a feature in an image cannot trigger the determination of a correction.

In fact, what Needham describes at Paragraph 33, in reference to Figure 8, is that the system first determines the correction, and then determines what the mode of that correction is. The mode having two alternatives in Needham; first, it can be applied to the entire image, or it can be applied to a single feature.

So, if you start with a correction and then figure out what you're going to apply it to, that's not the same as looking to an image, determining whether there is a face, and then determining a correction based on the fact that there is a face in the image.

The second thing to point out on Petitioner's Slide 16 is that Paragraph 25 in the Petition was not mapped to this feature. Paragraph 35 was only referred to generically. It was never mapped to this feature.

Even if it's considered, Needham never ties it Paragraph 22. Needham never says Paragraph 35 is referring back to Paragraph 22.

JUDGE GALLIGAN: Counsel, I wanted to ask you about something Needham said, discloses. I want to look at Paragraph 26 of Needham, and you know, I think the language of the last sentence of that paragraph is telling. "Based on the feature description, the feature-based correction unit 270, performs one or more specified correction operations." So, why isn't it that -- because the corrections are specified and they're determined based on the particular feature, why isn't that a matching?

MR. ROBINSON: Well, Your Honor, it's important to consider this in the context of the overall Claim 1 of the 132 Patent, and what it requires. So, even if you consider this to match a correction to a feature type, it doesn't determine a correction based on the identification of a face in an image.

JUDGE GALLIGAN: But it says based on the feature description, and the feature description on they characterize the visual properties of corresponding detected image features.

So, I mean, we're talking about detecting faces and buildings, so how is that not based on it. It says the language is based on; that's what it says in the reference.

MR. ROBINSON: Sir, Your Honor, it does use the phrase "based on," but we know from the rest of the disclosure in Needham that it doesn't use that phrase in the same way that Claim 1 does.

Specifically, Needham's system, structurally, cannot perform it away (phonetic). Petitioner's counsel conceded as much that a feature description doesn't identify a correction.

And so, we know that this process that it's describing has to start with the correction. And the first thing that you've got to ask -- the first thing that Needham asked once it starts with that correction is, what's the correction mode of that correction? Is it to the entire image, or is it to a particular feature?

If it's to the entire image, then you could look to Paragraph 22 and say it might be applied with different weights, but that's not the two-step process that Claim 1 requires, which is identifying the face, and determining based on the identification of the face.

So, absolutely Needham discloses that some corrections may be applied in different ways, based on a feature description, but Needham goes at it from the other direction.

It starts with a correction; it says what's the mode? Is it the entire image? If so, maybe it's applied to different features with different weights. But if it is a single feature, then it would be applied only to that feature. Now, importantly --

JUDGE GALLIGAN: But what about the disclosure in Paragraph 19 of Needham that says, you can define -- corrections operations may also be defined in individual image features. So, there seems to be a correlation here, between features and the operation.

MR. ROBINSON: Your Honor, when you go to that second path -- and again, you have to start with the correction. Just structurally, the way that Needham works, you can't start with a feature and then trigger a correction. You have to start with a correction and say, is it on an individual feature?

So, if you start with that, then you look to the fourth step of Claim 1. And what Needham doesn't do is go the second step and say, once you've picked a correction for a particular feature, or once you've applied a correction to a particular feature, that you are then going to apply that same correction in a different amount to a second feature.

JUDGE GALLIGAN: And let's talk about that for a minute because Claim 1 -- and I'm looking at this right now, I don't think it says that you have to apply a second amount of correction to a second feature. It says apply a second amount of the correction to a second portion of the image.

So, for instance, you can -- well, I mean, this is important because I think Needham says something like, in Paragraph 32 it's pointed at the last two sentences. For example, the intensity dynamic range use for correcting a particular human face may be determined according to the size, but the larger the face, the larger the dynamic range.

So, it's talking about, okay, say if you define a correction for a face, the larger the face gets a larger of that correction, a smaller face image gets a smaller -- that's a different portion of the image.

So, why wouldn't that read on the claim? Because you're not claiming different features, you're claiming different portions. As I read claim 1.

MR. ROBINSON: So, right, yes, Your Honor, we are claiming different portions. The first portion, though, corresponds to a feature type.

What Petitioner has asserted here is that the feature type is face, not large face, not small face, nor does Needham say that large face or small face is a type of feature. What has been consistent through the Petition is that face is the object of the predetermined type.

And so, the face that you start with and apply a correction in different amounts, potentially or in different ways I'll say, it's not necessarily different amounts, which I'll explain in just a moment.

The fact that you apply a correction in different ways to a face, doesn't mean that you've determined that correction based on the fact that you identified a face in the image to start with. And it doesn't necessarily mean that the -- well, in this instance, what you've got is one type. The type is face.

And so, you're applying now, that, in different ways and the second face is not a second portion of the image because the first portion of the image from Claim 1 has to correspond to the objects of predetermined type.

JUDGE GALLIGAN: Yeah, so, let's walk through that. So, is there a -- I'm trying to figure this out. It sounds like you're saying that Claim 1 says that there is an object of a second predetermined type. Is that in Claim 1? I don't see it.

MR. ROBINSON: No, Your Honor, and to be clear, that's not what I'm trying to articulate.

JUDGE GALLIGAN: Oh, okay, sorry. And I wasn't trying to -- I was just trying to figure out, because it does say second portion, correct?

MR. ROBINSON: Yes, Your Honor, absolutely.

JUDGE GALLIGAN: Okay, great.

MR. ROBINSON: And so, in this instance, if you've got an object of the predetermined type, as Petitioner has contended it's a face, it's face. The correlation here is between object and correction, face and the correction.

So, you find the face. If there's a face, then you select the correction. You apply it to that correction and first you apply that correction to the face in the first amount, and then you apply it to a second part of the image in a second amount.

So --sorry, I believe it was Paragraph 32, that Your Honor had referred to just a moment ago. The difficulty with jumping around in these paragraphs within Needham is it's a bit like playing Whack-a-Mole.

So, Needham describes different approaches. There is, does it go to the entire image, does it go to just a feature. If it goes to just a feature, then you find another correction and it might go to a different feature.

Needham never ties these together and says you will perform them in this order that's required by the method. And in fact, Needham suggests the opposite.

Needham never says, for example in Paragraph 32, Needham is talking about operational parameters for a correction operation. Recall that the correction operation may be applied to the entire image, or to a single feature. But when it's talking about it here in Paragraph 32, it's talking about the specified dynamic range in this context.

The first question that you have to ask when you look at a correction operation is what's the mode, and how is it applied. And, if you look, for example, at Paragraph 27, the Petitioner's counsel mentioned statistically properties. So, statistical properties might refer to the size of the face, for example.

Paragraph 27 says when a correction operation is applied to the entire input image. So, what Paragraph 32 doesn't say is, that it's choosing to change the dynamic range because a face has been identified in that image. And that's a critical part of Claim 1.

It's not enough that a correction may be applied in a different way to a face. There's two parts; it has to be determined based on the identification of the face in the image, and it has to be matched to that face.

And so, a lot of Petitioner's arguments that we heard today focused on matched but overlooked the first part of that step which absolutely requires that you determine the correction based on the identification of the face in the image. As to whether --

JUDGE MOORE: Doesn't the operation mode determine a correction to apply the extent of the determination to the first portion of the image represent a particular type of a predetermined type?

MR. ROBINSON: So, Your Honor, if you look to the operation mode of apply a correction to a particular feature, one, it doesn't say, apply to a particular feature type. It just says, you have a set feature, you're going to apply this correction to that.

The important point here is that you start with the correction. You know when you get to that correction that you're going to apply it to the image. Once you start with that correction you say, all right, is there a face

here? If so, then you apply the correction in a specified way to that feature. Not necessarily to all faces, not necessarily to all features of that type.

What Needham does not say or suggest is that when you set a correction according to a feature, that once you apply the correction to that feature in the specified way, that you will also apply that correction to another part of the image in a different amount.

JUDGE MOORE: Okay, so the issue is it's not a differential application of that correction? You see that (inaudible) of a face on the whole thing. Does (phonetic) it make a different issue of trying to secure (phonetic) analysis that I can see there.

MR. ROBINSON: Absolutely, so that's the issue in that particular branch of Needham's approach. The tricky part is there is an issue with each of the branches that Needham takes. It's with each of the approaches that Needham takes. And Needham never ties them together in the way that Claim 1 requires.

And so, I'm not trying to be evasive, that is absolutely one of the issues for that particular approach of Needham.

JUDGE MOORE: So, are you saying that you need to find the face first and then determine the correction, and it's not sufficient that it's sort of predetermined what corrections are going to apply to the face, or whether they are going to apply to a face?

MR. ROBINSON: Your Honor, the association between a particular correction and the face is predetermined. That's the matched piece. What must happen as a step in the claimed method is that you identify the face before you determine that you're going to apply the correction to the image.

JUDGE MOORE: But it does do that, right? It identifies a face and then later in this process in that flowchart, I forget which figure it is, it actually applies a correction. The face is already identified before it determines whether that mode requires the correction to be applied.

MR. ROBINSON: I think I was a bit imprecise in what I just stated. So, it's not just that the identification of the face happens before a determination of the correction.

It's that, one, it has to happen before, but it's also based on the fact that a face has been found. Meaning, if you don't find a face, you're not necessarily going to go to that correction.

Now, Petitioner has criticized that argument by saying that the 132 Patent doesn't specifically say, if you don't find a face, you're not going to go to that correction. Ultimately, the 132 Patent doesn't need to describe that negative because it describes the affirmative.

The claims on this point, and the description on this point, have been consistent and explicit since the 132 application was filed. And that's that the determination of the correction is based on -- not just following -- but is based on the fact that you've found a face in the image.

JUDGE GALLIGAN: And that's where I keep coming back to Paragraph 26. So, you said, based on a matching or different requirements, 26 is based on -- now, it sounds like matching it is subsumed in determining in the claim.

So, where's the support -- or not support -- where is matching described in the Spec in the written description. I believe the term "matching" isn't used. So where is the concept of matching described?

MR. ROBINSON: Your Honor, I'll actually answer that. If you'll permit me, I'd like to back up.

JUDGE GALLIGAN: Sure, sure.

MR. ROBINSON: Just to step to the premise of the question, which is whether matching is subsumed in determining, and the answer is, no.

So, Paragraph 26 does use the phrase "based on," but it's not saying that it's selecting a correction based on the identification of a face in the image. What it's saying is that, based on the feature description, a correction is applied.

So, the feature description has things like statistical properties that can impact how a correction is applied. But that sentence in Paragraph 26 absolutely is not saying that the correction is determined based on the feature description.

JUDGE GALLIGAN: I guess it's also not saying the negative, which is to say, we're talking about faces.

It's not saying that if no face is found, continue to do that correction. It's saying based on something, do it. It's not saying but if no face is found, still do it. And that's what you seem to be saying, is, it's going to do it regardless. And then I'm wondering why it says, "based on," if that's the case, in Paragraph 26.

MR. ROBINSON: Well, Your Honor, it may help to back up one step, and then I'll absolutely address that as well.

JUDGE GALLIGAN: Sure.

MR. ROBINSON: Petitioner's Slide 16 is a good reference because it's got Paragraph 22 there in full. Number 1 point here is the Petition only

relies on Paragraph 22 for the differential application of the determined and matched correction.

Now, the corrections in Paragraph 22, Dr. Bovik concedes are going to be applied regardless of whether there is a face in the image. And so, it can't have determined it based on the identification of the face in the image.

JUDGE JEFFERSON: Forgive me for stopping you, but I want to understand what you're saying. I read that as, being the entire image branch in Figure 8, and that's one case. But that's not the sole application of 22.

22 also applies if you go down the individual features portion of Figure 8 as well, doesn't it? Am I missing something from Needham?

Because that -- and I understand your point, that Dr. Bovik's testimony says that it's going to always be applied. But that's in one instance. There is another instance talked about – for one who's skilled in the art, reading Needham would understand that there are two paths, and here's one that's feature based.

And it's iterative. If you actually go through the path in this chart, and you find another feature you do it again. Am I missing something?

MR. ROBINSON: A few points Your Honor. First, Needham never says that Paragraph 22 applies in the other path. It just doesn't. It's nowhere in there; it's not mapped to the Petition.

JUDGE JEFFERSON: A person of ordinary skill in the art wouldn't understand that to apply. Are you saying they would only understand it to apply to the entire image? Because that seems to be your focus.

MR. ROBINSON: Yes, Your Honor. That's the long and the short of it. It's that if you look at the Petitioner specifically --

JUDGE JEFFERSON: Not the Petitioner, I'm asking about the reference -- I'm sorry to cut you off there.

MR. ROBINSON: Sure.

JUDGE JEFFERSON: But I mean, you're sitting -- a person of ordinary skill in the art reading Paragraph 22 would know it only applies to the entire image approach in Needham, where it's applied regardless of whether there's a feature. That's the only way I seem to be able to follow your point.

MR. ROBINSON: Yes, Your Honor, and that's consistent with other disclosures in Needham as well.

So, Paragraph 27, for example, says that, when a correction operation is applied to the entire input image, statistical properties of the detected features may be used to determine how the overall correction may be performed. And it goes on to talk about intensity of dynamic range.

Now, stepping back to the Petition for just a moment, Paragraph 22 is all we have to work with. The fact that Dr. Bovik concedes that these corrections in Paragraph 22 happen regardless of whether there's a face in the image, should be fatal to Petitioner's anticipation theory. It cannot anticipate unless Needham explicitly says. And, Petitioner has pointed out in the Petition where these happen.

In Paragraph 22, these corrections happen in conjunction with, and in the order required, by Independent Claim 1. Needham never does it. It certainly doesn't do it in Paragraph 22, which is the only thing that Petitioner relies on for this differential correction.

To the broader point, Your Honor, Needham never says that the different importance between a face and a building are applied because a face is found in the image.

As one example, Needham never says that the face is even identified first. He never says that the face is corrected first. Nowhere in Needham does it say you start with a face, and then you find a building, and you apply at those differently.

Nowhere does it say that you start with a face, you correct it in one amount of one particular correction, and then you apply something else with a different amount of a different correction.

To the contrary, Needham has two distinct branches, all of which start with the corrections; so that's a foundational point. But one of which says, this correction applies to the entire image. The other one says, this correction applies to a particular feature.

Nowhere does Needham say, correction applies to this feature and something else. It's not just there when you go down that second path.

JUDGE MOORE: But if the weight were zero would it not apply?

MR. ROBINSON: I'm not sure I understand your question, Judge Moore.

JUDGE MOORE: What I'm looking at is the weight determines -- at least as I understand, how much do the corrections apply to the given feature.

And so, I would assume then, that the weight is like 100 or something where you know, a higher number is where the corrections apply, and a lower number indicates that less of a correction applies.

So, if it was zero, then no correction would be applied, and if it was 100 or whatever, a full correction would be applied.

MR. ROBINSON: Your Honor, to be clear, there's nothing in the briefs that suggest that hypothetical. I think the suggestion in Needham is that if a correction is not going to be applied to an image, you just don't associate it. The correction itself is not associated with a particular feature.

So, there is nothing to suggest that a weight might be zero. And the more natural reading of Needham is that the initial threshold decision is whether a correction is to be associated with a feature at all. And there would be no need to associate it with a feature and then give it a weight of zero.

There's certainly no suggestion in the briefing, or in Dr. Bovik's explanation of that.

Sticking with Paragraph 22 for just a moment on the amounts, and whether the amounts are different. Petitioner's counsel today, for the first time, articulated a hypothetical in which the lighting is perfectly the same for the face and the building, and if you apply different dynamic ranges, it would end up being different amounts of correction.

A couple of things to unpack with that. First, Dr. Bovik never said that the building and the face would ever have perfectly identical dynamic ranges; never articulated a set of facts in which that would happen. So, maybe it'd help to step back just a little bit on the dynamic range.

The dynamic range is the -- for a particular object -- in this case a face or a building -- the difference in brightness value between the darkest pixel and the lightest pixel.

Applying equal lighting to a building and to a face, one, wouldn't necessarily result them in having an intensity of dynamic range that is equal. So, there is nothing in the record to suggest that you would ever have an equal starting point for the face and the building, in terms of dynamic range.

Without that, that's the only scenario that's been articulated by Petitioner, and it was only here today by Petitioner's counsel. Without that, there is no way, as Dr. Villasenor explained, to determine whether the corrections would be applied in different amounts.

JUDGE GALLIGAN: Counsel, let me get back to your explanation of the dynamic range, which is helpful. So, it does relate to brightening or darkening portions of an image?

MR. ROBINSON: So, gain (phonetic), in terms of an adjustment to dynamic range, does relate to brightening and darkening. Intensity dynamic range more relates to -- think of it as the range of variation of intensity in pixels within a particular image, or region of an image.

So, the difference in value, maybe it's -- the range may be 1-256, you'd have an intensity dynamic range of 200 if the darkest pixel in a face at a value of 1, and the lightest pixel in a face had an intensity of 200. Does that help?

JUDGE GALLIGAN: Yes, thank you.

MR. ROBINSON: Okay.

JUDGE JEFFERSON: Before you move on, and forgive me for laboring a point, but looking at Paragraph 22, in the portion that you have, I guess, highlighted on Petitioner's Slide Number 16, the, for instance, if the correction operation of maximizing intensity is applied to both human faces and buildings, doesn't that portion indicate that a different amount of the

correction is applied to those two objects, at least in some instance, within Needham?

MR. ROBINSON: No, Your Honor, and here's why. The intensity dynamic range that's discussed in Paragraph 22 is the end point.

So, for example, if the intensity dynamic range that you want to use for the face is 200, out of 256, and the intensity of dynamic range that you want to use for the face is 56, out of 256, you can only know the amount of the actual change, if you know the starting point.

And we've got nothing on the record to suggest what that starting point would be under any circumstances whatsoever.

JUDGE JEFFERSON: And because we can't know the starting point, we would argue we can't know if different amounts are applied, even though they end up at different levels at the end result.

MR. ROBINSON: That's absolutely correct, Your Honor. Without the starting point, you can never know the end point -- sorry -- without the starting point, you can never know what it took to get to the end point.

And there is absolutely nothing in the record to support what the starting points would be at any particular point in time under any circumstances whatsoever. That was Petitioner's burden. Petitioner didn't meet it.

Even if they had, and again not to belabor the point made, Needham doesn't tie this into the sequence of interrelated steps that is absolutely required by Claim 1.

JUDGE JEFFERSON: So, you would agree, though, that Needham teaches in Figure 8 the process steps that would apply to achieving that end result.

MR. ROBINSON: Just one moment, I want to give you a precise answer. Figure 8 absolutely discloses an example of a process that might be approached at a high level. Needham never ties Paragraph 22 to Figure 8.

Where Needham does talk about sort of following the path of a correction that's applied to a particular feature. Needham discloses that the correction is associated with the feature, never goes the extra step -- and it's an important one -- of saying that the same determined correction that's matched to that feature, is also applied to a different part of the image.

JUDGE JEFFERSON: But it does say at the end, we know the features end up with different amounts of dynamic range intensity.

MR. ROBINSON: No, Your Honor, and here's where that --

JUDGE JEFFERSON: You don't know that the building and the faces end up with different? You just said -- I thought we agreed that we know the end result --

MR. ROBINSON: That's right --

JUDGE JEFFERSON: But we don't know the starting point.

MR. ROBINSON: This is where Petitioner's theories get a little tricky. Paragraph 22 says they end up at different places.

JUDGE JEFFERSON: Yes.

MR. ROBINSON: Paragraph 22 is not tied to figure 8 within Needham. At least the part of Figure 8 that relates to a correction that's associated with a particular feature, as opposed to being associated with the overall image. Needham never makes that connection.

And, instead, when Needham talks about a particular correction being applied to a particular feature, it suggests that -- well, it never says, now that

you've determined that for one feature, you're also going to apply that correction to something other than that feature.

JUDGE JEFFERSON: Accepting your point that it never says that, we do know that the end result is that two features -- at least according to Paragraph 22 -- end up with different values or attached to -- based on features; one's a building, one's a face.

MR. ROBINSON: No, Your Honor, and here's the reason. The question, if I understand it correctly, presupposes that we are going down the branch of a correction that's assigned to a particular feature; as opposed to a correction that's assigned to the overall image.

I will absolutely agree with you that if you go down the path of a correction, intensity dynamic range adjustment that's applied to the overall image, that Needham says that you might apply it in different amounts to different features within that image.

And Paragraph 22 gets you to the place where you've got two different things, at two different end points. But Needham never says that we go down the path of, a correction is applied to one feature, and then somehow gets up to Paragraph 22. Needham never connects those dots, and neither does Petitioner.

In terms of Petitioner's obviousness theories, I'll start --

JUDGE GALLIGAN: I'm sorry to interrupt.

MR. ROBINSON: Sure.

JUDGE GALLIGAN: Before we go to the obviousness theory, I did want to go back to the difference, if any, between "based on" and "matching" in the claim. And, in particular, it sounds like there is a difference -- the Patent Owner is suggesting there's a difference.

Where is matching described in the specs that we read in the written description of the 132 Patent, so we know what "matching" means, apart from "based on"; a correlation "based on," for instance. Where is "matching" described, so we know what it means?

MR. ROBINSON: Sure, so a foundational point, the salient point in Claim 1 is not so much "based on" versus "matching." It's "determining" versus "matching," because determining is the action that's actually required, as opposed to applying a correction.

In terms of where that's described, I would refer you to the Patent Owner's sur-reply in the 1250 proceeding, where that particular argument from Petitioner was addressed; specifically, at Pages 5 through 7.

So, what the 132 Patent describes at a high level is identifying a face in the image, and then determining what correction you're going to apply.

In terms of matched to that correction, the way that the 132 Patent describes that happening is, you find a face, you go to a gain lookup table -- this is one example -- a gain look up table that has gain values for the face pixels, and has gain values for the other pixels.

Now, in terms of determining, the 132 Patent never says, as Petitioner implies, that the other pixel gain values are going to be applied regardless of whether there's a face in the image.

So, the "determining/based on" is, find a face in the image, you go to the gain table that has the gain values for the face pixels.

The "matched" part of that is, once you're in that table, the gain values corresponding to the face pixels are associated specifically with the face pixels and are used specifically for the face pixels; as opposed to the other pixel gain values, which are not associated. They are used on other pixels.

JUDGE GALLIGAN: But that -- in your telling of the 132 description then, the gain is the predetermined operation. So that gets us back to Needham, which is where you're accusing Needham of having, that if for some mode Needham has a predetermined operation that looks, finds faces, goes and finds the correction, the parameters applied according to the predetermined operation, you just said that's what the 132 Patent does.

MR. ROBINSON: No, Your Honor.

JUDGE GALLIGAN: Sorry -- I understood you to say -- because you said you go look at the gain parameters, so that's, the gain is the adjustment then, right?

MR. ROBINSON: So, the gain is the value that is used for the adjustment. The adjustment itself is applying that gain to the intensity of a particular pixel.

JUDGE GALLIGAN: Okay, so where's the matching in the Spec? Where's this predetermined data structure table -- look at Table "whatever" that actually says, human face matches this operation, that's the matching. Where's that in 132. It doesn't -- maybe it is in there, I don't --

MR. ROBINSON: So, at Page 5 of Patent Owner sur-reply, in the 1250 proceeding references, for example -- there are a number of examples that are referenced.

Column 3, Line 12 - 27; Column 5, Lines 52 - 60; Column 6, Lines 22 - 25; and Figure 7.

There are a number of examples that are described. One of which has one gain table that has both a face gain values and the non-face gain values. And then there are multiple gain tables that have the different sets of gain values.

So, what the 132 Patent claims and describes is, you start with the input image, and you analyze that input image to determine -- and I'm going to stick with the face because that's what Petitioner has mapped -- you start with the image, you look for a face. If you find a face, then the adjustment to intensity dynamic range is associated with the fact that there is a face there. So, you go to the gain table, which as the gain values that you apply.

Now, the action of determining is, first you find a face, if there is a face, then you adjust dynamic range. Then you go to the table and the values, the gain values that are associated with the face, are particular associated with the face, and the gain values that are associated with other parts of the image are associated with other parts of the image.

And that's how the values associated with the face, are matched with the face. The critical --

JUDGE GALLIGAN: Yeah, that's helpful. So, that sounds still like there's one operation that's being performed in different amounts to different parts of the image, the one operation being dynamic range correction, let's say in 132. Needham shows one operation being performed in different amounts.

So, is there something in the Spec that says, there's a predetermined preset matching, or is it simply that you have an operation, therefore, it's matched to the face, for instance?

MR. ROBINSON: Your Honor, I think it's matched to the face because the correction is pre-associated with objects of the predetermined type, which are faces. That doesn't speak to how you get to determining to apply that correction.

JUDGE GALLIGAN: Okay, thank you.

MR. ROBINSON: So, the critical distinction between the 132 Patent and Needham is that you pick the object, you identify the object of a predetermined type; based on that identification, you determine the correction to apply. That's the opposite of what Needham does.

Needham starts with a correction and then says, okay, we've got this correction, we know we're going to apply it; how do we apply it?

Dr. Bovik's concession on Paragraph 22, and the fact that the Petitioner only relies on Paragraph 22, should be determinative of the novelty grounds.

When you look to the obviousness grounds, that then turns to Nonaka, it's helpful to start again with the application of different corrections, and the order in which the asserted different correction amounts is applied.

Specifically, in Nonaka, the Petition maps only Paragraphs 48 - 50 to Elements 1B -- where Petitioner has identified as Elements 1C and 1D, of the claims. The Petition maps only Paragraphs 48 - 50 of Nonaka.

What Paragraphs 48-50 of Nonaka disclose is applying a first gain value, G1, to the landscape, and a second gain value, G2, to the person.

The reason that that order is important is that the gain value, G1 -- the idea of changing that intensity dynamic range by adding the gain value G1 to the background, G1 is applied to the background regardless of whether there's a face.

When you apply it to the background, you know you haven't picked that for the background -- that correction or the value, for the background -- because there's a face there.

And so, referring to Claim 1, when the first step is determining whether there's a face, the second step is determining the correction to apply based on the fact that you found a face; Nonaka doesn't fill that gap either.

JUDGE JEFFERSON: Is it because of the order? Nonaka is the background first then the body second. If the order was reversed would it then read on the claim?

MR. ROBINSON: Well, Your Honor, that's I guess -- it's a hypothetical; it's not in the record. But, as to the hypothetical, if all of the other elements were met, if the correction of applying the gain values was determined based on the fact that you found a face --

JUDGE JEFFERSON: In my hypothetical, assume we are only talking about this one limitation, which you seem to say is based on order; if G2 was applied first, if it was applied -- you know, you've applied the gain to the body and then the G1 to the background, would that meet the first portion of Claim 1?

MR. ROBINSON: If you assume that all other elements are met, and that G2, the determination of that gain is based on a presence of a face, and G2 --

JUDGE JEFFERSON: Or body. I'm specifically asking about the body.

MR. ROBINSON: Ah, well then no, it wouldn't. So, a couple of things here. First --

JUDGE JEFFERSON: So, the claim would only apply if you're determining if it's a face?

MR. ROBINSON: It absolutely does under the Petitioner's mapping.

JUDGE JEFFERSON: I'm asking of the interpretation of the claims itself. I mean, I don't see anything that says that the predetermined type has to be a face.

MR. ROBINSON: No, Your Honor, certainly Claim 1 does not. All I can speak to is the way the Petitioner has chosen to map its prior art to these claims, and that is that the object is a face, full-stop. For the reasons that we've discussed, Needham doesn't do that. I

JUDGE JEFFERSON: I thought we were talking about Nonaka, I'm sorry.

MR. ROBINSON: Yes, we are, Needham doesn't do that and so Petitioner has turned to Nonaka. Nonaka doesn't do that either.

Starting with the Paragraphs 48 - 50 that have been mapped to it, they don't do that. They do it in the opposite order. They never say that we're applying this because there's a face in the image. In fact, it's doing exactly the opposite.

JUDGE GALLIGAN: I don't think Nonaka is doing the opposite. For instance, in Paragraph 50 of Nonaka it says, "to solve the problem, the optimization processing section 5b performs the correction processing of the person with a gain 2 as a correction value larger than that of gain 1."

I mean, it's -- I guess the first determining step is determining whether a first portion represents a physical object. The Patent says nothing, really, about that, the 132 Patent just says that's known.

Then it says, determining a correction to apply to the first portion -- it actually doesn't say determining a second correction. It says, applying a second amount of the correction.

And Nonaka does show applying a second amount of the correction because there's Gain 1 and Gain 2. It's the same correction, different amounts, and it's based on the fact that there's a face and a landscape. So, I mean, that is there.

MR. ROBINSON: Your Honor, what is not there in Nonaka, is selecting the application of gain as a correction because there's a face in the image. What those Paragraphs say is, we're going to apply the gain to the background, we're going to apply the gain to the landscape; is the first point.

And the second point is that, Nonaka never says, even with respect to the application of Gain 2 to the person, never says that we're going to apply the gain because there is a face on the person. For example, Paragraphs 48 - 50 would read the same way if the person was turned around.

So, there's really two issues baked into that. One, Nonaka is not determining to apply any amount of gain to this image because there is a face in the image. So, it can't fill in that gap from Needham.

The second part is that Needham doesn't match that correction to the face because it simply applies it to the person. Again, the critical --

JUDGE GALLIGAN: Counsel -- I'm sorry, I didn't mean to interrupt. Go ahead.

MR. ROBINSON: No, no, by all means, I was about to move on. So, happy to answer your questions.

JUDGE GALLIGAN: Well, that's funny, I was actually going to say if we could -- and you've used about 48 minutes, you have about 22 minutes left in your opening time.

But I did want to get to the Konoplev as prior art issue, and I didn't know when you were going to discuss that. And, I don't want to take you out of turn, but I certainly want to discuss that with you.

MR. ROBINSON: Absolutely, Your Honor, and I will move on to that in just a moment.

JUDGE GALLIGAN: Great.

MR. ROBINSON: The other point about Nonaka, and I will like to briefly bring up Nonaka's Figure 8, which has been excerpted by Petitioner in its reply.

Patent Owner obviously made a number of points about why a person of ordinary skill in the art would not combine Nonaka with Needham, not least of which because Nonaka is a complex system that requires all of its various parts to function.

Now, Petitioner has responded by saying, no, no, we were only talking about the optimization processing of Step 17, not the correction and emphasis process of Step S15, which requires the pre-brightening. And again, when that brightening happens before you know whether there's a face, it cannot be responsive to identifying a face in the image.

Now, Petitioner's reply, essentially makes the point that Patent Owner was trying to make in its Patent Owner response.

Petitioner's reply says, no, no, we weren't talking about Paragraph 42 in Nonaka, which says you have to brighten to find a face. We were talking about Paragraph 58 in Nonaka.

Well, Patent Owner addressed Paragraph 58, and the reason that Paragraph 58 is important is because it doesn't talk about Step 17 or Step 15.

The place that Petitioner skipped over in its reply that has optimization processing is way down in Step 24.

Now, Step 24 is important because that's the image capture part. Step 15 and 17 are the monitored image part; the monitored image branch.

So, you think of in a digital image, or a digital camera, or in your phone when you're taking a picture, you get an image that's shown on the display. There are some real time adjustments so you can see what your captured picture is likely to look like. But ultimately, the correction that Petitioner is pointing to in its reply is the correction that happens way down in Step 24 for the capturing part.

The reason we know that is in Nonaka's Paragraph 58, it's referring to Figure 6, and it says that specifically, in such a scene that has a backlit landscape without any person, the optimization processing section does not perform the optimization processing.

You've got to read a little bit farther, though, because we know from Nonaka that the optimization processing section 5B works in a number of places.

The optimization processing section 5B performs the optimization processing of the scene is which the person is detected at the backlit part, as shown in Figure 3, and performs the exposure control.

Now, exposure control is important and when you look at the part of that Paragraph 58 that continues on to Page 5, it references exposure control again, and it references when photographing is not aided with extra light, which would be the flash. So, furthermore, when the flash light is not emitted, energy consumption can be reduced.

The reason that's important is that flash and emission exposure control only happens at S23, down there on the image capture part. So, when we scroll back up here to the monitored image loop, there's nothing about flash, there's nothing about exposure control.

And so, this Paragraph 58 that Petitioner has explicitly relied on yet again, doubled down on in its reply, absolutely requires both of those.

The critical piece here is that it is this big monitored image loop, in the upper part of Nonaka's Figure 8, that determines whether there's a face at all for the photographing, for the captured image. And once it determines, we get down here to Step 24, where Paragraph 58 says, if there's not a person, we don't have to do it.

Well, a couple of things to unpack here. One, the Petition maps both of these loops. So, for Petitioner to backtrack and say, well, despite the fact that we relied on parts of both of these loops, we really only meant to pluck these individual pieces, doesn't hold water.

The second part is the explicit, the explicit motivation that Petitioner's counsel referenced here today for adding Nonaka to Needham, is to be able to process backlit scenes.

Well, what we know about backlit scenes from Nonaka is that it makes the foreground very dark. And when the foreground is very dark, you might not be able to see the face.

So, for Petitioner to now say, well, we're not going to bring over that pre-brightening because we don't need it, doesn't match up with what they've mapped as their purported obviousness theory, which is, we have to be able to deal with these backlit scenes.

You're not going to bring over looking for a face, without that pre-brightening, if you're looking to Nonaka's teaching, because that's not going to do what Nonaka is purportedly brought over for, which is to be able to find faces in dark foregrounds, dark because the background is backlit. And, let me try to get my slides back up.

JUDGE JEFFERSON: Isn't there another interpretation of the Petitioner's position is that there's another path where you don't do the pre-brightening at all? The face is visible, and so you just -- whichever loop you're in, you would just jump straight to the face detection and your differential application of gain.

MR. ROBINSON: Your Honor, there is that reading, but it doesn't make sense. It's not consistent with, nor supported by, the purported motivation that Petitioner's counsel doubled down on today, which is to be able to deal with backlit scenes.

Nonaka has an overall system for addressing backlit scenes, and it says specifically, when you've got a backlit scene in the foreground, you may not be able to find the face.

JUDGE JEFFERSON: You may; the operative word is "may."

MR. ROBINSON: But if the point is to deal with a backlit scene, you're not going to take only the part that doesn't deal with sort of the extremes of that backlit scene.

Nonaka has an overall approach to dealing with backlit scenes, which is to pre-brighten because not only is it a mere possibility that you won't be able to see that face, but it's enough of a possibility in a backlit scene with a darkened foreground, that Nonaka says, okay, you've got to have this, this is

important enough that we're going to include it as a loop. To say without this, you know, good luck, essentially.

Now, if pre-brightening weren't necessary, here's the other piece of this; if pre-brightening weren't necessary, Needham already has the face detection. It can already find a face.

So, to add just finding a face from Nonaka makes no sense. If finding a face is the problem that you're trying to solve, Needham solved it.

So, the only way that you're going to look to Nonaka is to bring over that processing loop that actually does what Nonaka's purpose is to do, which is to find the person in a darkened foreground. There's nothing else to add.

Unless there are any other questions on Needham or Nonaka on the 1250 proceeding, I'll go ahead and jump ahead to the 1251 proceeding. And to do that I'm going to go ahead and bring up Petitioner's Slide 21.

Now, the interesting thing about Petitioner's Slide 21 specifically Paragraph 49 of Konoplev --

JUDGE GALLIGAN: I'm going to interrupt you before we get to Konoplev, I wanted to talk about the 132 Provisional.

In the Patent Owner responses, you – Patent Owner – provided some citations to where there's support in the 132 Provisional for each of the challenged claims in the 1251 proceeding. And I'm looking at the Provisional here.

What is the Z-Light module in the Provisional? For instance, Exhibit 2003, Page 8, which is the 132 Provisional, and you cited at various places. Actually, it's Page 5 of the Provisional, Page 8 of the Exhibit, so it's Page 5.

MR. ROBINSON: 5 of the Provisional, 8 of the Exhibit?

JUDGE GALLIGAN: Yes, sorry about that.

MR. ROBINSON: Okay.

JUDGE GALLIGAN: So, in your briefing you cited as Page 5, and by the way you're doing a great job fielding the questions, I'm interrupting you a lot. Thank you.

MR. ROBINSON: I appreciate that, thank you.

JUDGE GALLIGAN: It's very helpful.

MR. ROBINSON: So, I think the easiest way to articulate that is when you are talking about a pixel, you can think of the X and Y axis in a two dimensional image of being positional.

So, a rectangular digital image will have a certain number of pixels along the X direction and a certain number of pixels in the Y direction. And you think of the Z Light as being sort of the vertical representation along the Z axis.

So, my read of the Provisional as it has been explained by Dr. Villasenor, is that the Z-Light module is talking about the expression of those pixels other than their two dimensional position, if that makes sense.

So, conceptionally, you think of brightness or intensity as being sort of along that Z axis. You could think of a picture as being a histogram where the Z direction is sort of higher for brighter pixels, and maybe lower for darker pixels, or you could reverse that.

JUDGE GALLIGAN: Does Dr. Villasenor put this in his declaration?

MR. ROBINSON: I'm trying to relate this in a way that sort of makes sense to my more physical brain.

JUDGE GALLIGAN: Okay, I'm kind of interested in the evidence of record, so I'm looking at the value, and I'm looking at these arguments.

What is the Z-Light module? A lot of this depends on a Z-Light module and I'm not seeing what that is in this Provisional and in the evidence.

MR. ROBINSON: The Z-Light module is just a module that performs the functions that are described in the Provisional application, Your Honor. Z-Light modules is not intended to --

JUDGE GALLIGAN: Yes Sir. The Provisional, I believe, has to have First Paragraph 112 support for the claims if you want to back date your claims to the Provisional. So, it sounds like it's a black box that does something that's not explained. How is that showing a written description?

MR. ROBINSON: Your Honor, the difference is that the function in the 132 Patent, when broken down into isolation -- and I'll find the specific citations for Dr. Villasenor's declaration as I try to explain this -- so, Dr. Villasenor, Paragraphs 43 - 54, spans a number of pages, explains sort of where the support is.

JUDGE GALLIGAN: So, I'm where you are at. It really doesn't explain it. It repeats as a claim chart, it repeats the exact same things that are in the briefing. It has one paragraph of explanation in 44 about saturation and why that shows maintaining local contrast.

So, and I'm looking back to Dynamic Drinkware, and it's Patent Owner's burden, given presumptively prior art, which the Konoplev reference is based on the nonprovisional filing date, the burden of production shifts to Patent Owner to come forward with evidence and persuasive argument, and there's simply no argument.

So, you point to things like the Z-Light module, how is that showing written description support for any claim? And that's what I'm trying to get

at. How can we rely on this argument to backdate the 132 claims to the Provisional date?

MR. ROBINSON: Well, Your Honor, I guess the starting point would be that it is presumed to be enabled. And so, the party challenging enablement would have the burden of production to challenge that, which Petitioner hasn't done. The second things is in terms of --

JUDGE GALLIGAN: Okay, so it's presumed -- I guess, what's presumed to be enabled because the Federal Circuit tells us that you have to come forward with evidence and argument that there is enablement. That's the standard, so I don't know that there's a presumption. If there were a presumption the Federal Circuit wouldn't tell us to do that.

MR. ROBINSON: I guess, Your Honor, I would point you to the level of skill in the art that can absolutely have, and it's the level of skill in the knowledge of a POSITA.

So, the art itself and the individual actions described in the 132 Patent, sort of focusing on the Z-Light module misses the point of whether a person of ordinary skill in the art would understand how to make a software module that performs the tasks that are described.

And so, I'll refer you to Paragraph 44 where it quotes from Page 4 of the 132 Provisional, another example is adjusting the dynamic range compression (Z Light). So, as I was trying to describe in a little bit more physical way, it's equating Z Light to adjusting dynamic range compressions. So, the dynamic range is the Z Light, and you're adjusting it.

We know from the art that that, in and of itself, was known to a POSITA and that a POSITA could do it. We know that finding a face in isolation could be done, and that a POSITA could do it.

And so, there's nothing -- I think it's telling that there's not a single individual step in anywhere in this Provisional that Petitioner has challenged where it was described and enabled.

And so, absent that challenge, Dr. Villasenor's explanation of pointing to specific points in the Provisional that disclose it, and his explanation that it was, in fact, enabled, should be sufficient under these circumstances.

And I think you'll find that in other Dynamic Drinkware applications, that there is not a requirement, certainly not one that I've seen, that a proponent of a Provisional filing date do a complete Wands Factor analysis, for example, when enablement hasn't been challenged by anybody.

JUDGE GALLIGAN: No, maybe there isn't but, it does state that you are to come forward with evidence and argument. The burden of production they say is includes evidence and argument, and there's really no argument. So, we get back to things like your entire case and the 1250 depends on this identifying a face and then you have to have an operation based on a face.

And all the Provisional says is do dynamic range compression. It doesn't say, first do it and then figure out an operation, and such operations can be either, examples, and then you pre-match those.

So, the Provisional starts as a starting point saying, do dynamic range compression. So, it looks like you're trying to have it both ways.

And that's what Needham describes too, is doing dynamic range compression and when you say finding faces is known in the art, and doing dynamic range compression is known in the art, so what do we have here?

MR. ROBINSON: Your Honor, if you look at, for example, Page 16 of Exhibit 2005, Dr. Villasenor's declaration, the advanced state of the art

offered by this new concept is the use of image content to determine methods in the amount of dynamic range correction.

So, that's explicitly saying what is the point that I made earlier, and that you just referenced as saying, which is you find the face, and then based on finding that face -- and obviously I'm being very specific here for the reasons we discussed earlier -- but you find the object of predetermined type; based on that, then you go figure out what kind of correction you're going to apply.

JUDGE GALLIGAN: It sounds like you've already determined the correction because you're saying use dynamic range correction, and that's what Needham says. So, if we're backdating to the Provisional, because I have to have support, what's the distinction over Needham?

MR. ROBINSON: Your Honor, the distinction is that you start with finding the face. Once you find the face -- I'm sorry, I'm not sure if I should look at the screen or the camera straight in front of me -- if you start with finding the face, that's not what Needham discloses.

So, finding the face is the first part, based on finding the face, you then go to determining the correction. So, the key -- I think maybe the way to articulate this is, before you find the face in the 132 Patent claims, you don't know that you're going to do anything with dynamic range correction.

JUDGE GALLIGAN: But in the Provisional you do, because that's the entire point of the Provisional is, you're going to apply dynamic range compression regardless, or you're going to do it because there are faces, but you're going to do it. I mean, you start from the concept of dynamic range compression.

JUDGE JEFFERSON: Or, if I can piggyback and state it differently. Where in the Provisional does it say to find the face and then decide what you're going to apply it to?

It would seem to me, the portion that you cited with respect to Z Light, seems to say that you know that's what you're going to apply, and then you go looking for something to apply it to.

MR. ROBINSON: So, I guess the, maybe another way to explain this would be to reference on Page 16, some of the language that's quoted from Page 5.

JUDGE GALLIGAN: This is 16 of?

MR. ROBINSON: Sorry, Page 16 of Dr. Villasenor's declaration, Exhibit 2005.

JUDGE GALLIGAN: Okay.

MR. ROBINSON: In the 1251 proceeding. The Coach 11 Face Detection Module will be used to identify faces in the image. The output of the face detection module is a list of faces along with their corresponding locations. They are used as an input to the Z-Light module.

So, Z-Light module is what determines the correction. If you don't find faces, you never go to the Z-Light module. The output of the face detection is the input to the Z-Light module. You're never going to look at that correction if you don't have a face to put into the module.

The difference with Needham, for example, is that in Needham you start with the faces, and then regardless of whether you find faces, you go to the Z-Light module.

And you go to that Z-Light module and you say, okay, here's a correction I'm going to apply, how am I going to apply it? Is it going to be to the whole image, or is it going to be to the face?

The difference is that when you have a correction that you're going to apply, regardless when you start with the correction, determining that correction doesn't depend on whether there was a face in the image.

How you apply it might depend on whether there is a face in the image, but it's not starting with the face detection, or the object detection, and then determining what you're going to apply, in terms of a correction.

JUDGE GALLIGAN: Counsel, thanks. You're in your rebuttal time. You're about half a minute into your rebuttal time. If you want to keep going, you're welcome to. I'll keep track.

MR. ROBINSON: Thank you, Your Honor --

JUDGE GALLIGAN: Sur-rebuttal time, I should say.

MR. ROBINSON: I think I'll continue on for a few more minutes.

JUDGE JEFFERSON: and with Judge Galligan's indulgence, we have started the clock here, so he does have some -- Judge Galligan is the official timekeeper. Like a soccer game here, and I hate to work analogies, I apologize.

MR. ROBINSON: (Laughter) I appreciate it. So, moving ahead now to Petitioner's Slide 21, support in the Konoplev Provisional, specifically Paragraph 49, which I don't believe was in the list of paragraphs cited for support for this in the Petition, but nevertheless, Paragraph 49 makes the point that the initial radius and the final radius are not the wrinkle reduction parameters.

So, they're filtering parameters, and the filtering parameters are an initial radius, a final radius, and separately listed, an imperfection reduction mode.

Imperfection reduction mode, much like wrinkle reduction parameters, is never explained. It never says what that mode is, how you implement it. Although, the description in Konoplev's Provisional mentions wrinkle reduction parameters, it never says what those parameters are. It never expressly ties them to an initial radius or a final radius. It never says, here's how they differ from blemish reduction parameters.

And I'm going to jump around on the slides for just a moment, the interesting thing about that discussion is that we know from Konoplev's Claim 1 that blemish removal, with the filter, is different than wrinkle reduction with a filter.

And we can see that on Patent Owner's Slide 39, which I've got up here in the Hearing Room now, Judge Galligan. On Patent Owner's Slide 39 you've got Step E, which is processing the converted image using wrinkle reducing parameters.

You've got the wherein clause which is, wherein an initial filtering radius and final filtering radius are set. And repeating Step C through E, while the initial filtering radius is increased until the initial filtering reaches the final filtering radius.

The first point is that it's talking about Steps C through E; this wherein clause is talking about Steps C through E. And, if you look at those steps the only place where the filter shows up is the skin recognition filter of Step C.

So, Konoplev has skin recognition but then it also has this extra step of, purportedly, removing wrinkles. Nothing about that wherein clause says anything about changing the filtering radius as to the wrinkle reducing parameters.

It's a matter of just antecedent basis filtering parameters like the initial filtering radius and the final filtering radius refer back to the recognition filter in Step C.

The second point is that Step F separately recites reducing blemishes in the converted image. And so, when Petitioner points to the file history, or the prosecution history from Konoplev, and the Examiner says, well, look, removing blemishes such as wrinkles was known, that's not the same thing as saying wrinkle reduction parameters as a separate step from removing blemishes.

Now, in Exhibit 1024 -- I believe it is in the 1251 proceeding, in the Konoplev file history, at Page 73 -- what's really interesting is that the Examiner specifically does include processes in the converted image using wrinkle reducing parameters as part of the reasons for the Notice of Allowance.

It says, this combination of features wasn't known. He doesn't say, as Dr. Bovik opines, that it's just the automation step. He says this specifically, and when the Examiner then comments on the prior art, he speaks about blemish reduction including wrinkles generally. It doesn't say anything about wrinkle reducing parameters.

Dr. Bovik's reliance, and Petitioner's reliance, on the prior art reference as cited in that file history is interesting because none of those references were actually submitted in evidence here.

And, in fact, when you look at those references, none of them say anything about wrinkle reducing parameters. It talks about smoothing to get rid of blemishes and wrinkles as sort of a general approach.

It never says -- it never uses the phrase "wrinkle reducing parameters" to start, but then it never says what exactly are those; what are those parameters? If, in fact, they are the initial and final filtering radius, how does that differ from how those are applied to remove blemishes, and detect skin?

None of that is articulated in the Konoplev Provisional. And that's exactly what Dr. Villasenor explains in his declaration, is there's just not enough there to deal with, or for a POSITA to understand what is said.

As far as the one reference that Dr. Bovik relies on, the Gonzalez Reference, that's the subject of a Motion to Exclude. So, it should be excluded for the reasons on the motion briefing, and I won't spend a ton of time here going at that specifically, but if that's excluded that takes care of the only reference that he points to that's actually in evidence.

Second, even if you look at that Gonzalez Reference, and specifically the parts that Dr. Bovik points to as purportedly describing and enabling wrinkle reducing parameters, nothing there says anything about wrinkle reduction parameters as being any different from blemishes or anything else being removed. It just says generally you can use a filter to remove this stuff.

So, two things, one is wrinkle reducing parameters is a species that's not in any prior art of record. So, there's no evidence that a POSITA would have understood that term or seen that term and known exactly what it meant. Especially, when that term appears at as species within sort of this

disclosure that talks about removing other types of things, like blemishes. It's just not there.

And without that written description of what wrinkle reducing parameters means, what it is, what it encompasses, and how it's different from the other terms that are used, like reducing blemishes and the skin recognition filter in Claim 1, a POSITA would have had no idea how to implement that.

Now, the other thing about wrinkle reducing parameters is that it's so broad that the, as Dr. Villasenor explains, the amount of experimentation that it would have taken to figure out how do you find an algorithm that removes wrinkles in a way that we know is distinguished from the blemish reduction in Konoplev, where do you even start. A POSITA wouldn't know where to start when Konoplev presents that as something different than the broad discussion.

For those reasons, Konoplev is not entitled to priority, and I'm mindful of my time, so I would certainly ask you to review the papers on that point as well.

Petitioner conceded that Zhang by itself doesn't anticipate Claim 1 and so it has to rely on Konoplev. For the reasons we have explained, Konoplev is not prior art, it shouldn't be considered. Even if it is, Konoplev doesn't fill the gap of Zhang.

The reason is that Konoplev, again, starts with skin. It doesn't pick smoothing because there's a face in an image. It picks smoothing because there's skin in an image.

Now, a couple of points here, one -- and I'll refer to Patent Owner's Slide 51 -- Petitioner's mapping. Again, Petitioner has to set the bounds of

this proceeding under the Supreme Court's precedents. Petitioner's mapping is to Konoplev's smoothing of skin.

So, everywhere that the Petition addresses this, and there's 1251 Petition at 25 - 26, there's an example on Patent Owner's Slide 51, Konoplev describes the smoothing filter as being applied only to the detected face and skin areas. That's consistent.

So, Slide 52, a couple of other examples from the 1251 Petition at Page 28, Konoplev smoothing detected face and skin areas. So, it's the face and the skin.

And the reason I point this out is the Institution Decision went a bit farther and said, Konoplev at Colum 3 -- I think it's Lines 37 through 47 -- once you smooth the skin, we'll go the extra step and also apply a smoothing filter to the face with different parameters. That's a second step.

And this is where we get back into Claim 1 of the 132 Patent requiring four steps in a particular order. You have to determine the correction because there is a face detected, and that correction has to be matched to the face.

If we start with skin, we know that that's not matched to the face. And we know that it has to be matched to the face, because that's what Petitioner has alleged in its Petition; that's the only way that it's been mapped.

So, Konoplev doesn't fill that gap. It doesn't say, we're going to smooth a face because it's a face. It says, we're going to smooth because we found skin, and then if there's a face, we're also going to smooth that with some different parameters.

Now, the sort of decision to focus on Konoplev as skin and face, wasn't an accident. They had to have that piece because Zhang doesn't have it. Zhang doesn't have applying a correction because you found a face. Specifically, it doesn't have applying a correction to the face because you found a face.

And so, the first point is the Petition doesn't map what the Institution Decision gave it credit for. The second point is, there is a distinction between the smoothing the face and the skin, and smoothing the face.

Specifically, the Petition has said, we are relying on smoothing the skin, including the face. So that's what we've got to look at.

And that doesn't match up to what the purported reason for adding -- sorry, the names are running together in my head a little bit -- that doesn't match up to what the Petitioner has asserted the reasons are for adding Konoplev to Zhang.

With that, unless Your Honors have any questions, I'll save the rest of my time for sur-rebuttal.

JUDGE GALLIGAN: I don't have anything further. Judges Jefferson and Moore?

JUDGE JEFFERSON: Nothing further here.

JUDGE MOORE: No.

JUDGE GALLIGAN: Okay, great, so you have about eight minutes left for sur-rebuttal. We are thinking of maybe taking a five minute break, and then we'll pick up with Petitioner's rebuttal. We'll say a little after 2:50 Eastern

JUDGE JEFFERSON: Lots of us sitting here in the room (inaudible, overtalking). Since I notice that some of you will be going for a long day, we appreciate your sticking with us and working with us.

JUDGE GALLIGAN: Or 10 minutes, whatever works for the court.

JUDGE JEFFERSON: Given the time that we have left, I say 10 minutes works. So, we will get back at 2:57, according to the clock.

JUDGE GALLIGAN: Sounds good.

JUDGE JEFFERSON: Okay.

JUDGE GALLIGAN: Thank you.

(Recess)

USHER: All rise.

JUDGE JEFFERSON: You may be seated. Judge Galligan, I'll turn it over to you and we can get back on the record.

JUDGE GALLIGAN: You may proceed, Petitioner. You have 40 minutes.

MS. LEUNG: Thank you, Your Honor. So, Petitioner wants to address a few points here. We're going to address matching, as far as the 132 Patent is concerned, and Needham and Konoplev, and then the 132 Patent Provisional, and Konoplev's Provisional.

JUDGE GALLIGAN: And if you can also address Patent Owner's argument that your entire reason to combine Needham and Nonaka depends on the backlighting, and that loop doesn't -- you wouldn't use backlighting with that argument.

MS. LEUNG: Yes, Your Honor.

JUDGE GALLIGAN: That'd be great, thanks.

MS. LEUNG: So, starting with the 132 Patent, Your Honors earlier asked Patent Owner a couple of times where in the 132 Patent it describes matching. And, Patent Owner never actually answered Your Honors' question. And, Petitioner also had a difficult time finding where in the 132 Patent it described matching.

So, as you see here in Figure 1 of Exhibit 1001, which is the 132 Patent, that the correction unit is a DRC unit, which is a dynamic range correction unit. And that unit is already there.

It's hard wired. It's set in stone. It's predetermined for everything image that's being corrected. There is no detecting an object, and then selecting dynamic range correction.

What Patent Owner was describing earlier was that when the 132 Patent detects a face, it selects values from a gain table, which is selecting the amount of correction, not the type of correction that's required by the claims.

And even assuming that the 132 Patent did disclose some type of correction, or some type of matching, some type of selection of the correction that's going to be performed after it detects a face and based on detecting a face, Needham also shows that there's a matching.

So, if you look at Exhibit 1022 -- this is the second declaration of Dr. Bovik, on Page 15, which I've shown here up on the screen -- this is Needham's Figure 2, and this shows a block diagram of Needham's automated feature based image correction mechanism.

So, in this block diagram, the input image 110 is input into the automatic feature detection unit 250. So, the first thing it does with this

image is detect the features. In the example that we provided in Paragraph 22, that would be a face and a building.

So, from there it goes into block 260, which is where it creates the feature description. So, after it detects a face, it creates a feature description for the face, and that would include the type, the object type, which is human faces.

It would include the location; where in the image is this face. It would include the statistically properties of the face. And it would do the same thing for the building. It would create a feature description for it.

From there it goes to the feature based correction unit 270. And in the feature based correction unit is where the correction operation, the type of correction, is retrieved.

So, if we go back a little bit to the correction parameters, that Box 240, what's in the correction parameters is actually different types of correction. And the operational parameters -- let me find the diagram for it, so, I'm looking at Exhibit 1004, and this is a Needham reference -- and here the correction parameter is 240. And this is what would be input into the correction unit.

So, the correction parameters include an operation mode 705, and that mode is whether it's going to correct just the features or the whole image.

And then there's an operation definition, which is the type of operations: brightness, contrast, dynamic range.

And then there's operation parameters, which is intensity upper bound; which is where the end point would be in the dynamic range, intensity dynamic range with the whole range would be. And that would be input into this feature based correction unit.

Now, what the feature based correction unit has is a list of different types of corrections, because that's what the correction parameters include; it's different types of corrections.

So, from this feature description 260 that the feature based correction unit receives, it has to select one of those corrections to apply based on, as we discussed earlier, on the feature description, which includes the feature type.

So, this feature based correction unit is where the mapping occurs, from the type of feature to the type of operation.

JUDGE MOORE: Do we know the relationship between a correction applied due to the operation mode, and a correction applied due to the weight?

MS. LEUNG: Well, the operation mode in Figure 8 here, is actually whether you correct the entire image, or the individual image features. So, that's not actually the operation type.

The operation type would be retrieved at Step 860, after it determines that it has a feature to correct.

JUDGE MOORE: That's Figure 8?

MS. LEUNG: Right, sorry, Figure 8 of Exhibit 1004. So, as you see in the operation mode, if the user selected to correct individual features in the image, then it would go down the flowchart.

If the user selected to correct the entire image with the same operation, without considering any of the detected features, then it would take the right branch into perform correction on the entire image.

JUDGE MOORE: Does the operation mode -- I expect that this describes applying different amounts of the same type of correction to different portions of the image?

MS. LEUNG: If the operation mode that's selected is to correct individual image features, Paragraph 22 describes applying different amounts of --

JUDGE MOORE: So, you need the weights for the different portions of the image part of it.

MS. LEUNG: Correct. Now earlier Patent Owner was saying that you would need to know what the initial dynamic range is to know how much the gain of the operation, what the amount of the operation, what the amount of correction is applied to the different portions of the image.

Now, that may be true, but there are scenarios that Needham considers where there are different amounts of correction being applied to the image, and Paragraph 22 is one of them.

JUDGE MOORE: I'm just trying to figure out how it works. So, it seems to me, say, the face was weighted at 75, pick a number, and the rest of the image was weighted at 25, pick a number, is that then applied to the operation mode modification? Or how does that --

MS. LEUNG: No, that would be applied at the correct current feature operation at 870.

So, how that would work is, actually you would apply it to individual image features. So, in that case it would be a face and a building. I don't think Needham accounts for the situation where you have a face, and then you correct the rest of the image differently.

So, their example is a face and a building. So, it would take the branch going down in the flowchart. And the operation mode in that case would be individual features.

And the weight is obtained in Step 810; so, it obtains a weight for the face and the building in Step 810. And then in the operation mode it says, well, okay, I'm going to correct individual features now.

So, I'm going to take the down branch, and at 840 the unit says, there's a face I need to correct. It retrieves operation type, that's Step 860, and then it corrects the current feature, the face, at 870, using the operation type and also the weight. And then it would do the same thing for the building.

JUDGE MOORE: But other than in Paragraph 22, is there a description here of how the weights are actually used?

MS. LEUNG: I think Paragraph 22 is the paragraph that provides a concrete example for two different image features.

There are other portions of Needham that describes that weights are assigned to image features, but Paragraph 22 is the one that describes how they are applied with different image features.

If Your Honor have no more questions on Needham, then I'll move on to Nonaka. Let me pull up the claim language here so we can take a look at it.

So, earlier Patent Owner argued that Nonaka doesn't remedy the deficiencies of Needham with respect to the matching because Nonaka performs a correction, even if a face is detected.

On Pages 14 to 15 of our Petition for the 1250 proceeding, we clearly allege with respect to the Claim Element 1E -- which is determining a

correction to apply to the first portion of the digital image data, wherein the determining correction is matched to the predetermined type -- that Nonaka doesn't perform optimization processing when no face is detected. And we did cite Paragraph 58 for this, and Figure 6.

We then advanced that that renders obvious detecting a face and using that detection as a basis for determining the correction apply. Now, it's for determining the correction to apply, not the amount of correction.

And Patent Owner argues that Nonaka doesn't match the correction to the face, also because it applies a correction to the landscape first, and then applies the correction to the person.

Now, if you look at Claim 1, there's really no requirement here that the face be corrected first. It just says, applying the determined correction to the first portion, and applying a second amount of correction to the second portion.

There's nothing in the claim that says you have to apply the determined correction to the first portion before you apply a second amount of the correction to a second portion.

So, even if Nonaka applied the correction to the landscape first, and then it applied the correction to the person portion, it would still satisfy the claim language.

But in Nonaka, Nonaka has to find the face to know where the background is. If you don't find the face first, how would you know what is a background and what is a face?

So, in that way, the correction is based on finding a face. Whether it applies it first to the landscape or to the face, you have to find the face to

know where the face is, where the landscape is, where to apply the different amounts of correction.

Now, for the fact that Nonaka applies the correction to the entire person, and not just the face, doesn't mean that the correction isn't matched to the face. There is still cause and effect.

Nonaka detects a face, it doesn't detect a person, it detects the face, then it knows where the person is. So, based on detecting the face, it applies the correction to the person. The claims don't preclude that.

Just as long as it detects a predetermined type of object, a face, and applies the correction to the first portion of an image, which is a face, it doesn't say it can apply it to the body also. It still meets the claim language.

And then with respect to Patent Owner's argument regarding the motivation to combine, where Nonaka needs to do pre-brightening because of the backlit scene, I think it was Judge Moore earlier, or Judge Jefferson -- sorry, I can't remember -- but one of Your Honors mentioned that there is a situation where the face is bright enough, even though it's in a backlit scene.

Now, it can be detected, and in that case, you don't have to do a pre-brightening and Nonaka recognizes that; that there are situations where there's a backlit scene, the face is dark, but not so dark that you can't detect it the first time around. And so, you wouldn't have to do pre-brightening in that situation.

And all we're looking at in Nonaka is that when no face is detected, it doesn't do that optimization processing because it doesn't know the difference between the background and the face.

But when a face is detected, it does the optimization processing with the different gain values for the landscape and the person.

And I did want to go back a second, with regard to the Needham Reference Paragraph 22 -- sorry, I'm jumping around. I just forgot about this particular argument that Patent Owner pointed out about Dr. Bovik's testimony that Needham's algorithm would be applied whether or not there's a building or there's a face in the image. Well, that's really irrelevant here.

Needham's algorithm applies to detected image features. So, of course, it would still apply if it doesn't detect a face, or it doesn't detect a building. It would apply if it detects a different image feature, but that's really irrelevant.

What's important here is that when a face is detected -- which as Patent Owner pointed out, we've mapped to the predetermined object type -- when that face is detected, it performs a correction. And, based on that face being detected, it retrieves a correction and applies that correction on the face.

JUDGE GALLIGAN: But I think I understood Patent Owner's argument to be that -- not necessarily contesting that, but then saying it's not doing the same correction operation for different image features. It's either doing one correction on the whole image, or there's different branch which is, correction operations that are specific for each image feature.

And so, I understood its argument to be, even if it's specific to the predetermined object, the face, where is the disclosure that the same -- in that particular path -- the same correction is then applied to some other portion of the image? Does that make sense?

MS. LEUNG: Right --

JUDGE GALLIGAN: Because the claim requires the same, but the differential corrections; the same correction in different amounts, and not just different corrections.

MS. LEUNG: Right, so it would have to have two different detected image features in the image in order to apply two different corrections, or two different amounts of the correction to the image. So, it would have to take that path that we've shown earlier.

JUDGE GALLIGAN: And then I think Patent Owner would say, where's the disclosure that the second image feature is mapped, or the same correction operation is mapped to the second image feature?

MS. LEUNG: That would be in the example of Paragraph 22 of Needham, with the face and the building.

JUDGE GALLIGAN: Okay, thanks, I understand your position, thank you.

MS. LEUNG: Then, very quickly, before I hand it over to my colleague, Mr. Riffe, Patent Owner also argued earlier that there's no matching of the correction to the object type in Konoplev because the smoothing is applied to the face and skin areas. Now, that really doesn't matter either.

A correction can be matched to multiple object types, in this case the face and the skin. And, as we discussed with Needham earlier, the building and the sky.

In Needham the correction was matched to both the face, when a face was detected, it retrieved the dynamic range correction; the building was detected, it retrieved the dynamic range correction. It just did it in different amounts.

Now, in Konoplev it's the same concept here. There can be a correction that's matched to multiple object types. In this case, the correction is matched to the face, and it's also matched to the skin.

But there's still a cause and effect relationship here, as we showed earlier, that when Konoplev detects a face, it applies the correction to the face, a wrinkle reduction correction.

Now, the fact that it also applies some smoothing correction to the skin doesn't make the wrinkle reduction correction not matched to the face. That is still matched to the face. And the 132 Patent claims don't preclude the correction from being matched to multiple types of objects.

And, if Your Honors don't have any questions regarding these issues, I'll hand it over to my colleague, Mr. Riffe. Thank you.

MR. RIFFE: Your Honors, I just want to take one minute to note, or correct the record, in my opinion.

With respect to your question, Judge Galligan, about the Z-Light module earlier, that you asked Patent Owner's counsel about, in one of its answers to Your Honor, Patent Owner's counsel contended that Dr. Villasenor at Page 16 of his declaration demonstrated that the 132 Provisional explains how a face is detected before consulting the Z-Light module, and thus before determining to apply face corrections.

I looked at Dr. Villasenor's declaration at Page 16, and I would contend there's no support there for that contention. So, I would direct Your Honors to please review that as part of your diligence as well for the Final Written Determination.

But going further, even if faces are first detected before going to the Z-Light module, there's no disclosure of using detection of face to decide

what type of correction to apply in the Provisional. So, that's my final statement. I believe we'll surrender the remainder of our time, Your Honors, unless there are no further questions.

JUDGE JEFFERSON: Nothing further.

JUDGE GALLIGAN: Thank you, Counsel.

MR. RIFFE: Thank you.

JUDGE GALLIGAN: Thanks. Patent Owner, you have eight minutes left and you can start when you prefer.

MR. ROBINSON: Thank you, Your Honors. With respect to Paragraph 22 of Needham, Petitioner's counsel just conceded that it is true that you need to know the starting points to know the amounts of correction. That is the second point on which the anticipation theory absolutely fails with respect to Needham.

In Petitioner's counsel explanation of Figure 8 of Needham, and walking through that with Paragraph 22, Petitioner's counsel asserted that, of course, the second time that you walk through it with the building feature, that of course, the correction would be the same. That explanation presupposes a connection between Paragraph 22, and Figure 8, that is not in Needham.

Judge Galligan, to your question about where the disclosure is that ties those two things together, it is not. It is not in the Petition; it is not in Needham.

Petitioner's counsel also said that Page 14 of the Petition cited Figure 6 of Nonaka in support of the notion that the optimization processing section 5B does not perform its task if there's not a face detected. That statement is absolutely false.

On Page 14 of the Petition, the only paragraph that Petitioner relied on was Paragraph 58. And we know from our examination of Figure 8, that Paragraph 58 necessarily refers to the image capture portion. It does not relate to the image monitoring portion.

So, Petitioner's own mapping of Nonaka relies on both of those paths; the captured image loop and the monitored image loop. It can't go without.

And yet, Petitioner is now contending that, well you would just pluck this one decision out of Nonaka and put it into Needham to process backlit images. Again, if all you're plucking from Nonaka is whether or not there's a face, regardless of whether your face detection module can find it, you've added absolutely nothing to Needham.

On rebuttal, Petitioner's counsel also asserted that in Nonaka the face must be found to know where the landscape is; specifically, I think, with reference to Paragraphs 48 - 50 of Nonaka that the Petition mapped to the differential amounts of correction. That assertion is absolutely incorrect.

You'll recall in Nonaka that the landscape is the part outside the window. That's the bright part. That's the part that's backlit. There is a tremendous contrast shown in Nonaka's figures between that brightly backlit landscape and the dark interior.

So, you absolutely don't need to know whether there's a face in the dark foreground to know where the landscape is. It doesn't need to happen. In fact, doesn't happen, because Nonaka actually talks about making corrections to that brightly lit landscape regardless of whether there is a person in the foreground. So, that's in incorrect premise.

It finds the landscape. It applies Gain 1 to the landscape. It then looks to see whether there's a face. If it can't find one, it brightens the foreground because the foreground is too dark to find the face.

Now, again, that's the very point of Nonaka. Setting aside the fact that Petitioner mapped all of these parts of Nonaka to the application of differential amounts of the determined correction, it's absolutely necessary that if you want to take Nonaka's teachings and use them to improve Needham, to improve the identification of a person in the foreground, you have to take the entire processing approach of Needham.

Now, Petitioner's counsel also asserted that it doesn't matter the order in which a correction is applied, that a correction can still be mapped to an object. That still misses the point.

Claim 1 of the 132 Patent requires identifying the object of the predetermined type, and then determining based on the identification of -- I'm going to say face again, because that's what's mapped -- based on the identification of the face, then you determine a correction.

JUDGE MOORE: Have you already determined the operation that you would apply to that type of feature before you identify it?

MR. ROBINSON: Your Honor, there is a preexisting correlation between object of predetermined type, and the face, the object itself. That's not the same as saying, I'm going to determine the correction based on the presence of the face.

Now, it doesn't require picking that correction from a list of potential corrections. Setting aside the fact that the 132 Patent said, look this is an example of a framework; there are plenty of other corrections that can be implemented with a similar approach, you don't have to pick a correction

from a set of available corrections. The 132 Patent is specifically talking about, what's the correction that you're going to determine if there is a face in the image?

And Page 16 of Dr. Villasenor's declaration that Mr. Riffe just referenced, in fact, quotes a portion of the Provisional application, it says, the output of that determination is the input to the Z-Light module that makes the correction. Meaning, that if there's no output of face, there's no input to the corrections. You're not going to perform that correction.

Ultimately, to focus on matched without also considering that determination, misses the point. If you don't find the face before determining the correction, and if there's only one correction determining whether you're going to apply that correction, and if there's only one correction determining whether you're going to apply that correction, then you essentially would be reading out limitations of the claim.

And I'll give you an example; Claim 1 of the 132 Patent, if it said, identifying a face, determining a correction, and then the rest, it wouldn't require a sequence. But what it says is, you identify the face, and then you determine the correction based on the face, and then that correction is also matched to the face.

The 132 Patent and the 132 Provisional, I believe it was Page 5 of the sur-reply, that cites particular parts of the 132 Patent, the action of determining is, is there a face?

The action of determining the correction is, if there's a face, we're going to put that into the Z-Light module and that is going to cause the dynamic range correction to be applied to the face, the gain values for the face are matched to the face, and they're going to be applied to the face, and

then the gain values that are not matched to the face, in a different amount, are going to be applied to another portion of the image that's not the face.

JUDGE GALLIGAN: That seems slightly different from the argument you were making earlier on which is, because the claim says, determining a correction to apply, and it sounds like the correction to apply has been determined; it's only a matter of whether it is applied. I think there's a distinction there. It sounds like that maybe is where your position on the claim is going.

MR. ROBINSON: Your Honor, I see that my time has expired. May I briefly answer your question.

JUDGE GALLIGAN: Sure, absolutely. Thank you.

MR. ROBINSON: All right. So, to the extent that it seemed I was trying to go towards a list of corrections, that wasn't what I was trying to articulate earlier.

The point of finding the face first, and determining the correction based on identifying the face is, it can manifest in two different ways, which I think I just alluded to.

If there's a list, you can pick from that list. If there isn't a list -- if there's only one that's preassociated with that particular identification of a face -- then determining a correction is: if there's not a face, you don't correct; if there is a face, you take that correction and you apply it to the face.

And that's exactly what Page 5 of the 132 Provisional described, where the output of the facial identification module is the input of the Z-Light module that actually determines: all right, here's the correction to the DRC.

You can think of it this way, taking that output and putting into the DRC says, okay, I'm determining that we're going to apply that DRC based on the identification of that face.

JUDGE GALLIGAN: Thank you, Counsel. I appreciate that.

MR. ROBINSON: With that, I think you've heard enough from me today. Thank you all for your time and Patent Owner (inaudible) briefs.

JUDGE GALLIGAN: And thanks very much for excellent presentations from all counsel. Petitioner, what is it?

MR. RIFFE: Your Honor, I know I surrendered our time, but I would like 30 seconds to address one point made by Patent Owner's --

JUDGE GALLIGAN: Well, I'm not in favor of the sur-sur-rebuttal. You had your rebuttal period.

MR. RIFFE: Fair enough, Your Honor, thank you very much.

JUDGE GALLIGAN: Thank you very much, Counsel. You both had excellent presentations. You did a great job answering our questions. We will adjourn for now. We will issue Final Written Decisions in the 1250 and 1251 cases in due course. Thank you very much.

(Whereupon, the proceedings at 3:31 p.m. were concluded.)

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