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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA,
et al.,
Plaintiffs,

Civil Action
No. 1:20-cv-3010

vs.

Washington, DC
November 15, 2023
1:17 p.m.

GOOGLE, LLC,
Defendant.

Day 41
Afternoon Session

_____ /

TRANSCRIPT OF BENCH TRIAL
BEFORE THE HONORABLE AMIT P. MEHTA
UNITED STATES DISTRICT JUDGE

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I N D E X

WITNESS

PAGE

DOUGLAS OARD

Cross-Examination by Mr. Smurzynski

10379

E X H I B I T S

EXHIBIT

PAGE

Exhibit UPX2086Admitted into evidence.....

10424

Exhibit UPXD105Admitted into evidence.....

10429

P R O C E E D I N G S

1
2 **THE COURT:** Mr. Smurzynski, whenever you're ready.

3 **MR. SMURZYNSKI:** Thank you, Your Honor.

4 **CROSS-EXAMINATION OF DOUGLAS OARD**

5 **BY MR. SMURZYNSKI:**

6 **Q.** Good afternoon, Professor Oard.

7 **A.** Good afternoon, sir.

8 **Q.** It is correct that you don't have an opinion on
9 whether any search engine needs to have a specific amount of
10 user-side data in order to compete with Google on search
11 quality?

12 **A.** That's correct, sir, I have no opinions on
13 competition.

14 **Q.** And you have no opinion as to whether any search
15 engine needs to have a specific amount of user-side data in
16 order to have an equivalent amount of search quality as
17 Google?

18 **A.** That's correct. I think that there are many factors
19 that would bear on that question.

20 **Q.** Now, you used the phrase "substantial" many times in
21 your report, so I just want to make sure we have common
22 ground on what you mean by "substantial" in connection with
23 search quality. I'm happy to show you your report, but I'll
24 represent to you this is paragraph 22 of your August 5, 2022
25 report.

1 Does this look familiar and correct to you?

2 A. Yes, sir, it looks correct.

3 Q. And you defined substantial effect on search quality
4 to be as follows: "An effect on search quality is
5 substantial when a change, whether positive or negative,
6 would be sufficiently large to be expected to influence
7 perceptions of search quality when compared to the search
8 quality provided by that same search engine absent the
9 change."

10 Did I read that correctly?

11 A. Yes, sir.

12 Q. And if I ask you questions about whether, with
13 respect to search quality, there's been a substantial effect
14 or change, when we talk today, can we all understand that's
15 the definition you're using?

16 A. Yes, sir.

17 Q. It's correct, sir, that you don't have an opinion as
18 to whether Microsoft's search quality would improve by a
19 substantial amount if its user-side data, say, doubled?

20 A. I haven't seen experiments that could bear on that.
21 There was an experiment run by Professor Fox with Google
22 representing Microsoft's search quality. But that did not
23 look at a mere doubling, that looked at, I think, a factor of
24 20.

25 Q. Let me just make sure I get an answer to my

1 question --

2 A. I'm sorry.

3 Q. -- which is that you don't have an opinion as to
4 whether Microsoft's search quality would improve by a
5 substantial amount if its user-side data volume doubled?

6 A. I believe that's a question on which you would have
7 to run an experiment to get an answer to that specific amount
8 of user-side data to produce a substantial effect.

9 Q. And therefore, you don't have an opinion as to
10 whether that would be the case?

11 A. I suspect it would be the case, but I would need to
12 run an experiment in order to find out. I just don't know.

13 Q. And with respect to Yahoo!, same question: It's
14 correct that you don't have an opinion as to whether Yahoo!'s
15 search quality would improve by a substantial amount, as
16 you've defined that term, if it had twice as much user-side
17 data?

18 A. My understanding is that Yahoo! syndicates
19 Google's -- I'm sorry, Bing's search results, and thus the
20 answer for Yahoo! might be the same as the answer for Bing.

21 Q. And would it be the same answer for DuckDuckGo, then,
22 because DuckDuckGo syndicates Microsoft's results?

23 A. Yes, I would expect so.

24 Q. And if I asked you that same question about Neeva or
25 Brave or any other search engine, your answer would be the

1 same, correct?

2 A. I don't think it would be the same for Neeva, which I
3 understand isn't presently in business. I just wouldn't know
4 how to answer for Brave. I don't understand enough of how
5 Brave's structured.

6 Q. If I asked you this question about Neeva when it was
7 in business, just to be clear, you don't know whether Neeva's
8 search quality would have improved by a substantial amount,
9 as you've used the term, if it had twice as much user-side
10 data, correct?

11 A. My understanding is that Neeva was syndicating some
12 Bing results at that time, and I just don't know the
13 quantity. I wouldn't have a basis for having an opinion on
14 that, sir.

15 Q. It's your position that to know the answer to this
16 question for any search engine, one would have to conduct an
17 experiment, correct?

18 A. Yes.

19 Q. You were engaged in this matter towards the end of
20 July of 2022; is that correct?

21 A. Yes, that's correct.

22 Q. And then you issued two reports, one on August 5th
23 and another on August 19th?

24 A. Yes, that's correct.

25 Q. Of the same year?

1 A. In 2022, yes, sir.

2 Q. Now, on direct, you testified that there's a reason
3 to believe that the 3.9 IS score delta that Professor Fox
4 reported as of March of '22 between Google and Bing was
5 overstated.

6 Do you recall that testimony?

7 A. Yes, sir.

8 Q. And one of the things you pointed to was a slide.
9 And if you have your slides in front of you, it's slide 21.

10 A. Yes, sir.

11 Q. And slide 21 refers to a document in evidence,
12 UPX220, that's dated July 15, 2020. Do you see that?

13 A. I do.

14 Q. And in that document that you cite on this slide,
15 there's a recognition by Google that there is an issue with
16 scraping, correct?

17 A. Yes, there are several documents in the record that
18 I've seen that indicate problems with scraping. This was one
19 of them.

20 Q. Do you know whether, between July of 2020 and March
21 of 2022, Google identified that -- excuse me, Google
22 addressed that scraping issue?

23 A. I do not.

24 Q. I'm sorry, I didn't hear you.

25 A. I'm sorry, I do not.

1 Q. Are you aware that Professor Fox, in his reply
2 report, addressed this contention of yours?

3 A. I don't believe Professor Fox, in his reply report,
4 addressed this issue, but my memory may be incomplete on
5 that.

6 Q. Let me refresh your recollection.

7 A. I do recall him addressing scraping.

8 Q. Do you see there that Professor Fox reports that
9 Google has resolved its previous crawling problems with Bing
10 pages, and then it goes on?

11 A. Yes, I do.

12 **MS. AGUILAR:** Your Honor, if I may object. The report
13 has a more complete, fulsome description of what Professor
14 Fox is relying on, his citations and the like. And if we're
15 just going to be doing paragraphed demonstratives of the
16 report, I ask that the reports just be put in front of the
17 witness. And then he can testify from them to get a more
18 fulsome picture of what exactly was contained in these
19 paragraphs.

20 **THE COURT:** Okay. We did that yesterday.

21 **MR. SMURZYNSKI:** I'm happy to do that if the witness --

22 **THE COURT:** Sure. There was a request yesterday, I'm
23 happy to accommodate that.

24 **MR. SMURZYNSKI:** May I approach?

25 **THE COURT:** Yes, of course.

1 BY MR. SMURZYNSKI:

2 Q. Professor Oard, with that now in front of you and
3 you've had a chance to review it, you are aware, sir, are you
4 not, that Professor Fox has reported that Google has resolved
5 its previous crawling problems with Bing pages?

6 A. I'm aware of this statement by Professor Fox.
7 However, my concern is that there are a number of possible
8 crawling problems. My recollection is that it was not this
9 specific crawling problem that Professor Fox was referring
10 to. And as I stated in my direct testimony, I believe that
11 there are several issues that could make it more difficult
12 for Bing to scrape -- I'm sorry, for Google to scrape Bing
13 than it would be for Bing to scrape itself.

14 Q. If you'd go to paragraph 58, the preceding paragraph
15 in front of you.

16 A. Yes, sir.

17 Q. You see there that Professor Fox indicates: "Second,
18 Professor Oard contends that 'there is reason to believe
19 that' Google's measurement of the gap between Google and
20 Bing, 3.9 points in IS4@5, may overstate the size of the
21 gap."

22 And then Professor Fox indicates: "I addressed the
23 primary arguments Professor Oard makes as to why he believes
24 there is a chance that the quality gap between Google and
25 Bing is smaller than stated in my opening report."

1 And then he indicates: "Professor Oard first contends
2 that Google does not properly crawl Bing results for purposes
3 of Google versus Bing human rater tests, such that the Bing
4 pages that the raters evaluate are not an accurate
5 representation of what they actually look like."

6 And that's the contention you were making on slide 21,
7 correct?

8 **A.** I'm sorry, let me refer to slide 21. I don't believe
9 that's the contention on slide 21. I believe the contention
10 on slide 21 is that the location data in this scrape that was
11 performed in 2020, for example, was not provided to Bing and
12 was provided to Google; and as a result, Google provided
13 better results. But that when both were presented, that
14 Bing's results were, then, better than they had been when
15 they were scraped.

16 **Q.** The only evidence you've presented this Court as a
17 difference between these two is what's presented on slide 21;
18 is that correct?

19 **A.** I believe it's the only document that I've cited, but
20 that I have described, without showing documents, information
21 that is in other documents.

22 **Q.** And in all events, you have no calculation of how
23 much that would impact the 3.9 point IS score delta, correct?

24 **A.** That's correct.

25 **Q.** Now, you also made some reference to human traffic

1 versus -- excuse me, human raters versus live traffic
2 experiments. Do you recall that?

3 A. Yes, sir.

4 Q. And you agree that human rater experiments are
5 valuable?

6 A. Yes, in the sense that human rater experiments can
7 provide useful insights.

8 Q. And you view the human rater and the live traffic
9 methods of experimentation as complements; is that right?

10 A. I do view them as being complementary. There is
11 considerable overlap, but there are things that one can see
12 that the other cannot.

13 Q. You don't think it's the case that one of those
14 methods as opposed to the other dominates in some way in
15 terms of being a proper measure?

16 A. I believe that they're both valuable.

17 Q. And you have no reason to believe that the results
18 from a human rater experiment would be biased in one
19 particular direction in favor of Google or Bing as compared
20 to a live traffic experiment, do you?

21 A. I'm sorry, could you ask that question again? I
22 didn't understand the meaning of bias in this sense.

23 Q. The meaning of bias in my question is: You don't
24 have any reason to believe that a human rater test is more
25 likely to show a greater gap than a live traffic experiment

1 when comparing Google to Bing?

2 **A.** I don't have any preconceived notion about whether
3 the difference would be larger or smaller. There are simply
4 unmeasured effects, and so you might see effects that you had
5 not been able to measure using the IS measure. But I'm not
6 making statements about which difference would be larger,
7 that's not the way in which you would analyze these results.
8 You would look for whether the results were consistent;
9 whether they were results that were contradictory; whether
10 the results aligned with your intent when making the change
11 to the system that you had made.

12 So I believe it's a matter for judgment and not a matter
13 for comparison of size.

14 **THE COURT:** Can I ask a -- interrupt?

15 **MR. SMURZYNSKI:** Certainly.

16 **THE COURT:** What would a live traffic experiment even
17 look like, if you were trying to compare the search results
18 between Google and Bing?

19 **THE WITNESS:** So imagine, just to stay as close as we can
20 to this experiment design, that Google were to retrain all of
21 its search engine components, just as a thought experiment.
22 It might make some practical limitations to that. But just
23 imagine that with user-side data that they believed
24 comparable to that available for Bing. And then imagine that
25 one out of every 20 Google users would get the simulated Bing

1 amount, and the other 19 would get the Google amount.

2 And if the users who were doing the live traffic
3 experiment acted in ways that indicated they were less happy
4 with the results -- maybe not staying on pages for as long or
5 perhaps abandoning the search engine altogether, then you
6 might conclude that a substantial effect has been observed.

7 **THE COURT:** I see, okay. Thank you.

8 **BY MR. SMURZYNSKI:**

9 **Q.** I want to switch gears for a second. Today, Google
10 is the most widely used general search engine in the United
11 States, correct?

12 **A.** I believe that's correct, yes, sir.

13 **Q.** That was not always the case, was it?

14 **A.** It certainly wasn't the case before the founding of
15 Google.

16 **Q.** It once received fewer queries than its rivals?

17 **THE COURT:** I'm sorry, can you state the question again?

18 **BY MR. SMURZYNSKI:**

19 **Q.** Certainly. It once received fewer queries than its
20 rivals?

21 **A.** At its inception, I expect that it received very few
22 queries, yes, sir.

23 **Q.** And when it was founded, Google's -- the dominant
24 search engine in the United States was AltaVista, correct?

25 **A.** Yes, I think that's a fair characterization.

1 Q. And Google had less user-side data than AltaVista for
2 some period of time, correct?

3 A. Yes, although the user-side data in that era was
4 principally at the queries. It was technically possible at
5 that time to collect click data, but I don't believe that any
6 search engine at that time collected click data. I think the
7 use of the click data dates to closer to the middle of the
8 2000s, sometime in the range of 2005 or 2006. Although, as I
9 say, it was technically possible before that.

10 Q. Google became more popular than AltaVista, correct?

11 A. It did.

12 Q. And it didn't do that by somehow magically getting
13 additional user-side data than AltaVista, correct?

14 A. Yes, that's correct.

15 Q. Instead, Google innovated?

16 A. Yes, Google innovated, and I expect that AltaVista
17 innovated as well. Although AltaVista, as I understand it,
18 was sold a couple of times during this period, and it may not
19 have had the same amount of resources available to it that
20 Google had. I just don't know the business side of
21 AltaVista's business.

22 Q. But you do know that Google out-innovated AltaVista,
23 and that's how Google became more popular than AltaVista?

24 A. Actually, I don't know that. I know that Google
25 became more popular than AltaVista, and I know that Google

1 innovated. I'm not able to draw that causal link.

2 Q. Well, do you agree, sir, that Google displaced
3 AltaVista as the preeminent web search engine, because Google
4 included several capabilities that AltaVista did not offer at
5 the time?

6 A. At least in part, yes.

7 Q. And amongst those capabilities that Google developed
8 was the PageRank algorithm?

9 A. Yes. The PageRank algorithm's been very widely
10 commented upon.

11 Q. And not only has it been widely commented upon, it is
12 your belief that that is part of the reason that Google was
13 able to overcome AltaVista?

14 A. I do believe it was valuable to Google. I don't know
15 if it caused Google -- it's the causal link I'm having
16 difficulty with. But certainly it would have been valuable
17 to Google.

18 MR. SMURZYNSKI: Your Honor, I'm going to pass out some
19 binders with exhibits.

20 THE COURT: Sure.

21 BY MR. SMURZYNSKI:

22 Q. Professor Oard, in the binder there is a document
23 that's marked as DX2068. Do you see that?

24 A. I do not, but I'm -- okay, 20 --

25 Q. 2068.

1 **A.** Yes, I have it.

2 **Q.** And this is an article that you wrote entitled
3 Studying the Use of Interactive Multilingual Information
4 Retrieval in 2006, correct?

5 **A.** Yes, I'm the second author on this three-author
6 paper.

7 **Q.** Okay. And this is an article that is included in
8 your CV?

9 **A.** It is. It was a workshop paper published at a SIGIR
10 conference.

11 **Q.** If you'd turn to the second page of your 2006
12 article, and we'll go down to the second full paragraph.
13 There, you and your coauthors write: "Google displaced
14 AltaVista as the preeminent web search engine, because Google
15 included several capabilities that AltaVista did not offer at
16 the time."

17 Did you write that in 2006 with your coauthors, sir?

18 **A.** I'm sorry, could you point me specifically to -- the
19 second full paragraph begins with: "A simple example." Is
20 that the one?

21 **Q.** Yes, indeed, and it's the second sentence.

22 **A.** Second sentence. Give me just a moment to read it,
23 please.

24 **Q.** It's also on the screen, if it that helps.

25 **A.** I'll read it here.

1 (Witness reviews the document)

2 A. Yes, I see that. And I did write this at the time,
3 yes.

4 Q. And you follow that conclusion with the sentence:
5 "The most cited advance was the PageRank algorithm which
6 yielded better ranked lists."

7 A. Yes, I believe that's correct. I believe that's the
8 most widely commented on --

9 Q. And that was one of the -- I'm sorry, I didn't mean
10 to interrupt you.

11 A. I'm sorry, the most widely commented on of the
12 advances.

13 Q. And it was one of the advances that led Google to
14 supplant AltaVista, correct?

15 A. It's the causal link that I can't state with
16 certainty, but these were certainly benefits to Google at the
17 time.

18 Q. And --

19 A. I'm not an expert in how displacement occurs. It's
20 not a topic on which I have expertise.

21 Q. And then in this paper, you and your coauthors go on
22 to write: "But two other features of Google were also
23 important." And then the first you indicate there is:
24 "Google indexed more documents by indexing anchor text, so
25 that even documents that had not yet been crawled could be

1 found."

2 Do you see that?

3 **A.** Yes.

4 **Q.** Was that an innovation or investment by Google that
5 contributed to Google supplanting AltaVista?

6 **A.** Yes, and one of my points here in this writing had
7 been to emphasize that that innovation had received less
8 attention than I thought it deserved.

9 **Q.** And then you go on to cite a third innovation that:
10 "Google performed conjunctive all-terms queries rather than
11 the disjunctive any-term queries that AltaVista and other
12 search engines used at the time."

13 **A.** Yes.

14 **Q.** And it was those innovations, among others, that
15 allowed Google to displace its larger rival, correct?

16 **A.** It was those innovations, among others, that Google
17 made and that Google did displace its competitors. I'm not
18 an expert in how displacement occurs, and I can't tell you
19 that those innovations caused displacement. But those
20 innovations were made, and objectively looking back, you
21 could say displacement occurred.

22 **Q.** And another time displacement occurred is when
23 AltaVista became the largest search engine in the United
24 States; is that right?

25 **A.** Yes. I believe that Lycos had been the dominant

1 search engine prior to that.

2 Q. And prior to Lycos, there was a search engine called
3 WebCrawler, correct?

4 A. That's correct, although WebCrawler was not widely
5 used. I think Lycos would be the first search engine that
6 many people knew of. So WebCrawler is of historical
7 interest, but at that point, the web search business was
8 somewhat niche.

9 Q. And in each of these instances we've talked about --
10 Google displacing AltaVista, AltaVista displacing Lycos and
11 Lycos displacing WebCrawler, the smaller search engine with
12 less user data supplanted one that had more user data, more
13 queries?

14 A. It's certainly the case that new search engines
15 always have less -- fewer queries. As I said, in this period
16 of the web, I don't believe that any search engine, including
17 Google, was making use of the click data in the way that
18 search engines use it today. But the queries were certainly
19 available and were being analyzed, and having access to more
20 queries would itself be valuable. And queries are, of
21 course, user-side data.

22 Q. Professor Oard, you agree that there are an enormous
23 number of other factors that influence or affect search
24 quality other than user-side data?

25 A. It's certainly true that there are quite a large

1 number of factors, an enormous number of factors, that in
2 addition to user-side data affect search quality. Some of
3 them are used without user-side data at all, and others make
4 use of user-side data and other signals.

5 Q. It's your opinion, Professor Oard, that algorithmic
6 breakthroughs could allow a competitor to obtain better
7 search quality than Google, correct?

8 A. It's within the realm of possibility that new
9 algorithms might be discovered that would make it possible to
10 perform better searches, yes, sir. We've been working on
11 that for a long time, and there's been quite a record of
12 success in the community.

13 Q. And to take, for example, Microsoft, Microsoft in the
14 past several years has made a number of leaps in quality; is
15 that correct?

16 A. My understanding is that Microsoft has made public
17 statements that it has seen substantial improvements in its
18 search quality in recent years from the use of foundation
19 models.

20 Q. And you haven't analyzed that, but you also don't
21 have any reason to cast doubt on Microsoft's claims in that
22 regard, correct?

23 A. That's correct.

24 Q. And assuming Microsoft's statements are truthful,
25 they were not caused by an increase in user-side data that

1 Microsoft received, correct?

2 **A.** That specific advance, I don't believe I could draw
3 any connection between it and any substantial increase in
4 user-side data. The causality might go the other way if more
5 users were to begin to use Microsoft, then Microsoft might
6 then also get more user-side data. But I don't -- I could
7 not make the causality in the direction you are asking.

8 **Q.** You would agree that we're currently in a period of
9 time where there's been tremendous innovation in natural
10 language understanding?

11 **MS. AGUILAR:** Your Honor, I'm going to object as outside
12 of the scope. Neither Professor Fox nor Professor Oard
13 addressed large language models or the recent advancements in
14 machine learning -- in that type of machine learning in their
15 reports. It's outside of the scope.

16 And if I may just add, Your Honor, Google's counsel had
17 another expert on scale that specifically addressed this
18 issue that they pulled from coming -- that they didn't call,
19 and so that puts us at a disadvantage on this particular
20 issue.

21 **MR. SMURZYNSKI:** Would you like me to address that or are
22 you --

23 **THE COURT:** Sure.

24 **MR. SMURZYNSKI:** -- ready to rule? Your Honor, there's
25 been posited this work that was done by Professor Fox, and

1 Professor Oard has suggested there's this unknown section
2 over here. And I'm exploring, in addition to the factors
3 that he suggested might contribute to that unknown section,
4 other factors. So I think this is quite fair game for
5 cross-examination.

6 **MS. AGUILAR:** Your Honor --

7 **THE COURT:** Hang on for a second. Maybe, because I
8 understand that at least from publicly facing, the large
9 language models are only -- they postdate the experiment that
10 Professor Fox ran.

11 **MR. SMURZYNSKI:** No, Your Honor. If you recall --

12 **THE COURT:** I mean, I understand there's other AI
13 components to the search functionality, but --

14 **MR. SMURZYNSKI:** So the model -- so the DRE occurred in
15 2022. And if you recall back to Dr. Nayak's testimony, sort
16 of going from 2015 through the present, we go through
17 DeepRank; we go through BERT, which is 2019; we go through
18 MUM, which is 2021. And the six models that are retrained
19 include RankEmbed BERT, they include RankBrain and other
20 large language models and transformer models.

21 **MS. AGUILAR:** Your Honor, if I may, because that's not
22 quite right. If we're going to be talking about transformer
23 models, like RankEmbed BERT and the models that Professor Fox
24 experimented on, that's fine. I sense that counsel is headed
25 towards statements Nadella and Microsoft had made in 2023,

1 this year, which is way beyond the scope of anything
2 Professor Fox or Professor Oard commented on. Professor
3 Frieder's report was supplemented to address those issues,
4 not Professor Fox's.

5 So again, they decided not to call Professor Frieder, so
6 they can't now at this time introduce this argument.

7 **MR. SMURZYNSKI:** Your Honor, for all the omniscience of
8 opposing counsel, my questions are going to include questions
9 about BERT, about 2019 and the like, which I think is --

10 **THE COURT:** I guess the bottom line is let's -- you know,
11 he's a rebuttal witness with respect to Professor Fox's
12 experiment, so let's make sure we're sort of within those
13 parameters largely, okay?

14 **BY MR. SMURZYNSKI:**

15 **Q.** I appreciate that, Your Honor. Hopefully we'll see
16 that the questions are there.

17 Professor Oard, you're familiar with BERT?

18 **A.** I am.

19 **Q.** And BERT is a deep learning model?

20 **A.** It is. It's a transformer model, in particular.

21 **Q.** A transformer model. And it's a very substantial
22 advance in the field of information retrieval, correct?

23 **A.** Yes, that's correct.

24 **Q.** And BERT resulted in measurable improvements that
25 were larger than many of the improvements that it attracted

1 substantial attention in the decade or so that preceded it,
2 correct?

3 A. Yes, that's correct.

4 Q. And you're aware that amongst the models that were
5 retrained, and in Professor Fox's experiment, were models
6 that relied on BERT?

7 A. Yes.

8 Q. And you have an understanding that BERT does not rely
9 upon web data for its training, correct -- excuse me, let me
10 restate the question. It was a poor question.

11 You understand that BERT is trained on publicly available
12 web corpora?

13 A. My understanding is that in the public papers that
14 authors from Google have written about BERT, they have not
15 used user-side data, but that user-side data is used in
16 RankEmbed BERT and in DeepRank.

17 Q. And in your direct testimony, you referred to
18 Google's use of 13 months of data for certain systems. But
19 for these systems that you just identified, Google does not
20 use 13 months of data, do they?

21 A. That's correct.

22 Q. They use far less, correct?

23 A. Yes, they use less.

24 Q. Now, in your report, you identified certain factors
25 beyond ranking that you considered to affect search quality.

1 Do you recall that?

2 A. I don't recall the specific words, but I agree with
3 the idea.

4 Q. Let me get your report to refresh your recollection.

5 Professor Oard, if I can direct your attention to
6 paragraph 22. In here, you are referencing Professor
7 Frieder, who had issued a report, and you indicate that
8 ranking is a part of what's necessary to assess the overall
9 quality of a search engine. But then you go on to list other
10 items: Index size and freshness, search features, user SERP
11 latency and device optimization. And then as you go on in
12 that paragraph, you include the topic of search advertising.

13 Do you see that?

14 A. Yes.

15 Q. And to maybe make this a little easier as we go
16 along, we've created a demonstrative. If you could put up
17 DXD40.004.

18 Professor Oard, does this demonstrative capture those
19 items that were referred to in paragraph 22?

20 A. Yes. There might be some discussion about the scope
21 of each of these terms. For example, the ranking algorithms
22 might or might not be read to include the retrieval
23 algorithms that are necessary in the ranking process.

24 Q. With regard to this first factor affecting search
25 quality, you don't know whether additional user-side data

1 would have a substantial effect, as you use that term, on
2 Microsoft's search quality through improvements in
3 Microsoft's ranking algorithms, do you?

4 **A.** I think there's evidence in the case on that from
5 Professor Fox's report that I showed on direct. It was in a
6 redacted slide, but it showed that on long-tail queries,
7 there were substantial and statistically significant
8 differences.

9 **Q.** And your opinion is that that tells one what the
10 effect of that additional data would be if Microsoft had it;
11 is that correct?

12 **A.** It's the best information we have. I think it's
13 understated, and it is tied to the specific architecture that
14 Google used. So I doubt that it is a perfect model of Bing.
15 But all models are wrong, and the question is whether this
16 model is useful for drawing conclusions.

17 **Q.** Proceeding to the index, it's correct, Professor
18 Oard, that you do not know whether access to additional
19 user-side data would have a substantial effect on Microsoft's
20 search quality through improvements to the comprehensiveness
21 and freshness of its index?

22 **A.** That's correct, I don't know that for the present
23 state of its index. Microsoft, as I understand it, has
24 increased the size of its index with the goal, I believe, of
25 doing better at searching in long-tail queries. But that

1 was, I think, now a couple of years ago.

2 Q. We'll come back to that.

3 Professor Oard, you don't know whether additional
4 user-side data would have a substantial effect on Microsoft's
5 search quality through improvements in search features?

6 A. It's correct that I have no experiment results that
7 would indicate that. That is perhaps the case where I have
8 the strongest belief that it would be useful, but that belief
9 is not grounded in experiments.

10 Q. Professor Oard, do you recall being deposed in this
11 matter?

12 A. I do.

13 Q. If you would turn to page 202, which is in the
14 October 24th, 2022.

15 **THE COURT:** Was that page 222?

16 **MR. SMURZYNSKI:** 202.

17 **THE COURT:** 202, okay.

18 **BY MR. SMURZYNSKI:**

19 Q. Line 15. Do you recall giving the following answer
20 to the following question:

21 "Question: On page 47, there's a heading B that reads,
22 'Additional user-side data can have a substantial effect on
23 search quality through improvements in search features.' And
24 my question there is similar to the questions I asked you
25 before, and it's as follows: Does additional user-side data

1 to Microsoft, in fact, have a substantial effect on search
2 quality through improvements in search features?"

3 "Answer: I don't know about Microsoft in particular, and
4 I don't know of any experiments that would shed light on that
5 question."

6 Were you asked that question, and did you give that
7 answer?

8 **A.** Yes, sir.

9 **MS. AGUILAR:** Your Honor, I think that was improper
10 impeachment to contradict Professor's Oard's statement.

11 **THE COURT:** It's okay, it's just me. Go ahead.

12 **BY MR. SMURZYNSKI:**

13 **Q.** So Professor Oard, you don't know whether additional
14 user-side data would have a substantial effect on Microsoft's
15 search quality through improvements in its speed or latency,
16 do you?

17 **MS. AGUILAR:** Objection, Your Honor. As you know,
18 counsel has withdrawn its opinions of Professor Frieder --
19 these are Professor Frieder's five areas in his report that
20 he covered. Since we had talked about the three during his
21 direct, I didn't object. But latency and device optimization
22 are opinions offered by Frieder that Professor Oard just
23 alludes to having responded in the Frieder rebuttal in that
24 paragraph that counsel pointed to, and I don't think it's --
25 I think it's outside of the scope of questions.

1 **MR. SMURZYNSKI:** If Professor Oard is no longer offering
2 an opinion that user-side data is useful for latency, then I
3 have no question of the witness. But I don't know whether
4 that's true or not.

5 **THE COURT:** Well, I don't know that he was asked about it
6 in his direct examination, but go ahead and ask, it's fine.
7 Go ahead, you can ask. You can answer the question.

8 **THE WITNESS:** Can you repeat the question?

9 **BY MR. SMURZYNSKI:**

10 **Q.** Certainly. Professor Oard, you don't know whether
11 additional user-side data would have a substantial effect on
12 Microsoft's search quality through improvements in its speed
13 or latency?

14 **A.** I certainly don't know whether it would have
15 substantial effects in a broad sense. It might be of value
16 in specific cases.

17 **Q.** And if you continue on in your deposition, the next
18 question after the last question that we had discussed,
19 page 203, line 5:

20 "Question: If you'll turn to page 52 of your first
21 report, and there's a heading B, 'Additional user-side data
22 can have a substantial effect on search quality through
23 improvements in speed or latency.' My question is: Does
24 additional user-side data to Microsoft, in fact, have a
25 substantial effect on search quality through improvements in

1 speed or latency?"

2 Your answer was: "I think my answer here will be
3 similar. I can't see how you could answer that question
4 without running an experiment. But in this case, the
5 experiment might be hard to replicate."

6 And then you go on, and I could read the entirety of it,
7 but it doesn't --

8 **MS. AGUILAR:** Your Honor, I object. This is, again,
9 improper impeachment.

10 **THE COURT:** Yeah, I actually agree. I mean, he didn't
11 say anything inconsistent with what was in the deposition.
12 So why don't we move to the next area and move forward.

13 **BY MR. SMURZYNSKI:**

14 **Q.** I think that -- well, I won't debate it.

15 Professor Oard, if I asked you the same question about
16 device optimization, would your answer be the same?

17 **A.** I'm sorry, would you just ask the complete question?

18 **Q.** Certainly. You don't know whether additional
19 user-side data would have a substantial effect on Microsoft's
20 search quality through device optimization?

21 **A.** I expect in this case it may. I don't know for sure,
22 that's true. But when device optimization is discussed, it
23 could be considered optimizing to desktop or optimizing to
24 mobile or optimizing to smart glasses, for all that matter.
25 And I do think that there are cases where additional

1 user-side data would be useful. I think smart glasses are
2 probably an obvious case where nobody has much data at all
3 right now. And we're probably not in diminishing returns
4 there, we're probably in increasing returns.

5 With regard to mobile, there's been testimony in the case
6 that Microsoft feels it doesn't have enough user-side data in
7 mobile, and so there might be substantial benefits to
8 Microsoft. But I haven't seen any experimental evidence that
9 would allow drawing a conclusive -- making a conclusive
10 statement there so I can offer you directions in which to
11 look.

12 Q. But you don't know?

13 A. That's correct.

14 Q. There was reference on direct to search advertising.
15 Do you recall that, the quality of search advertising?

16 A. Yes, yes.

17 Q. It's correct that you have no opinion as to whether
18 the amount of user-side data available to Google as opposed
19 to Microsoft has an impact on the quality of the search
20 advertising that appears as compared between those two search
21 engines?

22 A. I think this is a case where it would be even
23 difficult to run an experiment, because there are so many
24 confounding factors. But I certainly don't know the answer
25 to that question with any certainty.

1 Q. Now, if you'd turn in your binder to a document
2 that's marked UPX892.

3 Your Honor, this is a Microsoft document. There are a
4 number of redactions on it at the request of Microsoft that
5 I'm not going to take issue with at the moment.

6 Professor Oard, is this a document that you reviewed in
7 the course of your work on the case?

8 A. I believe it is. If you'll give me a moment just to
9 check the unredacted version to refresh my memory. Yes, I
10 did use this document.

11 Q. In fact, if you go to the second page of the
12 document, there's a curve drawn there that you referred to in
13 slide 48 today; is that right?

14 A. I don't recall the slide number, but yes, sir, this
15 slide without the NDCG on the left and with the A and B
16 removed.

17 Q. And this document is a thread -- an e-mail thread
18 amongst Microsoft employees in 2009; is that right?

19 A. It appears to be. I would have no personal knowledge
20 to confirm that.

21 Q. And it's an e-mail, so we'll read it in reverse.
22 We'll go to the first e-mail on page three. It's an e-mail
23 from a gentleman named Xuedong Huang, who fortunately is
24 referred to as XD and we'll refer to as XD from here on out.
25 He's sending an e-mail to Harry Shum. Do you see that?

1 A. I do.

2 Q. Do you understand that Harry Shum was responsible for
3 Microsoft Search in this period of time?

4 A. No, I wasn't aware of that, but I wouldn't be
5 surprised.

6 Q. And the question that's -- you've seen this e-mail
7 before; is that right?

8 A. I have. I've seen this entire document before.

9 Q. Okay. And the proposition that's being discussed in
10 the fourth paragraph -- and I'm just going to paraphrase it,
11 because Microsoft has asked that we redact it. It has to do
12 with Microsoft considering using certain additional data to
13 close the gap in quality on ranking between Microsoft and
14 Google, correct?

15 A. Give me just a moment to read that --

16 Q. Certainly.

17 A. -- just that paragraph. This starts with the word
18 "given"?

19 Q. Yes, thank you.

20 A. Yes, I see it.

21 (Witness reviews the document)

22 A. I'm sorry, so can you ask the question again? I've
23 now read it.

24 Q. Certainly. Again, I'm paraphrasing. But this
25 paragraph posits an approach by Microsoft to use additional

1 data in order to close the gap potentially between Google and
2 Microsoft on search quality?

3 A. That's how I would interpret it. It lacks much in
4 the way of detail, but I believe your characterization is
5 correct.

6 Q. And then there's an intermediary e-mail from
7 Mr. Shum, and then let's go up to the top e-mail from -- the
8 next e-mail from Girish Kumar to Harry Shum.

9 Do you understand that Mr. Kumar was head of the ranking
10 team at Bing at this period of time?

11 A. I did not know that, but it's quite clear that
12 they're working together on ranking at Bing from the e-mail.

13 Q. And the question is being debated as to the effect of
14 additional user-side data, click and query data on Bing's
15 search engine, correct?

16 A. Please give me a moment to review it again.

17 Q. Sure.

18 (Witness reviews the document)

19 A. I'm sorry, now would you ask the question again, just
20 to make sure that I'm answering the correct question?

21 Q. Yes. What is being debated here, or being discussed
22 here, is whether this additional data that Microsoft proposed
23 to obtain from Google in some means would improve Microsoft's
24 search quality. You see that's the topic being discussed
25 here?

1 **A.** The topic that I see being discussed, at least at the
2 beginning, is three ways in which the data might be used in
3 an effort to do that.

4 **Q.** Okay. And continuing on down the page, at the bottom
5 of the page -- and this is in a red bracket, but I don't see
6 that how I'm going to describe it could possibly be
7 confidential. The author refers to two pieces of evidence
8 regarding this question about additional training data.

9 Do you see that in the last box there?

10 **A.** I do.

11 **Q.** And if you'd turn the page, those two pieces of
12 additional data are listed as one and two. This is within
13 Microsoft?

14 **A.** Yes, yes.

15 **Q.** And it says 2009, the author indicates: "For May,
16 there was an increase of training data," by a certain amount.
17 "However, we did not see any additional gains from this."

18 Do you see that?

19 **A.** I do. You've interpreted "May" differently than I
20 had, but I agree that your reading of it is -- as a month may
21 be correct.

22 **Q.** It's capitalized, correct?

23 **A.** Certainly. It's a proper name. It may be the proper
24 name of the month or it could be the name of a system, but
25 I'll agree with you that I think your reading is reasonable.

1 Q. Okay. And then in the second bullet, there's a
2 reference to a Rich Caruana. Do you see that?

3 A. I do.

4 Q. And do you understand him to have been -- or to be a
5 senior researcher at Microsoft and somebody who was a
6 professor in the computer science department at Cornell?

7 A. You asked me that during my deposition, and I was not
8 aware of it at the time. But in preparing for this
9 testimony, I did check on that fact, and I agree, you're
10 correct.

11 Q. And it indicates that Dr. Caruana did some
12 experiments and plotted this curve that we see, which is a
13 curve that you re-purposed in your direct examination?

14 A. Yes.

15 Q. And I won't read it out loud, though it's 2009 and
16 quite stale. He, the author of the e-mail, indicates that
17 Dr. Caruana found that the models at Microsoft -- let me back
18 up.

19 It indicates that Dr. Caruana did some experiments and
20 plotted this curve for our system. And then that he found
21 that our models are very close to -- and I won't read it, but
22 you see what he says there?

23 A. Yes, I see what he says.

24 Q. Professor Oard, you would agree that this is an
25 indication that in 2009, at least, Microsoft was not

1 somewhere in the middle of this curve, but instead where
2 Dr. Caruana indicates they were?

3 **A.** There were two things that I'm not sure about. One
4 is what "our system" means. We discussed today "our system"
5 if you were Google might refer to live Google or it might
6 refer to frozen Google; or in the innovation process I
7 discussed, it might refer to a specific component that might
8 be being changed out in Google. And so I don't know what
9 system he's referring to.

10 Also, this plot is the kind of a plot that I would draw
11 on a whiteboard when teaching, it conveys an idea. But the
12 kind of a plot you would make if you actually plotted data
13 from an experiment, it seems to me to be vanishingly unlikely
14 to be this smooth. So I see this as Dr. Caruana giving a
15 sketch, and indicating where on the sketch he believes the
16 system that he was experimenting with would be.

17 So I don't know that this is Microsoft's live internet
18 search engine, and I'm reasonably confident that this is not
19 a plot of actual experiment data. But I don't dispute that
20 this is the point that he wishes to make.

21 **Q.** You can take that down.

22 Professor Oard, you mentioned in your direct that search
23 features are an important dimension of search quality. Do
24 you recall that?

25 **A.** Yes.

1 Q. Or an important contributor to search quality?

2 A. I would think both are true. And an important
3 attribute of a search engine would be a third way to say it,
4 yes.

5 Q. And you mentioned that user-side data plays some role
6 in it, but you don't know and you don't opine as to how much,
7 correct?

8 A. I believe I opined that it was quite substantial, but
9 I don't know specifically how much. And you would have to
10 talk about specific search features, and you'd probably have
11 to run experiments to answer questions of specifically how
12 much.

13 Q. You recognize that there are inputs beyond user-side
14 data that affect the quality of search features?

15 A. Yes. Again, I think it would be most productive to
16 talk in terms of specific search features, but there
17 certainly are search features that have inputs beyond search
18 quality. For example, spelling correction uses user-side
19 data, but it also uses the layout of the keyboard. Layouts
20 of the keyboard differ in different locales, but there's a
21 small number of them. And that fact is not user-side data,
22 but it's a very useful fact. It tends to affect the way
23 people misspell things.

24 Q. Did you read the testimony of Dr. Gomes in this trial
25 about how Google innovated with regard to spell correction?

1 **A.** I've read parts of his testimony. I don't recall
2 that.

3 **Q.** You would agree, though, that there are ways to solve
4 spell correction that don't depend on user-side data but
5 instead look at, for example, how websites spell particular
6 words?

7 **A.** Oh, absolutely. If you have a list of words, that
8 also is useful. And if you can see the spelling mistakes
9 that people make, that also is useful. So user-side data is
10 one factor among many that can help to improve spelling
11 correction.

12 **Q.** And you would agree that there are many ways to
13 improve spelling correction that feature -- that do not rely
14 on user-side data?

15 **A.** There are many ways to perform spelling correction
16 that don't rely on user-side data. If you have already used
17 all of those, then they would not be available to improve it.
18 But if you haven't, yes, there are many ways you could
19 improve spelling correction if you had not yet used those
20 techniques.

21 **Q.** Would you agree that when a search engine returns,
22 say, a sports score, that that is a search feature?

23 **A.** Yes. People refer to many things as search features,
24 including that.

25 **Q.** You would agree, sir, that a failure to invest or

1 innovate can be the cause of the difference between the
2 quality of one system and another with respect to search
3 features?

4 **A.** As a matter of common-sense, I would think so, yes.
5 I have found that when I had more students working with me, I
6 was able to try out more ideas.

7 **Q.** The flaw might have been in my question, so let me
8 ask a different one.

9 Do you agree that one of the causes of differences in
10 quality between search features on one search engine and
11 another can be the failure of one search engine to have
12 invested or innovated in search features?

13 **A.** I suppose so. It's not a question on which I have
14 expert knowledge. But as I say, from a common-sense
15 perspective, if you don't make the investment, you're
16 probably not likely to get the product.

17 **Q.** If you'll turn in your binder to DX469.

18 **A.** Yes, sir.

19 **Q.** DX469's already in evidence, and it is a 2014 e-mail
20 between individuals at Microsoft. Do you see that?

21 **A.** Yes. I see that it's a 2014 e-mail, and I see that
22 it appears to be from a Microsoft system. It mentions
23 Microsoft in the "from" line.

24 **Q.** And the e-mail attaches a set of slides, and let's
25 turn to those. At page 002, just to orient us, it indicates

1 it is the Bing mobile horsepower product leadership team
2 meeting.

3 Do you see that?

4 **A.** I do.

5 **Q.** And if you'd turn to the page that ends in .008. And
6 this reflects a side-by-side experiment. Do you see that?

7 **A.** Give me just a moment.

8 **Q.** Certainly.

9 (Witness reviews the document)

10 **A.** Yes.

11 **Q.** And if we turn two pages in further to .010, this
12 shows the results of a 2014 mobile whole page side-by-side
13 analysis between Google and Bing conducted by Bing.

14 Do you see that?

15 **A.** I see some results here, yes, sir. I haven't had
16 time to review the entire presentation, but what you say
17 would make sense to me, that this -- that would be what they
18 were depicting here.

19 **Q.** Okay. And here on the slide .010, we are looking at
20 the whole page side-by-side results for mobile. And there's
21 a negative number there, I'm not going to read it out. But
22 that is the negative number indicating how much worse than
23 Google Bing is on these whole page side-by-sides.

24 Do you see that?

25 **A.** Is there a reference that I can refer to that would

1 show me that that's the meaning of the negative number?

2 Q. Certainly. If you go to the e-mail again, the very
3 first line under top issue: "July mobile side-by-side
4 highlights the large deficit between Bing and Google on the
5 phone," and then it gives the same number that we see on
6 slide 10.

7 A. Yes, I think that's a reasonable interpretation of
8 what it says here.

9 Q. So if we go back to slide 10, there's a list of the
10 reasons why there's a large deficit in these search features
11 on mobile for Microsoft. One of them is partially redacted.
12 The first point made by Microsoft in 2014 is: "Google's
13 every device design. Most features in Bing are designed with
14 mobile as an afterthought, resulting in sloppy search UX. In
15 addition, Bing features dropped in features score when they
16 go from desktop to mobile like Google's rose."

17 A. Yes, I see that.

18 Q. That is not a result driven by relative user-side
19 data, is it?

20 A. Well, the characterization here is sloppy search UX.
21 I don't think that sloppiness would be explained by access to
22 more or less user-side data, I'd agree on that.

23 Q. We'll go down to the third bullet, the second's
24 redacted. It indicates that: "Google produces deep local
25 features and commerce ads tied to locale. They also rank

1 local answer higher in many instances than Bing does."

2 Does the creation of deep local features depend upon
3 user-side data?

4 **A.** I think it could benefit from user-side data, yes,
5 sir.

6 **Q.** Do you know by how much?

7 **A.** It depends on how local you want to be. My
8 understanding is that at this time, locality was -- this is
9 2014, do I remember that right?

10 **Q.** 2014, yes.

11 **A.** Locality was perhaps a nation or a region of a nation
12 as opposed to a metropolitan area. If indeed they were
13 working with metropolitan areas, they would need more
14 user-side data. And if they were working with finer grained
15 location than that -- so, for example, College Park as a city
16 in Maryland, then they would need even more user-side data in
17 order to have an adequate amount of data to be able to train
18 features of this type. But I don't know what they would have
19 been doing at the time. That's what you would need.

20 **Q.** If you go down to the fifth bullet point, it reads:
21 "More mobile-specific features. Google has over 15 features
22 Bing doesn't have."

23 **A.** Okay.

24 **Q.** The decision to invest in having a feature, that's a
25 function of investment in innovation, correct, sir?

1 **MS. AGUILAR:** Your Honor, I'm going to object.
2 Investment -- questions about investment are way outside of
3 the scope of anything we talked about on direct, and outside
4 of the scope of the witness' expertise.

5 **THE COURT:** Well, he can answer it. He's been opining
6 generally about inputs into search quality, and so he can
7 answer it to the extent he has some understanding of what
8 this means.

9 **THE WITNESS:** Very good. Would you ask the question one
10 more time to make sure I'm answering it correctly?

11 **BY MR. SMURZYNSKI:**

12 **Q.** Certainly. The ability to create features on mobile
13 is a function of an investment in innovation, correct?

14 **A.** It may also involve other factors. I don't know what
15 the relative access to mobile-specific traffic was at this
16 time. My understanding is that Google made a decision to
17 invest heavily in mobile at around this time, perhaps a year
18 later than this. And if it's after this case, then perhaps
19 Bing and Google may have had similar access on mobile. I
20 just don't know. But if it was at a time when Google had
21 much more mobile traffic, then they would have been able to
22 make better features, and they might have made investment
23 decisions in part based on what they thought the return on
24 investment would be.

25 I need to be careful to state that I do not have

1 expertise on the business side of this, but I do have a
2 general familiarity with this idea of balancing the cost and
3 benefits.

4 Q. You also spoke about the index. Do you recall that?

5 A. I'm sorry, when?

6 Q. Today on direct.

7 A. Yes, absolutely.

8 Q. And all else being equal, a search engine with a
9 larger index will have an advantage over a search engine with
10 a smaller index, correct?

11 A. I think that's true. The detail there of all else
12 equal you'd have to be careful about to make sure that you
13 were holding, for example, the quality of the content in the
14 index equal. It's possible that I might have a larger index
15 than you and yet not have as much high quality content as you
16 do, and thus you might actually have a better index than I do
17 and perform better search.

18 Q. And you recall we looked earlier that one of the
19 advantages Google had from an early date was having a
20 superior index to, say, AltaVista?

21 A. Yes.

22 Q. And Google also had a superior index to, say,
23 Microsoft, correct?

24 A. In the days of MSN Search, I think that's true. And
25 I think that would have been true up until a couple of years

1 ago. My understanding is that the indexes are of comparable
2 size now, although I don't know the specifics.

3 Q. You say a couple of years ago. Do you mean 2021?

4 A. I mean sometime after 2019 and before 2022. A few
5 years ago might be a better statement.

6 Q. And when Microsoft increased the size of its index,
7 did it need to have additional user-side data in order to do
8 that?

9 A. I think clearly not. When Microsoft increased the
10 size of its index, I think it simply made a decision to make
11 an engineering investment in a larger index. User-side data
12 can be useful in making the index of higher quality. But to
13 make the index larger, the fundamental problems are
14 engineering problems, not user-side data problems.

15 MR. SMURZYNSKI: Your Honor, if I could just have one
16 minute.

17 THE COURT: Uh-huh.

18 MR. SMURZYNSKI: Your Honor, I have no further questions.
19 Thank you, Professor Oard.

20 THE COURT: Counsel, thank you very much.
21 Any redirect?

22 MS. AGUILAR: Your Honor, we have no redirect.

23 THE COURT: You have no redirect?

24 MS. AGUILAR: I have no redirect, Your Honor.

25 THE COURT: Okay, terrific.

1 Professor Oard, that means you are done. We appreciate
2 all the work, and thank you for your time and testimony.

3 **THE WITNESS:** Thank you very much, Your Honor.

4 **THE COURT:** So with Professor Oard off the stand, that
5 leaves Professor Whinston, and we'll begin with him tomorrow
6 at 9:30, correct?

7 **MR. DINTZER:** Yes, Your Honor.

8 **THE COURT:** I guess the expectation still is about two
9 and a half or so?

10 **MR. DINTZER:** Yes, Your Honor.

11 **THE COURT:** He says, sheepishly. Okay. I think we'll
12 have some time tomorrow to just talk about next steps, to
13 sort of continue our conversation yesterday. I don't want to
14 keep everybody -- I don't think we need to keep folks here
15 any longer today, unless there's anything else we need to
16 talk about.

17 **MR. GOWER:** Hello, Your Honor. Cameron Gower for the
18 United States. I have a couple of exhibit matters which we'd
19 like to address today, but if Your Honor would prefer
20 tomorrow, we can do that as well.

21 **THE COURT:** Sure, let's do it today.

22 **MR. GOWER:** Okay. The first one is UPX2086. This is the
23 document that we moved in at the end of Dr. -- Professor
24 Murphy's testimony, and we were waiting for a response from
25 Google on that.

1 **MR. SCHMIDTLEIN:** No objection.

2 **THE COURT:** Okay. So, I'm sorry, what was the number
3 again?

4 **MR. GREENBLUM:** 2086.

5 **THE COURT:** So 2086 will be admitted.

6 (Exhibit UPX2086 admitted into evidence)

7 **MR. GOWER:** The second matter is our final push of
8 exhibits. We have a push of 18 exhibits that I believe are
9 not opposed, and 14 that are opposed kind of as a category.
10 As I understand it, Google believes that these 14 exhibits
11 should satisfy the standard that you've set out for documents
12 to be used with Professor Oard. We don't intend them to be
13 rebuttal-specific exhibits, these are our final push of
14 exhibits. If you recall back at the end of our
15 case-in-chief, we were trying to push in exhibits before the
16 end of our case-in-chief, and you said it was okay -- or Your
17 Honor I believe said it was okay for us to wait on that -- or
18 not finish before the end of our case-in-chief. This is our
19 final push, and so we don't believe that we need to satisfy a
20 special rebuttal case standard for pushing in these exhibits.

21 And so, for that reason, we oppose Google's objection.

22 **THE COURT:** Well, I think it depends on what they are.
23 So if they are -- I'm not sure what the connection is to
24 Professor Oard.

25 **MR. GOWER:** Right, we don't -- there isn't one, in our

1 opinion. These are just a push like any other, and we think
2 Google's trying to draw a connection to Professor Oard.

3 **MR. GREENBLUM:** I should clarify, I was given a list of
4 12, so I don't know how there's 14. But there's two buckets
5 here, Your Honor. There's the push exhibits that they had
6 had on their exhibit list, conferred with us about during
7 their case-in-chief, and with Your Honor's leave, we kept
8 conferring, and those would come in now. We have no
9 objection to that, as Mr. Gower represents.

10 There's a set of new documents never on an exhibit list,
11 just disclosed to us a few days ago. We don't know what
12 they're connected to, be it Professor Oard, Professor
13 Whinston or anything else. And we don't think it's
14 appropriate for them to be disclosed to us for the first time
15 after we've rested our case, and with no apparent connection
16 to rebuttal in their rebuttal case.

17 **MR. GOWER:** In response to that, Your Honor, we did
18 disclose these several days ago before the end of Google's
19 case -- rebuttal case. And more importantly, yesterday, if
20 you'll recall, Google pushed in exhibits that were not on
21 their exhibit list. We had no objection to that. We did not
22 oppose that on the same -- on the understanding that we would
23 be doing the same today. And we notified Google that we
24 would be --

25 **COURT REPORTER:** I'm sorry, can you please slow down.

1 **MR. GOWER:** Apologies. And we notified Google when they
2 raised these documents that although they were new exhibits
3 that were not on their exhibit list, we were not going to
4 oppose them because we intended to do the same.

5 **MR. GREENBLUM:** I don't think there's a one-for-one match
6 here, Your Honor. We heard evidence in their case. We added
7 exhibits in our case. There was no objection to those. We
8 moved them in. These are documents we didn't have the
9 opportunity to address in our case. There will be no witness
10 for them. There is no context for them. Some of these --
11 one of them is more than a hundred pages long. We don't know
12 what the purpose of them is or what the -- what is the
13 purpose for which they're being proffered to the Court.

14 **THE COURT:** So let me just make the following
15 observation, and it's somewhat consistent with what the
16 ruling was with respect to Professor Oard and the new
17 exhibits, and that is, you know, timing matters. And it's
18 true I sort of generally left open the idea of ensuring for
19 completeness of the record. You know, if these are documents
20 that Google had seen prior to the last couple days, then I
21 might have a different view.

22 But if these were just disclosed in the last couple of
23 days and weren't on prior exhibit lists, it does put them at
24 a bit of a disadvantage. Because now they can't call anybody
25 in the event you're going to rely on one of these exhibits in

1 your proposed findings of fact and conclusions of law.

2 **MR. GOWER:** Understood, Your Honor. All I can say is
3 that we did not object yesterday to Google's pushing out of
4 new exhibits with the understanding that we could do the
5 same. But I appreciate --

6 **THE COURT:** Maybe you should have, but they were also in
7 their case, at least until yesterday. So it's a little bit
8 different in that regard. I don't have specific proffers as
9 to each of these documents, and so I want to make sure that
10 unless there is -- well, let me put it this way. I think I
11 can rule if what I've been told in terms of the timing -- I
12 mean, that does raise issues for me, and I would think very
13 much about excluding on that basis alone.

14 But if there are -- if there's something substantive
15 about these materials that you think connects up to the
16 case-in-chief in a way that wouldn't have prejudiced Google
17 in its case, I guess I'm happy to hear that. But I haven't
18 heard you say that yet.

19 **MR. GOWER:** Understood, Your Honor. And with your
20 permission, we'll take a look at that tonight and address it
21 tomorrow.

22 **THE COURT:** Okay.

23 **MR. GOWER:** Thank you.

24 **THE COURT:** Thank you.

25 **MR. GOWER:** Apologies, Your Honor, there were unobjected

1 to exhibits that I'd like to pass up the actual document
2 identifying those.

3 **THE COURT:** Okay, great.

4 **MR. GOWER:** Thank you.

5 **THE COURT:** So let me just make sure everybody is on the
6 same page. Do we all -- do we think we will finish with
7 Professor Whinston tomorrow?

8 **MR. DINTZER:** That is actually what we're hoping, Your
9 Honor.

10 **THE COURT:** Does Google have -- I mean, I know you won't
11 know how long your cross is until you hear what the direct
12 is, but --

13 **MR. SCHMIDTLEIN:** If they keep to two and a half hours,
14 then I expect we will be done tomorrow. They said this
15 witness was going to testify for an hour and a half. He
16 testified a lot longer than that.

17 **THE COURT:** And some of that was interrupted by the
18 evidentiary matter.

19 **MR. SCHMIDTLEIN:** Understood, but we need a firm
20 commitment on two and a half tomorrow.

21 **THE COURT:** On the last day of week 10, I'm going to
22 really look closely at the clock.

23 **MR. DINTZER:** We understand that, Your Honor, and we want
24 to wrap as much as anybody. We are putting the final touches
25 on Professor Whinston's testimony, and it is our goal to

1 finish in two and a half hours.

2 **THE COURT:** Okay. I just want to make sure we've got
3 time tomorrow to talk about our post-trial schedule.

4 **MR. SCHMIDTLEIN:** I think you not extending your schedule
5 is the best way to make sure that we get done tomorrow, Your
6 Honor.

7 **THE COURT:** No, it would be a morning shift -- or getting
8 everybody here actually a little earlier. It would not be
9 extending my schedule.

10 Ms. Aguilar.

11 **MS. AGUILAR:** Your Honor, I forgot to move in Professor
12 Oard's presentation into the record. It is UPXD105.

13 **THE COURT:** Okay, perfect. So that will be admitted,
14 consistent with the same terms that we've been admitting
15 other demonstratives.

16 (Exhibit UPXD105 admitted into evidence)

17 **MS. AGUILAR:** Thank you, Your Honor.

18 **THE COURT:** Thank you.

19 **MS. JENSEN:** Good afternoon, Your Honor. Elizabeth
20 Jensen for the United States, J-E-N-S-E-N.

21 We have here just the designated witness transcripts,
22 including the videos that Your Honor requested. And these
23 replace the prior two thumb drives that we previously handed
24 up, so they're inclusive of those materials as well.

25 **THE COURT:** Okay, thank you. And while we're on the

1 subject of video depositions, what is your current sense, to
2 the extent you have one, of how much of those you'll be
3 relying on in your ultimate proposal of findings of fact and
4 conclusions of law?

5 I ask because I'm going to have some time, and in theory
6 I could spend time watching videos in my free time.

7 **MR. DINTZER:** I mean, the fact that Google played a
8 number -- some of the more important witnesses that have been
9 designated. There are portions of various witnesses that --
10 I mean, they weren't worth calling and troubling them to come
11 here. I mean, we didn't designate anybody we didn't think
12 might have information valuable to the Court. I wouldn't say
13 that watching the video is necessarily the best investment of
14 the Court's time. There may be smaller pieces of it that we
15 cite for smaller propositions.

16 **THE COURT:** Okay.

17 **MR. SALLET:** Your Honor, there was at least one -- and I
18 think Google will confirm this -- that was going to be played
19 in open court, but there were issues around confidentiality.
20 We certainly intend to rely on designations. And in
21 particular, where there's significant confidential
22 information, it wouldn't have made sense to play it in open
23 court. Therefore, we think its absence from being played
24 should not play a role --

25 **THE COURT:** I guess what I would just ask everyone

1 overnight is just to think, if there's a list of designated
2 witnesses whose deposition testimony you want me to view in
3 full -- I mean, I will look at everything you give me, but I
4 want to just make sure I prioritize what's most important.
5 So if there is a witness like the one you're referring to,
6 Mr. Sallet, then it would be helpful to know that.

7 **MR. SALLET:** Your Honor, just so you know, you will
8 recall there was a witness we were going to call, but for the
9 reason that we're not going --

10 **THE COURT:** Right, right. Is that the same witness
11 you're talking about?

12 **MR. SALLET:** No, it isn't. We will provide a list.

13 **THE COURT:** Okay. Just get me a list, and that will be
14 helpful.

15 **MS. JENSEN:** Thank you, Your Honor. May I approach?

16 **THE COURT:** Sure.

17 **MS. JENSEN:** These are the DOJ's. I understand the
18 states have a separate set of designations they're planning
19 on handing you.

20 **MR. SALLET:** We were planning on handing them in
21 tomorrow.

22 **THE COURT:** All right.

23 **MR. DINTZER:** Nothing else from the DOJ plaintiffs, Your
24 Honor.

25 **THE COURT:** All right. Thank you all, and we'll see you

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(Proceedings adjourned at 2:43 p.m.)

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I, **Jeff M. Hook, Official Court Reporter,**
certify that the foregoing is a true and correct transcript
of the record of proceedings in the above-entitled matter.

November 15, 2023

DATE



Jeff M. Hook

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| BY MR. SMURZYNSKI: [11] 10379/4 10384/25 10389/7 10389/17 10391/20 10399/13 10403/17 10404/11 10405/8 10406/12 10420/10 COURT REPORTER: [1] 10425/24 MR. DINTZER: [6] 10423/6 10423/9 10428/7 10428/22 10430/6 10431/22 MR. GOWER: [11] 10423/16 10423/21 10424/6 10424/24 10425/16 10425/25 10427/1 10427/18 10427/22 10427/24 10428/3 MR. GREENBLUM: [3] 10424/3 10425/2 10426/4 MR. SALLET: [4] 10430/16 10431/6 10431/11 10431/19 MR. SCHMIDTLEIN: [4] 10423/25 10428/12 10428/18 10429/3 MR. SMURZYNSKI: [14] 10379/2 10384/20 10384/23 10388/14 10391/17 10397/20 10397/23 10398/10 10398/13 10399/6 10403/15 10404/25 10422/14 10422/17 MS. AGUILAR: [12] 10384/11 10397/10 10398/5 10398/20 10404/8 10404/16 10406/7 10419/25 10422/21 10422/23 10429/10 10429/16 MS. JENSEN: [3] 10429/18 10431/14 10431/16 THE COURT: [51] 10379/1 10384/19 10384/21 10384/24 10388/13 10388/15 10389/6 10389/16 10391/19 10397/22 10398/6 10398/11 10399/9 10403/14 10403/16 10404/10 10405/4 10406/9 10420/4 10422/16 10422/19 10422/22 10422/24 10423/3 10423/7 10423/10 10423/20 10424/1 | 10424/4 10424/21 10426/13 10427/5 10427/21 10427/23 10428/2 10428/4 10428/9 10428/16 10428/20 10429/1 10429/6 10429/12 10429/17 10429/24 10430/15 10430/24 10431/9 10431/12 10431/15 10431/21 10431/24 THE WITNESS: [4] 10388/18 10405/7 10420/8 10423/2 ' '22 [1] 10383/4 'Additional [2] 10403/22 10405/21 's [1] 10381/14 'there [1] 10385/18 ' '.... Admitted [2] 10378/11 10378/12 .008 [1] 10417/5 .010 [2] 10417/11 10417/19 0 002 [1] 10416/25 1 10 [3] 10418/6 10418/9 10428/21 10-101 [1] 10376/20 10019 [1] 10377/11 101 [1] 10376/20 10379 [1] 10378/4 10424 [1] 10378/11 10429 [1] 10378/12 1100 [1] 10376/14 12 [1] 10425/4 13 months [2] 10400/18 10400/20 1300 [1] 10377/4 1301 [1] 10377/10 14 [3] 10424/9 10424/10 10425/4 15 [4] 10376/5 10383/12 10403/19 10419/21 18 [1] 10424/8 19 [1] 10389/1 19th [1] 10382/23 1:17 [1] 10376/6 1:20-cv-3010 [1] 10376/4 2 20 [3] 10380/24 10388/25 10391/24 | 20001 [2] 10376/18 10377/25 20005 [1] 10376/15 2000s [1] 10390/8 20024 [1] 10377/8 2005 [1] 10390/8 2006 [4] 10390/8 10392/4 10392/11 10392/17 2009 [4] 10408/18 10411/15 10412/15 10412/25 2014 [6] 10416/19 10416/21 10417/12 10418/12 10419/9 10419/10 2015 [1] 10398/16 2019 [3] 10398/17 10399/9 10422/4 202 [3] 10403/13 10403/16 10403/17 2020 [3] 10383/12 10383/20 10386/11 2021 [2] 10398/18 10422/3 2022 [7] 10379/24 10382/20 10383/1 10383/21 10398/15 10403/14 10422/4 2023 [2] 10376/5 10398/25 203 [1] 10405/19 2068 [1] 10391/25 2086 [2] 10424/4 10424/5 209 [1] 10376/23 21 [7] 10383/9 10383/11 10386/6 10386/8 10386/9 10386/10 10386/17 22 [3] 10379/24 10401/6 10401/19 222 [1] 10403/15 24th [1] 10403/14 2:43 p.m [1] 10432/2 3 3.9 [3] 10383/3 10385/20 10386/23 3010 [1] 10376/4 333 [1] 10377/24 4 40th [1] 10377/10 41 [1] 10376/7 450 [2] 10376/18 10376/20 47 [1] 10403/21 48 [1] 10408/13 5 52 [1] 10405/20 58 [1] 10385/14 5th [1] 10382/22 | 6 600 [1] 10376/23 60604 [1] 10376/23 680 [1] 10377/8 7 7th [1] 10377/4 8 80203 [1] 10377/4 9 94102 [1] 10376/21 9:30 [1] 10423/6 A abandoning [1] 10389/5 ability [1] 10420/12 able [6] 10388/5 10391/1 10391/13 10416/6 10419/17 10420/21 above [1] 10433/5 above-entitled [1] 10433/5 absence [1] 10430/23 absent [1] 10380/8 absolutely [2] 10415/7 10421/7 access [5] 10395/19 10402/18 10418/21 10420/15 10420/19 accommodate [1] 10384/23 accurate [1] 10386/4 acted [1] 10389/3 Action [1] 10376/3 actual [2] 10413/19 10428/1 actually [7] 10386/5 10390/24 10406/10 10413/12 10421/16 10428/8 10429/8 add [1] 10397/16 added [1] 10426/6 addition [3] 10396/2 10398/2 10418/15 additional [19] 10390/13 10401/25 10402/10 10402/18 10403/3 10403/25 10404/13 10405/11 10405/24 10406/18 10406/25 10409/12 10409/25 10410/14 10410/22 10411/8 | 10411/12 10411/17 10422/7 address [5] 10397/21 10399/3 10423/19 10426/9 10427/20 addressed [6] 10383/22 10384/2 10384/4 10385/22 10397/13 10397/17 addressing [1] 10384/7 adequate [1] 10419/17 adjourned [1] 10432/2 admitted [4] 10424/5 10424/6 10429/13 10429/16 admitting [1] 10429/14 ads [1] 10418/25 advance [3] 10393/5 10397/2 10399/22 advancements [1] 10397/13 advances [2] 10393/12 10393/13 advantage [1] 10421/9 advantages [1] 10421/19 advertising [4] 10401/12 10407/14 10407/15 10407/20 affect [5] 10395/23 10396/2 10400/25 10414/14 10414/22 affecting [1] 10401/24 afternoon [4] 10376/7 10379/6 10379/7 10429/19 afterthought [1] 10418/14 again [11] 10387/21 10389/17 10399/5 10406/8 10409/22 10409/24 10410/16 10410/19 10414/15 10418/2 10424/3 ago [6] 10403/1 10422/1 10422/3 10422/5 10425/11 10425/18 agree [16] 10387/4 10391/2 10395/22 10397/8 10401/2 10406/10 10411/20 10411/25 10412/9 10412/24 10415/3 10415/12 10415/21 10415/25 10416/9 10418/22 |
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