

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA, ET AL.,)	
)	
Plaintiffs,)	
)	
vs.)	CV No. 20-3010
)	Washington, D.C.
)	October 12, 2023
GOOGLE LLC,)	9:30 a.m.
)	
Defendant.)	Day 21
)	Morning Session

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

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WITNESS INDEX

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WITNESSES

DIRECT CROSS REDIRECT RECROSS

PLAINTIFF'S:

KINSHUK JERATH, Ph.D.	5428	5496
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1 P R O C E E D I N G S

2 COURTROOM DEPUTY: All rise. The Honorable
3 Amit P. Mehta presiding.

4 Good morning, Your Honor, this is Civil Action
5 20-3010, United States of America, et al., versus
6 Google LLC.

7 Kenneth Dintzer for the DOJ.

8 Jonathan Sallet and William Cavanaugh on behalf of
9 Plaintiff States.

10 John Schmidtlein on behalf of Google.

11 THE COURT: All right. Counsel, good morning,
12 everyone.

13 All right. Anything we need to discuss before we
14 continue with Professor Jerath?

15 MR. DINTZER: Not from the DOJ Plaintiffs,
16 Your Honor.

17 MR. CAVANAUGH: Not for us, Your Honor.

18 MR. SCHMIDTLEIN: We're ready.

19 THE COURT: Ms. Mathis.

20 MS. MADDOX: Maddox for the United States.

21 THE COURT: Sorry about that.

22 Could I just ask someone to shut the door in the
23 back. Thank you.

24

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KINSHUK JERATH, Ph. D., WITNESS FOR THE PLAINTIFFS, HAVING
BEEN PREVIOUSLY SWORN, RESUMED THE STAND AND TESTIFIED
FURTHER AS FOLLOWS:

DIRECT EXAMINATION (CONTINUED)

BY MS. MADDOX:

Q Good morning, Professor Jerath. Welcome back.

I'd like to pick up where we left off yesterday
and also follow-up on a question that the Court asked you.

Are you familiar with DTC, or direct to consumer,
in the context of retail marketing?

A Yes, I am.

Q And how would you describe direct to consumer?

A So direct to consumer is a business model in which
the manufacturer of a product is selling the product or
service directly to consumers.

It's a business model that's sort of a small part
of the economy at this time. And a lot of DTC businesses,
and they were the rage a few years back, but now the reality
is coming out that most of them are not really profitable.

Q Are you familiar with the direct to consumer
business models, or rather with direct to consumer business
models using social media for lower funnel goals?

A Yes, DTC has been attempting to use social media

1 for low funnel goals, especially customer acquisition.

2 And so basically that what's happening there is
3 that they're realizing over time that the cost of customer
4 acquisition from DTC -- sorry, from social media for DTC is
5 quite prohibitive. And they're using other channels, of
6 course, like search. But customer acquisition costs are
7 very prohibitive.

8 Actually I teach a course, in addition to my
9 digital marketing course I was talking about, I teach
10 another popular course at Columbia called future -- it's
11 called the Frontiers in Retailing. And in that, we discuss
12 DTC and sort of a lot of my knowledge comes from there.

13 And, in fact, one of the poster childs of the DTC
14 business model is Warby Parker, the eyeglass company, and
15 the CEO of Warby Parker was actually, along with the CFO,
16 they were guest lecturers in my class last year in 2022.
17 And the CEO was talking about exactly this prohibitive cost
18 of customer acquisition on Facebook specifically.

19 MR. SOMMER: Judge, I'm sorry to interrupt.
20 I have a soft-spoken objection.

21 There's nothing about these opinions in his
22 report, so this is beyond the scope of his report. So if
23 we're moving on, I'll rescind but...

24 MS. MADDOX: Your Honor, I'll note for the record
25 that Professor Jerath does cover social media and marketing

1 in his opening report extensively. He is an expert in
2 digital marketing, and, in addition to that, this does
3 respond actually to testify that the Court heard earlier
4 this week from Ms. Lim.

5 MR. SOMMER: I wasn't suggesting he doesn't
6 address social media, just the DTC aspect of it. That's
7 all.

8 THE COURT: It sounds like it's a variant or
9 aspect of the social media marketing opinions that he's been
10 giving, so I'll allow him to continue.

11 Go ahead.

12 BY MS. MADDOX:

13 Q I'd also like to take an aside here and ask a few
14 questions about pricing.

15 How are text ads and other types of search ads
16 priced?

17 A So text ads and search ads are usually priced by
18 click. So an advertiser only pays if there's a click.

19 Q And how does that compare to how display ads are
20 priced?

21 A Display ads are almost always priced based on
22 impressions, which is serving the ad.

23 And so, I mean, this difference in metrics for
24 pricing already starts to reflect the position in the funnel
25 as shown on this slide, because impressions are a good

1 metric of awareness, of causing awareness, and that's the
2 measure that's used for display ads and social media ads,
3 while clicks are sort of some kind of action, is a good
4 metric for lower funnel, and that's how search ads are
5 priced.

6 Q Let's say that an advertiser has a display ad
7 campaign. On average, how often can the advertiser expect
8 consumers to click on the display ad?

9 A So clickthrough rates on display ads are very
10 small. So you can say .1 percent to .01 percent, which sort
11 of translates into 1 out of 1,000 ads is clicked or 1 out of
12 10,000 display ads is clicked. So there's a range, of
13 course. I'm giving a range because it matters by context.
14 But that is sort of the relevant range.

15 Q Now, say that the advertiser has a text ad
16 campaign. How often can the advertiser expect consumers to
17 click on a text ad?

18 A The clickthrough rates on text ads are about two
19 orders of magnitude higher than clickthrough rates on
20 display ads. So translating to the same numbers, it's about
21 2 percent to 4 percent. And so that means it's 20 to 40 out
22 of 1,000, or 200 to 400 out of 10,000.

23 Q How would the statistics that you just gave us for
24 text ads compare to statistics for other types of search
25 ads, for consumers clicking on those ads?

1 A The clickthrough rates on other types of search
2 ads are similar to text ad clickthrough rates.

3 Q I'd like to move on and talk about text ads more
4 specifically.

5 Can you take us to your first opinion?

6 A Yes. Please go to the next slide.

7 So this is my first opinion that general search
8 text ads, or text ads for short, they're a distinct product
9 category in advertising.

10 Q And at a high level, how are text ads distinct
11 from other types of search ads?

12 A So at a high level, text ads are offering
13 advertisers a broader scope of messaging, broader control,
14 and better targeting options.

15 Q How do text ads provide advertisers with broader
16 scope and greater control than other types of search ads?

17 A Yeah, please go to the next slide.

18 So this brings us to a hallmark feature of text
19 ads, which is keywords and match types.

20 So what's shown on the left of the slide here is
21 sort of how this holding works.

22 So first what happens is that the advertiser would
23 select keywords and what is called match types for the text
24 ads.

25 And then the consumer comes and enters a query and

1 Google as a search engine would decide which text ads enter
2 the auction and which ads are shown on the search engine
3 results page.

4 So at the top is an example. Let's say that the
5 advertisers selected the keyword "lawn mowing service," and
6 a consumer searched "lawn mowing service residential," and
7 so Google may determine that, yeah, these two actually match
8 and may enter the text ad into the auction and it might show
9 if the bid is high enough and other things.

10 Q Can you explain what match types are?

11 A Yes. Please go to the next ad.

12 So when an advertiser chooses a keyword to sort of
13 indicate that they're actively shown along with that, they
14 also have to choose a match type.

15 So there are three main match types or three match
16 types, I should say.

17 And here I'm offering an example to explain that.
18 This example is adapted from Google Ads help page online.

19 So the first match type is exact match, and Google
20 defines it as that if the query has the same meaning as the
21 keyword, then the keyword -- then the ad will be entered to
22 be shown against the query in the auction.

23 And so the point of note here is it's called exact
24 match but it's not a literal exact match of the words, it's
25 actually same meaning, right.

1 So even if the keyword was lawn mowing service and
2 somebody searched grass cut service or grass cutting
3 services, Google would determine, oh, they match because
4 they have the same meaning. And, again, this is an example
5 from Google Ads help page. So Google is saying this would
6 match. So this is what is called exact match, but as I
7 said, it's not exact, it's expanded beyond pure exact.

8 So the next one is a bit more loser kind of
9 matching called phrase match, and here it, in quotes, is
10 what Google tells us. That phrase match includes the
11 meaning of the keyword, right. As long as the meaning of
12 the keyword exists in the query. So landscaping service to
13 cut grass, right. So lawn mowing service, and that matches
14 with cut grass, but there's other things it still matches.

15 And then the loosest kind of match is called broad
16 match, where it says as long as the query relates to a
17 keyword, we'll enter it. And, again, Google determines
18 that.

19 So the example here again given by Google is "lawn
20 aeration prices," which would match with lawn mowing
21 service.

22 So you can see that lawn aeration is quite a
23 different service from lawn mowing, but Google would
24 determine that it is related.

25 THE COURT: And is it Google that creates the

1 universe of keywords that fit these categories? In other
2 words, if I just pop by lawn mowing service, an ad, and
3 choose exact match, are those other keywords automatically
4 populated or associated with my keyword purchase?

5 THE WITNESS: So the advertiser chooses the
6 keyword, and Google determines the match with the query.

7 THE COURT: Right.

8 THE WITNESS: So if it's about the boundaries of
9 these rectangles, so, yes, Google will determine those
10 boundaries. I hope I'm understanding your question
11 correctly.

12 THE COURT: Right.

13 In other words, Google determines what the
14 associated keywords are with the purchased keyword?

15 THE WITNESS: Yes.

16 THE COURT: Okay.

17 THE WITNESS: So there's a query and there's a
18 keyword chosen by the advertiser. Query entered by the
19 user. Google determines whether they match or not.

20 THE COURT: Okay.

21 THE WITNESS: Even under exact. Like, you know,
22 exact is also not literal match. Even exacts is same
23 meaning. So like in this example, grass cut matched with
24 lawn mowing.

25

1 BY MS. MADDOX:

2 Q And for the record, the Google Ads help page
3 referenced here on Slide 10 is UPX8023, and that has been
4 entered into evidence.

5 And, Professor Jerath, we'll come back to some
6 issues related to match type in a bit.

7 For now, are there other ways that text ads are
8 distinct from other types of search ads?

9 A Yes, please go to the next.

10 Q If you could explain briefly.

11 A Yes, please go to the next slide.

12 So, Your Honor, this page shows at a high level
13 how they're different. There are options. You have text
14 ads and several constraints on other search ads.

15 I know that the Court has heard testimony on this,
16 so I will not go into detail.

17 But very quickly I'll highlight one point, that
18 text ads give advertisers broad scope in what their message
19 in the ad could be through the snippet.

20 And while in other search ads advertisers have --
21 they have a rigid content restriction. So they have to
22 provide certain kinds of information and they cannot provide
23 other kinds of information.

24 And this is important because advertisers, really
25 what they want to do is get out a message to consumers so

1 they have, you know, some flexibility in the message, they
2 value that.

3 Q Can you give us an example of how these
4 differences between text ads and other types of search ads
5 may play out on a search engine result page?

6 A Yes, please go to the next slide.

7 So this is an example. The keyword -- sorry.

8 The query here is "best gaming laptops."

9 And you can see that the one in the -- what's
10 highlighted in red is a text ad. It has sort of a very
11 broad scope in terms of the message. Like, the title itself
12 is "Innovation that wins," which is kind of an inspirational
13 slogan. So advertisers value that.

14 On top are the -- in the green rectangles are
15 multiple ads from Dell for its different laptops, and there
16 are some other search ads as well.

17 Q How do text ads compare? I see here that you're
18 comparing text ads with Google shopping ads. How do text
19 ads compare to other types of search ads, such as
20 Amazon-sponsored product ads?

21 A Yeah, so the right side of this slide is showing
22 how Google shopping ads lead to some constraints for
23 advertisers.

24 When you think of Amazon, shopping ads are
25 sponsored product ads.

1 Some of these constraints go away. For example,
2 on Amazon, you can use keywords to match, but other
3 constraints come in. For example, the product being
4 advertised has to be being sold on Amazon.

5 Q Professor Jerath, you said that you reviewed
6 documents and testimony in this case. Did you identify any
7 that illustrate your opinion that text ads are distinct from
8 other types of search ads?

9 A Yes. There were many such instances.

10 Please go to the next slide.

11 So this is an internal Google document from around
12 the time that product ads or product listing ads or shopping
13 ads were being launched. And in the highlighted portion,
14 you can see it says very clearly that these supplement each
15 other, so even though they're different.

16 Please go to the next slide.

17 Q If I may note for the record briefly, Slide 13,
18 that was UPX440, which is also in evidence.

19 A So on this slide is another -- it's another Google
20 presentation, internal, and around the same time frame. And
21 it is also saying that PLAs, or product ads, complement text
22 ads.

23 Next please.

24 Q Apologies, Professor Jerath. I'm going to do a
25 little administrative here.

1 A Yes.

2 Q On slide 14, this refers to UPX464, which is also
3 in evidence.

4 A Next please.

5 Yeah, so the Court heard testimony from
6 Dr. Hal Varian earlier in the trial, and he agrees that
7 these are different species. Specifically, shopping ads and
8 text ads are different species of ads.

9 Next, please.

10 And the Court also heard testimony from
11 Mr. Jerry Dischler. And he's also saying that they offer
12 different information, and text ads offer more flexibility.

13 So all of this is in evidence that Google used
14 text ads as distinct from other search ads.

15 Please go ahead.

16 And this is some evidence that industry broadly
17 views text ads as distinct from other search ads.
18 So this is shown by this document internal to Facebook
19 where -- and you can read the highlighted part, Your Honor.
20 It says, "Search ads" -- they refer to two distinct
21 products.

22 MS. MADDUX: I'll note for the record that slide
23 17 of UPXD103 shows an excerpt of UPX915, which is also in
24 evidence.

25

1 BY MS. MADDOX:

2 Q Professor Jerath, you mentioned earlier that text
3 ads look like organic listings.

4 Do you recall that?

5 A Yes.

6 Q Say that an advertiser believes that it will
7 already be high in the organic listings. What value, if
8 any, would text ads have for an advertiser then?

9 A So very briefly, text ads, they ad value on top of
10 organic listings because, one, the message in the ad is
11 determined by the advertiser. But the message, the snippet
12 of the organic listings is determined by Google.

13 And the second point is that, whether you appear
14 or not on the search engine results page, that is much more
15 in control of the advertiser for a text ad. You can just
16 sort of keep bidding high, and it will show up. But the
17 control on appearing on organic results is very weak.
18 You've got to -- it happens, if at all, over weeks or months
19 even.

20 THE COURT: I'm sorry. What happens over weeks or
21 months?

22 THE WITNESS: So the practice is called SEO,
23 search engine optimization, which is the advertiser
24 essentially is convincing Google that my result is a good
25 one, and you should show it on top on organic listings.

1 And so the advertisers do some -- you know, they
2 improve their website and do take other actions at the back
3 end. And to have the results of that reflected on the
4 search engine results page in the organic side, that can
5 take weeks or months, if it happens at all.

6 THE COURT: Are there academic studies or evidence
7 that you've seen that compare clickthrough rates of search
8 ads versus organic links?

9 THE WITNESS: Yes.

10 So, generally, I have a paper of my own actually
11 here, and the clickthrough rates on search ads through
12 organic listings -- let me say the total clicks from the web
13 page about the website, let's say, 30 percent to 40 percent
14 are from ads and the remaining are from organic listing.

15 So advertisers would really want to be had on the
16 organic site, but the problem is that they don't have
17 control on that or they don't have, like, good control on
18 that.

19 THE COURT: So -- I'm sorry. Your 30 to
20 40 percent of all clicks on a search engine results page are
21 of the ads, and the remaining would be of organic links;
22 is that right?

23 THE WITNESS: Yes, on average.

24 THE COURT: And that's for commercial queries?

25 THE WITNESS: That is for queries where ads show

1 up. This is averaged over, yeah.

2 THE COURT: Right.

3 THE WITNESS: Yes.

4 BY MS. MADDOX:

5 Q And very quickly, based on your experience, do
6 advertisers rely on SEO alone as a marketing strategy -- or
7 I should clarify -- search engine marketing strategy?

8 A Not really.

9 I mean, advertisers, they want to do SEO and they
10 do SEO, search engine optimization. But they realize that
11 you put in the effort, and the return comes slow and very
12 uncertain. So most advertisers -- if I have to choose one,
13 I would say to choose the marketing, the advertising, but
14 most of them try to do both.

15 Q Let's turn to the second opinion you identified
16 earlier.

17 How do text ads and other types of search ads
18 compare to other advertising channels?

19 A Yes. Please go to the next slide.

20 So my second opinion is that search ads more
21 broadly are a distinct product category of advertising.

22 Q And what are you including here in search ads?

23 A So what I'm including here is text ads and other
24 search ads like shopping ads, travel ads, ads on
25 The App Store of Apple and Google Play, so forth.

1 Q Can you give us an example of how advertisers use
2 search ads versus other types of advertising?

3 A Yes.

4 Please go to the next slide.

5 So this brings us to this idea of full-funnel
6 marketing.

7 What that means is that I'm showing a funnel on
8 the left here.

9 And at the top of the funnel is about generating
10 demand, raising awareness, et cetera.

11 And a lot of this is done with display ads,
12 including social media ads.

13 Bottom of the funnel is harvesting the demand that
14 was generated. And this is achieved through search ads.

15 So as an example -- and I'll go over the Dell
16 laptop running example -- let's have a display ads to
17 generate awareness; Dell would want to show ads to people,
18 let's say, who have read recently the views on gaming
19 laptops. Or they might have visited once some such website.
20 Or maybe on Facebook, they've joined a group of gamers,
21 right? So they would -- so Facebook -- I'm sorry. Dell
22 would want to show display ads to these people.

23 Now, once these people are made aware, they would
24 go -- and many of them would go and search on search engines
25 like Google. So when they search on Google, at that time,

1 they're shown search ads, for example, of the type in the
2 keyword, "Dell gaming laptop," which I had used as a keyword
3 in a few slides back, and are then -- then they would be
4 shown ads in response to that.

5 Q And you have "harvest demand" on slide 19 here of
6 UPXD103. Can you just -- want to make sure I understand
7 what the harvest demand piece is.

8 A Yes. So, again, in the context of the example,
9 the demand was generated through the display ads. These
10 people went and -- now they're not very interested in maybe
11 designs of the product. They go and search on a search
12 engine.

13 Now, this demand exists, right, and actually
14 fulfilling this demand through bottom-funnel ads, that is
15 what I'm referring to as harvesting demand.

16 Q In this case, Google has asserted that ads are
17 interchangeable because the larger aim of all ads is to
18 drive purchases.

19 How do you respond to that?

20 A I do not agree with that.

21 While it is true that the larger aim of a firm is
22 to drive purchases and sell products, one has to keep in
23 mind that different kinds of campaigns meet different
24 subgoals that contribute to that larger goal. So in the
25 context of this slide, display ads are meeting the subgoal

1 of generating demand, while search ads are meeting the goal
2 of -- the subgoal of harvesting demand.

3 And when these two subgoals align, then the bigger
4 goal of achieving sales is achieved. So I can offer an
5 analogy. Let's say you want to be able to drive your car.
6 You need motor oil for frictionless movement of the engine,
7 and you need gasoline to power the engine. Both of these
8 have their final goal of being able to run the car. But
9 they are contributing to different subgoals, which then
10 combine to the bigger goal. So that's the important point
11 to keep in mind here.

12 Q Are you familiar with retargeted display ads?

13 A Yes, I am.

14 Q Can you briefly describe retargeted display ads?

15 A Yes.

16 Please can you go to the next slide.

17 So retargeted display ads are basically ads that
18 when a consumer visits a particular website and let's say
19 they like some products over there, they view them, they put
20 them in the cart, and then they leave this website.

21 We've all seen this ads that chase us around the
22 Internet and try to bring us back to that website. So these
23 are called retargeted display ads.

24 Q And how do retargeted display ads compare to
25 search ads?

1 A Yeah. So this slide actually explains that.

2 At the top is search ads. A consumer does a
3 search and goes to the website. Retargeted display ads,
4 I just explained.

5 Now, the table on the right is explaining some of
6 the differences. And so I think the most important
7 difference is in the first row, that what is targeting based
8 on.

9 So in search ads, targeting is based on real-time
10 declared intent. Now, while retargeted display ads, this
11 intent can potentially stay. It's all, again, inferred
12 intent from signals. And, you know, what you were doing two
13 days back, you may not still be interested now. And
14 so this becomes stale.

15 The second is: Who are you able to target? So
16 search ads target anybody who types a relevant query.
17 Retargeted display ads can only be shown to people who've
18 actually visited the advertiser's website, taken certain
19 actions, but haven't taken certain other actions like final
20 purchasing.

21 Another characteristic is what the ad reflects is
22 that in search ads, the ad typically reflects what the
23 consumers is actually searching for. While for retargeted
24 display ads, often different products are shown than what
25 you were initially interested in.

1 Another very important characteristic, given the
2 current, you know, state of affairs, is: What is the impact
3 of ongoing changes related to privacy and consumer tracking?

4 So search ads are uniquely unaffected by this
5 because, again, the consumer is literally telling you at the
6 moment in time, tell me more about the following.

7 With retargeted display ads, they are expected to
8 become substantially less effective going forward, because
9 the consumer tracking is going to be more and more
10 challenging.

11 And if you can't track a person enough after
12 they've left the website, you won't be able to show
13 retargeted ads to them.

14 Q Can you give us an example of the distinction
15 between search ads and retargeted display ads?

16 A Sure.

17 I can give an example from a recent experience of
18 my own.

19 So my wife and I were buying a Nutribullet, which
20 is kind of this high power mixer to make smoothies and
21 stuff. So we went to the Nutribullet website. We looked at
22 some product options, and then we went to a different
23 website not Nutribullet, we went to a different website and
24 we purchased what we wanted to purchase from Nutribullet.

25 So after that, for about a couple of weeks, we

1 kept getting Nutribullet ads, trying to bring us back to the
2 Nutribullet website. And I think all of us have had these
3 experiences. So that is an example of the first point that
4 I'm making here, that these can get -- they're based often
5 on stale intent, which is not really even relevant.

6 And while that wouldn't happen with search ads,
7 because once we bought the Nutribullet mixer, you're not
8 going to go and keep searching about it on the search
9 engine.

10 Q Professor Jerath, you referenced the impact of
11 consumer tracking changes on retargeted display ads. Would
12 these changes also impact other display ads or ads on social
13 media?

14 A Yes.

15 So these changes on consumer tracking would affect
16 display ads in general also.

17 The reason is, again, display ads are based on
18 inferred intent from signals.

19 And the signals are coming from consumers actively
20 on the Internet.

21 Now, if it's more difficult to track consumers
22 over -- on the Internet, the signals will become weak, and
23 if the signals become weaker, then the inference will become
24 worse.

25 And so the targeting ability would change and get

1 worse for display ads in general.

2 Q Of the documents and testimony that you reviewed
3 in this case, did you identify any that illustrate your
4 opinion that search ads are distinct from retargeted display
5 ads?

6 A Yes, please go to the next slide.

7 So here is a document. Again, it's a document
8 written by Dr. Hal Varian, who was the chief economist at
9 Google.

10 And he says, very clearly, you can read at the
11 bottom rectangle, that retargeted -- the value of retargeted
12 ads occurs in the first hour or so.

13 This again is making this point of being the ads
14 being stale pretty soon, while search ads offer a very
15 strong signal of intent, as he says.

16 Q For the record, Slide 21 of UPXD103, the document
17 referenced here is UPX26, which is also in evidence.

18 Of the documents and testimony you reviewed in
19 this case, did you identify any that illustrate your second
20 opinion that search ads are distinct from traditional and
21 other digital advertising?

22 A Yes, there were several such instances.

23 Please go to the next slide.

24 So here is, again, an email from Dr. Hal Varian,
25 and he's saying very explicitly, search ads help to satisfy

1 demand, while brand advertising, which in the same sentence
2 earlier he had first told display advertising as brand
3 advertising, that brand advertising helps to create demand.
4 So this is one example.

5 Please go to the next slide.

6 This is an example from a document from
7 booking.com.

8 And here also, they're saying search ads and
9 display ads are not seen as substitutable by booking.com
10 because of all the reasons that I just discussed.

11 Next, please.

12 And in the trial, we heard testimony by Mr. Joshua
13 Lowcock, and he's saying the same thing, that I would not
14 consider them substitutable, and he was asked by us to say
15 that search is mandatory.

16 Q And for the record, on Slide 22 of UPXD103, that
17 is document UPX411, which is in evidence.

18 I'd like to pause for a moment.

19 Professor Jerath, are you aware that in this trial
20 Google has asserted that advertisers readily substitute
21 between search ads and other types of digital advertising?

22 A Yes, I have heard that.

23 Q What is your understanding of the basis for
24 Google's assertion?

25 A The basis of Google's assertion is that

1 advertisers are using metrics like ROI to move money around
2 across channels, and that makes the channels substitutable.

3 Q And do you agree with Google's assertion regarding
4 ROI and substitutability between ad channels?

5 A No, I do not.

6 Q Are you familiar with measuring ROI in the context
7 of digital advertising?

8 A Yes, I'm very familiar with ROI. I use it in --
9 I teach how to measure ROI, I use it in my research.

10 I've actually written a teaching case on ROI
11 titled, "Measuring ROI in sponsored search advertising."

12 And it's a teaching case that has been purchased
13 and used by over 150 schools and universities across the
14 world. So it's a very well-known teaching case on ROI.

15 THE COURT: I'm sorry, what is a teaching case?
16 Is that a --

17 THE WITNESS: Yeah, so it's a little situation you
18 create which reflects reality. And then we use that sort of
19 as a pre-class reading or in-class reading to students, and
20 we say, okay, now, how would you measure ROI in this
21 situation. So a lot of us academics, we write these
22 teaching cases, and then we use each other's cases. So one
23 of the widely -- it might be the most widely used teaching
24 case on ROI, and I have written that one.

25 And so in addition to that, I mean, in terms of my

1 background in ROI, I've also -- recently I was part of the
2 attribution working group and specifically of the
3 Cross-Platform Measurement Council of the ARF, Advertising
4 Research Foundation.

5 So as part of that activity, I was on an expert
6 panel with some other academics, as well as people from the
7 industry from top companies, like Target, Kaiser Permanente,
8 and some others, and we were discussing and building
9 guidelines for validating models that are used for measuring
10 cross-platform returns in advertising, which ROI is an
11 important part of that.

12 BY MS. MADDOX:

13 Q In your opinion, why is Google's assertion
14 regarding ROI and the substitutability of ad channels not
15 correct?

16 A So that assertion basically ignores what I just
17 said, a lot of what I just said. For example, on full
18 funnel marketing, and that's not the way to think about it,
19 the way they're thinking about it.

20 And also it ignores certain other realities of ROI
21 as well.

22 Q What are the other issues related to ROI that are
23 being ignored here?

24 A Yep, please can you go to the next slide.

25 THE COURT: I'm sorry, you said -- you used a

1 term; you said full frontal marketing?

2 THE WITNESS: Full funnel.

3 THE COURT: I'm sorry.

4 THE WITNESS: Full funnel, so generating demand
5 and harvesting demand, that aspect.

6 So back to this slide, the reality -- there is one
7 very important aspect of ROI, that it's an incremental
8 metric and it is well-known in the industry.

9 And as is shown by this internal Google document,
10 that it is very difficult to measure ROI accurately.

11 BY MS. MADDOX:

12 Q And the document shown on Slide 25 of UPXD103,
13 this is dated 2017.

14 Based on your experience, is the portion you quote
15 and highlight here still true today?

16 A So the portion is saying that it's difficult to
17 measure ROI, and I think it is true today. In fact, since
18 2017, I think the problem has worsened. And it goes back to
19 what I was saying about being able to track consumers or
20 not.

21 So to measure ROI, you need to be able to see what
22 consumers do after you have shown them an ad. Let's think
23 of a display ad, right. So you show the display ad as
24 intervention and then you need to figure out what did they
25 do after that, did they go and purchase, what else actions

1 did they take.

2 And as consumer privacy concerns are increasing
3 and consumer trackability is decreasing, it is more and more
4 difficult to figure out that outcome. And so it's actually
5 become more difficult.

6 In fact, often the time window that's taken for
7 display ads is 28 days. So it's very difficult to track a
8 consumer over 28 days if you -- and if cookies are on their
9 way out, third-party cookies.

10 Q And for the record, the document referred to here
11 in Slide 25 of UPXD103 is UPX430, which is in evidence.

12 Professor Jerath, do advertisers nonetheless still
13 try to measure ROI?

14 A Yes, advertisers try to measure ROI. And as I --
15 yes, they do.

16 And even then, you know, they try to measure ROI,
17 but there are all these challenges that they face.

18 Q Let's assume that advertisers resolve or just
19 ignore those challenges and use ROI to make budget
20 allocations. Does that mean that different ad channels,
21 like search ads and display ads, are ready substitutes?

22 A No, it doesn't mean that and I can use the next
23 slide to explain that.

24 So I know we already talked about the difficulty
25 of measurement.

1 In addition, there are other difficulties like of
2 comparing ROI for different kinds of ads like display and
3 search.

4 As you said, advertisers still go out and do
5 ROI -- measure ROI and use it. That does not mean -- so
6 attempting to measure or use ROI of different ad channels
7 does not mean that these ad channels have really become
8 interchangeable. This, as I explained, display and search
9 are complementary channels, not interchangeable.

10 And then the point on the right is that even if
11 you -- so this is, I think, a very important point to keep
12 in mind, that even if spend is moved across our channels,
13 that does not necessarily mean that our channels are
14 interchangeable, they could still be complementary, but you
15 can just rebalance to a full funnel kind of strategy.

16 Q Let's suppose that the advertisers in our gaming
17 laptop example sees a decrease in their ROI on search ads.
18 What would you expect the advertiser to do then?

19 A So the first thing an advertiser would do is to
20 figure out, you know, why did the ROI go down, can I change
21 my bidding, can I change my keyword strategy and bring the
22 ROI back up to that original number.

23 Q Would you expect the advertiser to just -- to move
24 money to straight to display ads?

25 A So, and now again, the first they will do is try

1 to fix the ROI.

2 If they're not able too fix the ROI, and in this
3 we locate the ROI has actually gone down. So then they
4 would reduce some money allocated to search ads because the
5 ROI has gone down.

6 But then what will they do with that money? Well,
7 they'll take it out. And, in fact, because these channels
8 are complementary, one thing that I would expect is that
9 they might even reduce the money that they allocate to
10 display. And the reason is that, again, displays are
11 generating demand and search is for fulfilling or harvesting
12 demand. If you know that your search spend is not working
13 that well, it means that you're not able to harvest demand
14 all that well.

15 So if you're not able to harvest demand all that
16 well, you don't want to be generating all this additional
17 demand which you then can't harvest.

18 So these -- the budget allocations and in this
19 kind of a positive interaction setting and channels being
20 complementary, they would be constantly going up or going
21 down.

22 Q Of the documents and testimony that you reviewed
23 in this case, did you identify any that illustrate your
24 opinion that attempting to measure or use the ROI of
25 different ad channels does not mean that those ad channels

1 are interchangeable?

2 A Yes, there was such evidence.

3 Please go to the next slide.

4 So, Your Honor, some aspects of this slide are
5 redacted. You can read them.

6 This is from -- this is, like, a document from an
7 apparel company.

8 And what this is showing is that, you know, first
9 of all, the high funnel. In the table on the left column
10 are all the different channels, many different channels that
11 they use.

12 On to the right column are their target ROAS. So
13 ROAS is return on ad spend, a metric very similar to ROI,
14 which is return of investment.

15 So let's look at ROAS. What's really interesting
16 about this is that the numbers in the second column are
17 target ROAS numbers. They're not realized ROAS numbers. We
18 can already see that even the targets of different channels
19 are different.

20 And if they were just moving money around purely
21 based on ROI, they would move all their money to, like, the
22 highest ROI channel. But that's clearly not even the aim
23 here.

24 And this is very representative.

25 And on the right-hand side in the highlighted

1 part, it says that, you know, give mid-funnel channels room
2 to operate at a lower ROAS because we know that they are
3 contributing in a different way by sort of generating and --
4 demand and getting people to the lower funnel. And we've
5 got to account for that.

6 MS. MADDOX: If I may pause for one moment. Just
7 for the record, Professor Jerath is referring to slide 27 of
8 UPXD103, which shows a redacted version of UPX1017. And
9 I'll note, although more specifically the particular slide
10 shown here has been -- also been excerpted. So I just
11 wanted to make that clear.

12 BY MS. MADDOX:

13 Q Please continue, Professor Jerath.

14 A Yeah.

15 So this is an important example.

16 And if you go to the next slide, then we also
17 heard testimony from Mr. Joshua Lowcock earlier in the
18 trial. And he says in this highlighted part that you
19 wouldn't necessarily move out of a channel that might
20 individually look like it's not performing as well.

21 Again, the same point, that ROI is one input to
22 your decisions but not -- but it's just one input.

23 Q Professor Jerath, can you take us to the third
24 opinion you identified earlier regarding resources and
25 alternatives?

1 A Sure.

2 Please go to the next slide.

3 So my third opinion is that effectively providing
4 text ads and other search ads, it requires significant
5 resources. And advertisers have few alternatives apart from
6 Google for showing search ads.

7 THE COURT: So before we talk about this opinion,
8 could I just -- we've talked about social media ads, and
9 you've suggested that they are not as effective in capturing
10 user intent and, therefore, are higher funnel.

11 But we've also seen some evidence that social
12 media ads can be used for capturing user intent.

13 And so is it your opinion that if an advertiser
14 were to see greater ROI on social, that there would be --
15 that they still would -- and relative to their ROI on
16 search, that they would not shift their ad spend in that
17 circumstance?

18 THE WITNESS: So what I'm saying is that social
19 typically would lead to a different goal, right?

20 So let's say you saw a lot of social ads, right?
21 That will lead to some people, maybe directly purchasing,
22 but it will lead to a lot of people also getting interested
23 and then eventually coming to search engines, right?

24 I mean, you have to meet that demand where it is.
25 And so you will still do your searching and advertising,

1 right?

2 So, again, it's -- the way advertisers think of
3 budget allocation is they have goals to meet, and they
4 obviously consider ROI. And in my report, I affirmatively
5 state that ROI is an important number. I've written the
6 teaching case on ROI to make the case that you should use
7 it. But it's just to be remembered that this is just one
8 component, right?

9 So as we show -- as showed in the example of the
10 apparel company a few slides back, I mean, they do consider
11 ROI, and they have target ROI numbers. But they also don't
12 say that, oh, just run with the highest ROI thing.

13 And very, again, importantly, that even if there
14 are substitute -- even if, you know, there is -- money is
15 moved from one channel to the other, that does not mean the
16 channels were substitutes.

17 So let me give an example.

18 Let's say an advertiser has \$100 and they're
19 spending all of those \$100 on search, right? And what
20 they're realizing -- and the other channel, that says
21 display. Right? So they'll just do that. And the current
22 allocation is zero and 100.

23 And then they realize that, you know what? I'm
24 ready to spend this money on search; but the traffic that's
25 coming to me is not that high quality because I'm not making

1 my -- I'm not doing my branding part, right?

2 So what they could do is they would take \$30 out
3 of search and send it to display, right? So now the new
4 allocation is 30/70.

5 So what has that done? That has made some people
6 think positively about the brand. These people come and
7 search, and the search ad is even more effective now.

8 So in this example, money has been moved from
9 search to display, but not because the channels are
10 substitutes or interchangeable, rather, because the channels
11 are complementary and mutually reinforcing.

12 So one has to be really careful in interpreting
13 this point that just moving money around means the channels
14 are now substitutable, and I hope this example illustrates
15 that.

16 THE COURT: So how would you assess whether a
17 shift in money is, in fact, a shift to a substitutable form
18 of advertising?

19 THE WITNESS: So I think, again, the
20 characteristics of channels sort of come first, right? And
21 then that helps us understand what is the role being played,
22 right?

23 But let's say -- let's look at two different
24 display ad channels. One is Facebook and one is, let's say,
25 on Google Display Network, GDN. These are the two biggest

1 sellers of display ads.

2 So, you know, if you -- you could say that, look,
3 I was -- I wanted to meet a certain goal, right? And now I
4 moved some money around, and that goal is now being met
5 better in terms of, let's say, driving searches. That goal
6 is now being met better by this other channel. And I'm not
7 losing out on any of the goal. Then you would know that
8 these are substitutes.

9 THE COURT: Okay. Thank you.

10 BY MS. MADDOX:

11 Q Professor Jerath, turning to your third opinion,
12 at a high level, can you explain what resources are needed
13 to effectively provide text ads and other types of search
14 ads?

15 A Yes.

16 So there are at a high level two kinds of
17 resources. One is the foundational resources, the
18 foundational inputs; and the other are sort of this
19 good-to-have category.

20 So the foundational ones are, you have to have a
21 search service, of course. Then to place ads, you need to
22 give advertisers the ability to buy these ads. And, you
23 know, in the case of Google, run the auctions, match
24 advertisers to particular keywords, and so on.

25 And then what you also need is, like, a sales

1 department to sell your offering of ads, marketing these
2 services. You need a lot of engineering resources. So
3 these are all the important foundational inputs.

4 And then there's a good-to-have category. Like,
5 are the tools useful? Can we give them good tools? Is the
6 interface nice? You know, can they -- can monitor their
7 campaigns well in real time and make changes and so forth.
8 So these are the good-to-have ones.

9 Q Why do you say that advertisers have few
10 alternatives to purchasing search ads apart from Google?

11 A So advertisers are looking for eyeballs and
12 attention. And in the case of search ads, they're looking
13 for people who are doing searches who can show ads to. And
14 as we've seen earlier in some testimony in this case, the
15 Court has seen that a lion's share of searches is on Google.
16 So advertisers have few alternatives other than Google for
17 search ads.

18 THE COURT: Are you speaking of general searches
19 or all forms of search?

20 THE WITNESS: So definitely general search. But
21 even in, let's say, shopping ads or other search ads, Google
22 has a very large share there.

23 It's less than general search; we know that. But
24 it's very, very substantial.

25

1 BY MS. MADDOX:

2 Q Of the documents and testimony that you reviewed
3 in this case, did you identify any that illustrate your
4 opinion that advertisers have few alternatives to purchasing
5 search ads apart from Google?

6 A Yes.

7 Please could you go to the next slide.

8 So there's an example of such a case. It's from
9 booking.com.

10 And, again, the highlighted part, you can read,
11 Your Honor. It says, "We find it essential to be on Google.
12 There will be -- we can't reach the same number of users,"
13 and so forth that other options...

14 Next, please.

15 MR. SOMMER: Your Honor, I apologize for
16 interrupting. I'm just going to note my objection. The
17 source of this is a submission to the European Commission.
18 We've addressed that issue. I'm not going to object to him
19 giving testimony, but I do object to this particular slide.

20 MS. MADDOX: Your Honor, for the record, we are
21 not offering this for the truth of the matter asserted.
22 It's information that the expert is permitted to rely upon.

23 MR. SOMMER: Then it has no relevance, and I
24 object on relevance grounds.

25 THE COURT: Well, I think we're talking about two

1 different things.

2 One is, the expert can certainly rely upon it in
3 forming his opinions. And he can rely on it for the truth
4 of it. Whether it's admitted into evidence is a separate
5 question for the truth. And I think it's not admissible for
6 the truth based upon the business records discussions that
7 we've had. But he can certainly rely on it in formulating
8 his opinions.

9 MS. MADDOX: Your Honor, I'll note for the record
10 that Professor Jerath is referring to slide 30 of UPXD103,
11 which shows a redacted version of UPX435.

12 BY MS. MADDOX:

13 Q Please proceed, Professor Jerath.

14 A Continuing that, please go to the next slide.

15 You can see, Your Honor, most of this is redacted.
16 But there's one little part that's not, and it talks about
17 Google's dominance. And, again, you can read the other
18 parts where the company's making the point that I was just
19 making.

20 MS. MADDOX: And for the record, Professor Jerath
21 is referring to slide 31 of UPXD103, which shows a redacted
22 version of UPX1131.

23 THE WITNESS: And should I continue?

24 BY MS. MADDOX:

25 Q Yes, please do.

1 A Yeah, please go to the next slide.

2 So this is testimony, again, from

3 Mr. Joshua Lowcock. And he's --

4 THE COURT: I'm sorry. Can we go back to the last
5 slide?

6 THE WITNESS: Yep.

7 THE COURT: So this is a document that's titled
8 "Apple Search Marking Q&A."

9 And on the portion that references "Do we need to
10 spend," who's the "we"?

11 THE WITNESS: So the "we" here is -- this is an
12 Apple document, so the "we" is Apple.

13 I'm just trying to find out where -- yeah.

14 Yes, so that's Apple.

15 THE COURT: Okay.

16 THE WITNESS: They're sort of asking that question
17 to themselves and sort of, I guess, but an internal
18 discussion. And then you can read some of the thoughts.

19 THE COURT: Okay.

20 BY MS. MADDOX:

21 Q Please proceed.

22 A So the next slide, please.

23 So that's testimony of Mr. Joshua Lowcock that the
24 Court heard.

25 And he's saying the same things as I was just

1 saying, that, you know, it's about scale. It's about always
2 buying Google Search ads. And, you know, there's a limit to
3 the amount of keywords on Bing, which is another option.

4 So very similar points to what I was just making.

5 Q Can you take us to your fourth opinion.

6 A Yes, please go to the next slide.

7 So my fourth opinion is that Google harms
8 advertisers through its withholding of information and
9 through its control of the ad auction.

10 Q And at brief level, can you -- I'm sorry, at a
11 high level, can you briefly describe how Google harms
12 advertisers through its withholding of information and
13 control of the ad auction.

14 A Yes, please go to the next slide.

15 So here are a couple of examples that I'm offering
16 to illustrate that.

17 The first is that Google restricts what
18 advertisers can know about their own ad spend through what
19 is called search query reports.

20 And the second example is that Google controls the
21 rules and influences the outcomes of its auctions, and these
22 auctions are actually black box to advertisers.

23 MS. MADDOX: And, Your Honor, I would just note
24 that we recognize that the Court has already heard extensive
25 testimony regarding Google's ad auction, and I want to

1 assure the Court that we are not -- we do not intend simply
2 to retread that ground. Our intention is to supplement the
3 previous testimony with additional information.

4 THE COURT: Okay.

5 BY MS. MADDOX:

6 Q Professor Jerath, turning back to Slide 34 of
7 UPXD103, what is the significance, if any, of these
8 examples?

9 A Yeah, please go to the next step.

10 So these examples are very significant.

11 Each example actually shows how the advertisers'
12 ability to assess their ad spend and to manage their cost
13 has impeded. These examples show that this results in
14 higher prices of advertising to advertisers, and also
15 advertisers don't like this, but they have limited
16 alternatives to Google, as I just mentioned, and so they
17 have to bear with this.

18 Q And are these the only examples that you discuss
19 in your reports?

20 A These are not the only examples. I'm offering
21 these as illustrative examples.

22 Q Let's turn to the first example regarding search
23 query reports.

24 Can you briefly explain what a search query report
25 is?

1 A Yes, please go to the next slide.

2 So search query report is basically -- when
3 advertisers run their campaigns, they get feedback from
4 Google on how the campaign went. And one of the types of
5 feedback and data is search query reports; specifically, it
6 tells the advertiser which queries they were matched with,
7 and know what was the cost per click on those ads and how
8 much did they spend on those ads.

9 Q How do advertisers use search query reports in
10 your experience?

11 A So it's an important piece of data for
12 advertisers, because it is data on, you know, which queries
13 are they matched with, in other words, which queries are
14 they buying, and how much have they been spending on that.

15 They use this for optimizing their campaigns. One
16 way that they use it is, for example, figuring out which
17 queries they may not want to be matched with.

18 Q How does Google restrict through search query
19 reports what advertisers can know about their own ad spend?

20 A So Google uses certain criteria to determine which
21 queries go into the reports and which don't. That's how it
22 influences what advertisers find out.

23 And as an example, and in September of 2020, what
24 Google did was it changed the criteria off inclusion of
25 queries in the search query report, which led to less data

1 being reported to advertisers than before that change.

2 THE COURT: Less what?

3 THE WITNESS: Less data and fewer queries and
4 less -- less details about their spend. They were buying
5 certain queries but they were not being told what they're
6 buying, which queries they're buying.

7 THE COURT: Can I ask you, how are you defining
8 harm in this context? I mean, we've heard advertisers are,
9 say, as a general proposition, more information is always
10 welcome from an advertiser's perspective, the more we have
11 the better off we'll be.

12 But at some point, I think you would -- you can't
13 have 100 percent information. You know, Google, for
14 example, is not going to publish what its ad algorithms are
15 publicly.

16 So how does one in your view, distinguish between
17 actual harm versus something that is marginal and perhaps
18 not terrible relevant?

19 THE WITNESS: Yes.

20 So the way, Your Honor, I'm thinking about harm is
21 I'm just sort of highlighting practices that advertisers
22 really have been unhappy with, right. This is not -- I
23 recognize that Google cannot share all the data.

24 But let's take this example. You know, this
25 particular change that I just mentioned, and we're going to

1 talk about a little bit more, it reduced information on
2 about 20 percent or more of ad spend of advertisers, right.

3 So what this means is that for 20 percent of their
4 spend on Google, the advertisers were not even told which
5 queries they're buying. Before this change, they were being
6 told that. And I mean this is like if you buy a product in
7 a supermarket but they don't tell you what you actually
8 bought. And so I'm looking at it with this sort of
9 intuitive level.

10 This is data that you're actually buying. This is
11 indeed where your spend is going. You should be entitled to
12 know that at least this is where I spent my money.

13 BY MS. MADDOX:

14 Q And, Professor Jerath, you mentioned that
15 advertisers lost insight into, I believe you said,
16 20 percent or more of their ad spend as a result of this
17 change?

18 A Yes.

19 So 20 percent number comes from a particular
20 company, and then there was also, like, a broader study done
21 in which it was estimated to be about 28 percent of ad
22 spend.

23 Again, this data that was earlier being shared and
24 as a result of this change is now not being shared. And in
25 my personal experience with certain advertisers, I have seen

1 numbers even greater than that.

2 Q You mentioned that in September 2020, Google
3 changed the criteria. Do you know what the criteria are
4 now?

5 A So basically the criteria are not public.

6 Q Okay. Thank you. I was just going to caution
7 you. Thank you.

8 A I mean, I know, but they're not public, yes.
9 I know as a result of this reading documents here.

10 Q Yes.

11 Could Google withhold -- is -- could Google's
12 withholding of data on advertisers' own ad spend affect the
13 prices paid by advertisers?

14 A Yes, it could definitely affect prices paid by
15 advertisers, because, as I said, one way that advertisers
16 used search query reports was to figure out which queries
17 are they spending on, which queries Google is matching them
18 with.

19 And they would use this data, they would -- this
20 information on queries to ex post figure out that, well, I
21 don't want this query, I want to exit this particular
22 auction.

23 And without knowing which queries you're being
24 matched with, you can't exit these auctions.

25 So on average, what this would lead to is

1 advertisers entering more auctions, which leads to thicker
2 auctions, that is more participants in the auction, which
3 would then lead to higher prices.

4 Q Professor Jerath, are you aware of any reason that
5 Google has given for withholding data about advertisers' own
6 ad spend in the search query reports?

7 A Yes, I'm aware of that.

8 So Google has given a reason of user privacy for
9 effecting this change.

10 Q What are your views, if any, on Google's rationale
11 for withholding data about advertisers' own ad spend on the
12 search query reports?

13 A So in my view, this is not a valid reason because
14 the search query reports were never using user level data.
15 So not -- it was never being released so not giving some
16 data does not impact that privacy aspect in any way.

17 In fact, when Google first made this change in
18 September 2020, they kept pre September 2020 data available
19 for almost 18 months after that change was done. So it was,
20 you know, such an important reason, privacy-related reason,
21 why would Google keep the data available for 18 months, and
22 it was telling advertisers you could download that data.

23 It doesn't -- it's conflicting, their actions and
24 their stated reasons for conflicting.

25 Q Of the documents and testimony you reviewed in

1 this case, did you identify any that reflect -- that
2 illustrate your opinion that Google's restrictions over what
3 advertisers can know about their own ad spend has impeded
4 advertisers' ability to assess their ad spend and manage
5 their costs?

6 A Yes, so please go to the next slide, I'll offer
7 some of this evidence.

8 So this is from internal slides to Google, where,
9 you know, you can read the highlighted parts, Your Honor.
10 It talks about data loss, SQR is search query report, right.
11 Data loss is going to be substantial.

12 And then this particular change was called the
13 1-click clause, because earlier even if any click was
14 happening on a query, that query would be included. So a
15 click is important because it means that you're paying for
16 that query. But as a result of this change, they even
17 removed queries that had clicks on them, right. So that's
18 why I say that you are buying these queries but you're not.

19 So that's the reason for the 1-cause -- that's
20 what 1-click clause refers to, this change. So here again,
21 this shows that it would reduce control and transparency as
22 well.

23 Q And for the record, Professor Jerath is referring
24 to Slide 26 of UPXD103, which shows redacted version of
25 UPX0526, which is also in evidence.

1 A Next, please.

2 Q Yes.

3 A So this is some industry perspective on that.

4 This is an internal email chain from Bank of America.

5 And you can see that on the -- here, the person is
6 saying that this is very disappointing, that user privacy is
7 already protected, and in that sentence later they're saying
8 well, this actually inhibits advertisers from weeding out
9 clicks and mismatched intent, exactly what I was talking
10 about. So, yeah, and there are other parts that say the
11 similar things about privacy.

12 Next please.

13 This is a report from a consulting agency called
14 Tinuiti. And they're talking about the same change. They
15 say that, although there is significant drop in the share of
16 spend attributed to search queries, so we're getting less
17 data, and it has led to a massive decrease in query
18 visibility.

19 Next, please.

20 And this is all redacted, but, Your Honor, you can
21 read about it. This is from a well-known company, retailer,
22 and they're making the same points here on an internal
23 report that -- yeah, I'd rather not say. You can read that.

24 Q And, for the record, Professor Jerath is referring
25 to Slide 39 of UPXD103, which shows a redacted version of

1 UPX511.

2 A And just to point out, this particular document --
3 well, I'm not sure how much I should say. Sorry.

4 Q That's all right.

5 You focused on Google's text ads reporting. How,
6 if at all, do these issues compare to Google's reporting for
7 shopping ads?

8 A The implications are for shopping ads as well.
9 They are the same.

10 Q Now, earlier you discussed keyword match types and
11 I said I would circle back to those and I'd like to do that
12 now.

13 Did you have an opportunity to review the trial
14 testimony of Dr. Adam Juda?

15 A Yes, I did.

16 Q And do you recall what, if anything, Dr. Juda may
17 have said regarding match types?

18 A Yes.

19 So Dr. Juda offered an example of match types
20 related to tennis shoes.

21 Q How would you compare the example of matching that
22 Dr. Juda discussed in his testimony to the match types that
23 Google has today?

24 A Yes, please could you go to the next slide and
25 I can use that to help my answer.

1 So on the left is what Dr. Juda showed as an
2 example.

3 But this is actually oversimplified and not
4 exactly the way that matching works.

5 I talked earlier about how matching works, that,
6 first of all, there are different kinds of match types that
7 an advertiser must choose, one of them. And the second is
8 that the match types are also expanded in the sense of for
9 same meaning and, you know, variance, misspellings, all of
10 that. So this example is not illustrating those nuanced
11 points.

12 Q And for the record, slide 40 of UPXD103 on the
13 left is showing a slide, it's DXD11.016. And on the
14 right-hand side is based on UPX8023.

15 Professor Jerath, do you recall what, if anything,
16 Dr. Juda may have said about advertisers' ability to opt out
17 of Google's match-type changes?

18 A Yes.

19 So, basically, the match-type changes he was
20 referring -- we were talking about is this expanded match;
21 that even under an exact match, it's not just a literal
22 match but, also, broader, like, misspellings, same meaning,
23 and so forth.

24 And what Dr. Juda had said, that the ability to
25 opt out exists. It's only that previously, there were more;

1 and now there are fewer, fewer ways to opt out.

2 Q And let's take that in parts.

3 In your experience, has that been the case, that
4 advertisers used to have more methods for opting out than
5 they do now?

6 A Yes, that is the case.

7 Q And can you explain that?

8 A Yes.

9 So in 2012, what Google did was it started
10 expanding exact match to include variants like misspellings
11 and so forth.

12 Up until 2014, advertisers had the ability to just
13 have a binary indicator saying that I don't want expanded
14 match, even for any kind of match, right? So they could
15 just say, "I want literal exact match," or, "I want the
16 expanded match."

17 In 2014, Google removed that ability to show that
18 binary indicator by advertisers. And advertisers were
19 basically forcefully opted in to expanded match.

20 Q And, Professor Jerath, do you know -- when there
21 was that window where advertisers could opt out, do you know
22 approximately how many did or --

23 A So yes.

24 Q -- what represented?

25 A So about 30 percent of advertisers opted out of

1 expanded match, which is a very substantial number. So many
2 of them did not want to use this tool.

3 Q Has Google allowed advertisers to --

4 THE COURT: I'm sorry to interrupt.

5 When you use the phrase "expanded match," does
6 that encompass the three different match categories that
7 you've put on your slide?

8 THE WITNESS: It mainly applies to exact and
9 phrase, because broad is already broad. And so it was
10 main -- it was most relevant for exact and also relevant for
11 phrase match.

12 BY MS. MADDOX:

13 Q Professor Jerath, I'd like to ask a few clarifying
14 questions for the Court's benefit.

15 When we talk about expanding a match type, are we
16 talking about expanding exact goes to phrase or are we
17 talking about within exact what constitutes a match expands?

18 A Yes.

19 So let's just focus on exact match, right? So the
20 "expanded" match is -- think of it in the context of exact
21 match.

22 So let's say my keyword is "flowers," right? With
23 exact match originally, it would only match flowers, the
24 query. But with expanded exact match, it could match
25 misspellings of flowers. It could match the singular

1 flower. It could match, you know, some other things.

2 And when -- all the way to same meaning, it would
3 match blossoms and stuff like that.

4 So we're just talking about expanding a particular
5 kind of match to things you haven't really included in your
6 keyword.

7 Q And for phrase match, would it be fair to say that
8 when we talk about expanding phrase match, we're talking
9 about expanding the scope of what would be deemed to match
10 Google's -- or, rather, an advertiser's keyword if they've
11 selected phrase match?

12 A Yes.

13 So phrase match would, again, be, let's say,
14 flowers and include phrase match. It would originally match
15 buy flowers. But with the expansion, it would also match
16 something like buy blossoms or give blossoms, you know,
17 something like that.

18 Q Dr. Juda referenced negative keywords. To what
19 extent are negative keywords an efficient way for
20 advertisers to opt out of these match-type expansions?

21 A So I could tell you about -- I'll tell about
22 negative keywords first.

23 What negative keywords means, that you could
24 indicate particular keywords as part of a campaign as
25 negative keywords, that if that particular keyword appears

1 in the query, then don't match me to that query.

2 So what Dr. Juda had said is that while we've
3 removed the ability to indicate the boundary expansion or
4 not expansion option, but advertisers still have the ability
5 to put negative keywords; and, therefore, they can, in that
6 indirect way, they can opt out. And that's what I believe
7 he was referring to when he said there are fewer options,
8 but they still exist.

9 The problem is that negative keywords are a very
10 inefficient and really cumbersome way to opt out, because
11 suppose somebody wants to match only flowers, right? So
12 they could just say flowers and say I want to -- that's it.
13 I don't want expanded much. Compared to negative keywords,
14 they would say flowers. Now they are now being matched to
15 all kinds of misspellings. So they would have to come up
16 with many different types of misspellings of flowers that
17 they wouldn't want to be matched to. They would have to
18 come up with the word "blossoms" and maybe other synonyms
19 that they wouldn't want to be matched to.

20 So to opt out of expanded match now becomes a very
21 effort-intensive and time-consuming process. And so it's
22 not efficient; it's quite difficult.

23 THE COURT: And is the concern that by virtue of
24 withdrawing this option, that advertisers will be put into
25 auctions that they otherwise might not want to be a part of

1 and, therefore, creating thicker auctions and the result
2 being a potentially greater price.

3 THE WITNESS: Absolutely, that is the -- when you
4 make it -- this was -- this makes it easier for advertisers
5 to enter auctions, but much more difficult for them to not
6 enter these auctions. So on average, that would lead to
7 thicker auctions, exactly as you said, and thicker auctions
8 means more -- higher prices.

9 BY MS. MADDUX:

10 Q And, Professor Jerath, to follow up on one point
11 from earlier, you mentioned that Google removed the ability
12 to opt out of the match-type expansions in 2014.

13 Has Google allowed any opt-outs for any expansions
14 since then?

15 A No.

16 Since 2014, advertisers are forcefully operated
17 into expansions.

18 Q What about the search query reports; could
19 advertisers reference those for negative keywords?

20 A So that's the related problem that, as an
21 advertiser, I'm being opted into these expansions, right,
22 and I'm matching some of them.

23 But in my search query report, I don't have data
24 on all the queries I'm being matched to. So how am I
25 supposed to come up with negative keywords if I don't even

1 know what all am I being matched to.

2 So these two, it's like a one, two, punch. If I
3 put these two together, it will create even bigger problem.
4 One is that even if you know these -- this is what I don't
5 want to be matched to, it's very difficult through negative
6 keywords.

7 On top of that, if I don't even know what I don't
8 want to be matched to, because I don't know what I'm buying,
9 that's -- also increases the problem much more.

10 MS. MADDOX: Your Honor, I'm getting ready to move
11 to a new section. I know it's not quite 11:00, but I wanted
12 to let you know in the event --

13 THE COURT: Just keep going.

14 MS. MADDOX: Keep going. Sounds good.

15 BY MS. MADDOX:

16 Q Professor Jerath, let's turn to the second example
17 you gave regarding Google's auctions. What kind of auction
18 does Google run, ad auction?

19 A So Google runs a variant of the generalized
20 second-price auction for selling its ads.

21 Q And the Court has already heard a lot about
22 generalized second-price auctions. Can you show us briefly
23 an example of how a classic general second-price auction
24 works?

25 A Yes.

1 Please go to the next slide.

2 So this is -- this shows an example of generalized
3 second-price auctions, again, from my teaching slides,
4 actually.

5 So I know, Your Honor, the Court has heard a lot
6 of testimony on this. So I'm not going to go through the
7 example in detail unless you would like me to. I'll just
8 point out one important thing here, that advertisers put in
9 bids. They're ranked based on their bids or some
10 combination thereof.

11 But they're ranked based on bids, but they're
12 paying based on the bid of the bidder below them. So that's
13 why it's called second price.

14 Q And you referred to Google's ad auction as a black
15 box. Why do you describe the auction that way?

16 A Yes. Please go to the next slide.

17 So I refer to the auction as a black box because,
18 as the Court has heard testimony, for every ad that is
19 entered into an auction, there's an ad rank that is
20 determined. And this ad rank is basically Google calculates
21 it internally as a long-term value to Google of putting that
22 ad into their auction.

23 One of the reasons it's a Black Box is that Google
24 does not tell advertisers how the ad rank is actually
25 calculated and also does not tell what is the actual ad rank

1 for any of the advertisers' ads.

2 Q Are you familiar with quality score?

3 A Yes. I'm familiar with quality score. It's a
4 score between 1 to 10 that Google shares with advertisers on
5 a keyword basis.

6 Q And is quality score information that advertisers
7 can act on?

8 A That is not a very actionable score, so yep.

9 There are multiple reasons for that. I'll
10 highlight two. One is that the quality score is an
11 aggregation of already heavily aggregated components. So
12 that is one reason. And it's the signal there is kind of
13 weak.

14 And the second is that the quality score is not
15 actually used in any individual auction, as Google itself
16 says on its ad help page.

17 Q And the Court has heard testimony about certain
18 auction components, predicted clickthrough rate, ad
19 relevance, and landing page quality.

20 Are you familiar with those?

21 A Yes, I'm familiar with those. These are
22 components that go into determining the ad rank, along with
23 the bid of the advertiser.

24 Q And for predicted clickthrough rate, ad relevance,
25 and landing page quality, does Google provide information

1 that advertisers can act on?

2 A Google provides some information. Like it tells
3 whether these scores are below average, average, or above
4 average in comparing to some other advertisers.

5 By the way, this is not very actionable
6 information. Again, there are several reasons. I'll go
7 through them.

8 One is that it's a coarse indicator below or
9 above.

10 The second is that this is -- these scores are
11 based only on a subset of queries that an advertiser is
12 matched to, specifically, only exact-matched queries, like
13 queries that match the keyword exactly, right.

14 So this is different from the exact match. This
15 here exact is in small "e." So it's not the match type but
16 like whatever type chosen, only if the query actually
17 matched our keyword.

18 And then the third point is that these scores are
19 aggregated over an extended period of time, which is 90 days
20 as per the Google Ads help page.

21 So to put -- to give an example of how that is
22 very difficult to work with, let's say that, you know, the
23 holiday season is coming up, so, you know, Christmas and so
24 on. Let's say we're in mid-November or early November, and
25 the advertiser makes a particular change to their ad copy or

1 to their landing page in hopes that it changes the quality.

2 Because these scores are aggregated over 90 days,
3 to isolate the impact of any such change, you would figure
4 that out sometime in January, right?

5 So the whole holiday period is gone, and you don't
6 even know really properly that, you know, I made this one
7 change, how did it impact my scores of these scores. And if
8 I make multiple changes, you can imagine this becomes more
9 and more difficult.

10 So the feedback is so slow that this
11 aggregation -- aggregation plus extended period of time
12 makes it very difficult to work with these to get sort of
13 short-term feedback.

14 Q You mentioned that predicted clickthrough rate, ad
15 relevance and landing page quality, along with the
16 advertisers' bid were components of ad rank. Who determines
17 the bid?

18 A The advertiser.

19 Q Who determines the value of the predicted
20 clickthrough rate?

21 A Google determines that.

22 Q Who determines the value of an ad's relevance?

23 A Google.

24 Q And who determines the value of an ad's landing
25 page quality?

1 A Also Google.

2 Q How, if at all, does ad rank and quality score in
3 these components being black boxes impact advertisers?

4 A So as I said, these are black boxes, and you don't
5 know how -- these are not very actionable metrics.

6 So as a practical matter, what the advertisers
7 have to work with is the bid, because that has impact in the
8 short term. So if an advertiser, let's say, wants to
9 increase its position in the ladder of results, basically
10 what they can do is increase their bid, because that, they
11 know that'll improve their position.

12 And so to increase -- I mean, basically if they're
13 bidding higher than, many aggregate bidders are bidding
14 higher, the price of the auction would also go up, so they
15 end up paying higher prices.

16 THE COURT: Just to clarify, is your criticism
17 that Google controls the variables and inputs into its ad
18 ranking score, or is it that there's a lack of transparency
19 as to how that ad ranking is conducted?

20 THE WITNESS: I think my criticism is that there's
21 a lack of transparency. And specifically that almost no
22 actionable data is shared about these components, although
23 they are very important in determining your position in an
24 auction, right.

25 So, for instance, one of the points here is that

1 the advertiser's never told an actual ad rank of any of
2 their ads in any auction. I think it's reasonable that some
3 of this data could be shared with advertisers.

4 And I'm not -- again, with respect to your
5 previous point, you can't expect everything to be told,
6 right. But it doesn't seem that impossible to share data on
7 at least a sample of your auctions that, okay, this was your
8 ad rank, this is how these components and their values were,
9 just for your own auctions. I'm not saying for other
10 people's auctions or other people's ads.

11 THE COURT: And have you done any efforts -- made
12 any effort to compare the extent of Google's disclosures or
13 lack of disclosures and compare it to other platforms that
14 run search ads, which would, you know, whether it be Bing,
15 Amazon, SVP?

16 THE WITNESS: So, again, I do not have -- I have
17 not done that kind of analysis in detail, but at a high
18 level, I know that, for example, Bing essentially follows
19 what Google does. And, you know, a lot of that is because
20 what Bing wants is easy transportability of Google campaigns
21 to Bing. I read that in some depositions as well. So they
22 rather than follow Google because advertisers typically
23 first make their ad campaigns on Google and the others often
24 just warn these ad campaigns are reported to their black
25 phones.

1 THE COURT: Okay.

2 BY MS. MADDOX:

3 Q And, Professor Jerath, I wanted to put a finer
4 point on one thing that you said.

5 If an advertiser wants to improve their placement,
6 the placement of their text ads in the shorter term, what is
7 their option to do that?

8 A In the shorter term it's primarily the bid.
9 I mean, that's the only feedback they also get in the short
10 term, so they would increase their bid.

11 Q And how are you characterizing short term in that
12 context?

13 A So these auctions are running in real time all the
14 time. So short term is, let's say, I mean in my experience,
15 if you change your bid, you get the feedback within a day or
16 so. If I make a significant change to my bid, in about a
17 day or two days, I would be able to see, sometimes even
18 shorter, but just being conservative, you would see your ad
19 climb up.

20 Q And just to clarify with respect to the other
21 components that we talked about, along what timeline could
22 an advertiser expect to see some change if they made
23 adjustments to, for example, ad relevance or landing page
24 quality?

25 A That timeline is longer. I think it's more

1 difficult to determine, but it's definitely several weeks,
2 and Google gives these aggregations over 90 days.

3 Q What other ways, if any, does Google influence the
4 outcomes in its ad auction?

5 A So there's one more important way. Please go to
6 the next slide.

7 So that's the rGSP pricing knob. And I know
8 that the Court has heard some testimony on rGSP as well.

9 Q And did you have an opportunity to read that
10 testimony?

11 A Yes, I did.

12 Q Are there ways that rGSP can affect ad prices?

13 A Yes, rGSP can affect ad prices.

14 So the first point here is that Google, one thing
15 that Google does is that for every ad that's in a auction,
16 an ad rank is calculated. So under rGSP, Google
17 artificially inflates the ad rank of the runner-up.

18 So as an example, let's say there's a winner ad
19 and a runner-up ad and the winner's ad rank is 32 and the
20 runner-up's ad rank is 20. Then under the rGSP thing,
21 Google would inflate that runner-up's ad rank to something
22 above 20, so let's say 28.

23 Q What is the impact of Google inflating the
24 runner-up's ad rank through rGSP?

25 A So there's two impacts at least.

1 The first one is this point that is in the middle
2 of the slide. That the winning ad may lose, right.

3 So depending on the difference in the ad ranks of
4 the winner and the runner-up with the inflated ad rank,
5 Google may switch their ad positions.

6 And then the runner-up side would be in the first
7 position and the winning ad would be in the second position.

8 Q And are there any other impacts of Google
9 inflating the runner-up's ad rank through rGSP?

10 A Yes.

11 I think there's a very important other impact, and
12 that is on the third point here, that --

13 So we were talking about a flipping of positions,
14 but now consider the situation where the positions are not
15 flipped, they're not swapped. Even in that case, the
16 winning ad's price increases. The reason is that the ad
17 rank of the original runner-up, which is a runner-up here,
18 so the ad rank of the runner-up is inflated. And this is a
19 second-price auction so the price of the winner is
20 determined by the ad rank of the runner-up. And if the
21 runner-up's ad rank is artificially inflated, then the
22 winner's price goes up sort of artificially.

23 Q How, if at all, can rGSP affect advertisers'
24 perception of their ad performance?

25 A So rGSP can affect the perception in two ways at

1 least. So one is that a winner, and if you look at the
2 middle point here, a winner had a high enough ad rank but
3 they were flipped randomly to be the loser or not the
4 winner, the runner-up, and they would think that, oh, my bid
5 is not allowing me to win and so they might perceive that I
6 need to bid higher. So that's one.

7 The other is that even if the winner stays the
8 winner, they're paying a higher price because of the
9 artificial inflation of ad rank. And so that would then
10 mean that the advertiser is actually paying higher prices
11 for the ad, for the position. And so over time, they would
12 think that this is sort of the price that gets me the
13 position and would also perceive a higher bid requirement.

14 Q And what would you expect to happen to ad prices
15 if advertisers are increasing their bids?

16 A Ad prices would go up.

17 Q Wrapping up, Professor Jerath, these issues that
18 you've discussed concerning ways in which Google harms
19 advertisers, based on your experience, what is the overall
20 impact over time?

21 A Please go to the next slide.

22 So most of this slide is redacted, Your Honor, but
23 you can read, you can see the company; again, large
24 retailer.

25 What this is saying is that the cumulative effects

1 of Google's control are that basically that advertisers are
2 losing control and because of the multiple different
3 reasons, again, they're losing control.

4 I'm not sure how much I can say.

5 Q I think we'll stop there.

6 A Yeah.

7 Q Have the document speak for it.

8 For the record, Professor Jerath is referring to
9 Slide 44 of UPXD103, which shows a redacted version of
10 UPX511.

11 And finally, Professor Jerath, these issues that
12 you've discussed, can you summarize how they relate to your
13 fourth opinion?

14 A Yes, please go to the next slide.

15 So here's a summary of what I discussed in the
16 fourth opinion.

17 One example was that Google restricts what
18 advertisers can know about their own ad spend, right. So
19 you're spending money but don't know where it's going. This
20 was the example of for removing data that was previously
21 provided in the search query reports, and along with making
22 things more difficult to opt out of through the negative
23 keywords.

24 So all of this together, as I'd explained, leads
25 to thicker auctions, and higher ad prices and unwanted ad

1 spend by advertisers. So higher ad price is the important
2 point here.

3 And the second is this black box auctions being
4 black box not -- not being -- being lack of transparency and
5 the pricing knob of rGSP through inflated ad ranks,
6 artificially inflated ad ranks, and that is also leading to
7 higher prices.

8 Q And, Professor Jerath, based on your experience,
9 why do advertisers continue to spend money on Google?

10 A So, as I mentioned earlier, advertisers are
11 looking for users, for eyeballs, for attention in the
12 context of search advertising, they're looking for places
13 where people are searching, and there are not many viable
14 alternatives to Google, and so they continue to spend money
15 on Google, because the search traffic is there, they need to
16 tap into it, so Google it is.

17 MS. MADDUX: Thank you.

18 Your Honor, no further questions at this time.

19 I pass the witness.

20 THE COURT: Okay. Let's go ahead and take our
21 morning break. It's a little bit -- it's about almost
22 11:05. We will resume at 11:20. Thank you, all.

23 COURTROOM DEPUTY: All rise. This Court stands in
24 recess.

25 (Recess from 11:04 a.m. to 11:21 a.m.)

1 Q I'll give it a try.

2 The last opinion you were describing to the Court,
3 you described in your opening report as "an assessment of
4 the quality and utility of Google's controls, metrics, and
5 reporting to advertisers," correct?

6 A Yes.

7 Q And you just gave the Court your opinion on that
8 subject matter, correct?

9 A Yes.

10 Q I want to ask you a few questions about the
11 process by which you came to that opinion.

12 Did you perform any empirical analysis or study
13 that we can look at that measured the quality and utility of
14 Google's controls, metrics, and reporting?

15 A No, I did not. I did not think it was necessary
16 to render my opinion.

17 Q The answer is "no," correct?

18 A The answer is "no."

19 Q Thank you.

20 Nor have you seen any such analysis on that
21 subject matter, correct?

22 A I have interacted advertisers. And, I mean, I'm
23 sort of interacting with the industry over the last 10 to 15
24 years. I haven't seen a particular analysis answering that
25 particular question.

1 Q Let me rephrase my connection.

2 In connection with your work on this case, you
3 have not seen any such analysis, correct?

4 A I have not.

5 Q Thank you.

6 Did you perform any assessment of what the quality
7 and utility of Google's controls, metrics, and reporting
8 would be if Google had not engaged in the alleged conduct
9 that's described in the complaints in these cases?

10 A No.

11 Q And I take it in connection with your work, you
12 have seen no such analysis on that point, correct?

13 A In the context of this case, no.

14 Again, I've been --

15 Q Thank you.

16 A -- interacting with people in the industry for a
17 long time.

18 Q I understand you've been in this industry a long
19 time.

20 MS. MADDUX: Objection, Your Honor.

21 THE COURT: Hang on.

22 Let's allow the witness to answer the question,
23 and then you can ask the next question.

24 Go ahead.

25

1 BY MR. SOMMER:

2 Q In your report, you do not compare the quality and
3 utility of Google's controls, metrics, and reporting to the
4 controls, metrics, and reporting of any other search ads
5 provider; isn't that right?

6 A That is right.

7 Q And the judge even asked you whether you had done
8 any kind of comparison.

9 Do you remember that?

10 A I remember that.

11 Q And you did no such comparison yourself. And in
12 connection with your work in this case, you have not seen or
13 reviewed any such comparison, correct?

14 A It's -- my opinion is about Google, not about
15 others. So I'm just rendering my opinion about Google.

16 Q Let me repeat my question again.

17 In connection with your work on this case, in
18 giving your opinions, not only have you not done your own
19 comparison of Google to other companies, but you have not
20 seen any such comparison of Google to other companies in
21 connection with your work on this case, correct?

22 A That's correct.

23 Q Does your report offer the opinion that Google has
24 reduced the amount of information it provides to advertisers
25 about the workings of its ads auction?

1 A No.

2 But at the same time, Google has made changes all
3 the time, very frequently, and not told advertisers about
4 these changes, right?

5 So there's, on a relative basis -- well, it's open
6 to interpretation. But I would say that on a relative
7 basis, Google is not telling advertisers different changes
8 that are being made.

9 Q I think if I were to go look at the transcript,
10 the first part of your answer was, "no," correct?

11 A I just said that.

12 Q Okay.

13 And you have -- withdrawn.

14 Are you offering any opinion that Google would
15 have provided more information to advertisers about the
16 workings of its ad auction if it had not engaged in the
17 conduct that is alleged by the plaintiffs in this case?

18 A I'm not offering an opinion on those lines.

19 Q And I take it that in the course of your work for
20 this case, you have seen no analysis or study that bears on
21 that question of how much information about the ads auction
22 should or should not have been provided to advertisers,
23 correct?

24 A Could you repeat that?

25

1 Q Sure.

2 You have not seen, in connection with your work on
3 this case, any study that assesses whether Google would have
4 provided more information to advertisers about its ad
5 auction if it had not engaged in the alleged conducts in the
6 complaints, correct?

7 A I'm not offering that opinion, that kind of
8 opinion.

9 Q Are you offering any opinion regarding the amount
10 of information Google should disclose regarding the workings
11 of its ads auction?

12 A No.

13 Q One of the things you do address in your report is
14 Google's keyword matching and reporting related to that,
15 right?

16 A Yes.

17 Q And we heard a little bit about that broad match
18 being one of them, correct?

19 A That's one of the three options.

20 Q Right.

21 However, you have performed no study or analysis
22 to determine if broad match, for example, actually reduces
23 keyword management costs for advertisers, correct?

24 A I have not.

25 Q Okay.

1 And, again, you have -- in connection with your
2 work on this case, you have not seen any type of analysis
3 that addresses that question, correct?

4 A That's right; however, I would like to say that
5 there's two aspects to it. One is the keyword management
6 cost, and the other is also what are you getting in return
7 through broad match, what quality of traffic you're getting.

8 Q Now, in your --

9 A So I just want to say that.

10 Q I apologize. I go too fast sometimes.
11 I apologize.

12 In your testimony earlier this morning, you told
13 the Court that you had seen testimony from this trial that
14 changes to the search query report had resulted in a
15 20 percent increase in spend to a particular advertiser.

16 Do you remember that testimony?

17 A I believe I said --

18 MS. MADDUX: Objection, Your Honor.

19 THE COURT: I don't think that's what he said.

20 MR. SOMMER: No.

21 BY MR. SOMMER:

22 Q So what this means is that for 20 percent of their
23 spend on Google, the advertisers were not even told which
24 queries they are buying.

25 Do you remember that testimony?

1 THE COURT: I don't think that's what he said.

2 MR. SOMMER: I was reading --

3 THE COURT: Maybe I'm misrecollecting.

4 Why don't you ask him.

5 I'm sorry. I may have a different recollection.

6 MR. SOMMER: I can take a minute and go back, but
7 let me start with you.

8 BY MR. SOMMER:

9 Q Do you remember giving the testimony I just read?

10 A So what was the exact words?

11 Q Sure.

12 A I might not remember exactly what I said anyway,
13 but --

14 Q Well, I'll read it to you, and then you can tell
15 me what you think.

16 So what this means is that for 20 percent of their
17 spend on Google, the advertisers were not even told which
18 queries they are buying.

19 A So what I had said is that as -- while working on
20 this case, based on some -- in some deposition testimonies,
21 I had read that number from one advertiser. And then I also
22 mentioned that there was a broader study done in which,
23 I think it was 28 percent was the number --

24 Q Right.

25 A -- that advertisers came up with for the amount of

1 ad spend for which they were not being given information.

2 Q Now, I know you've been very diligent about not
3 disclosing confidential information. But something that was
4 in the public record just two days ago was the testimony of
5 a woman named Tracy-Ann Lim from JPMorgan.

6 Were you in the courtroom for that testimony?

7 A I was not in the courtroom.

8 Q Okay.

9 Did you read that testimony?

10 A I was actually able to view that testimony.

11 Q So you heard it?

12 A Yes.

13 Q Okay.

14 And is that the company that you had in mind when
15 you gave us this 20 percent number?

16 A That is the company I have in mind; however, the
17 number I'm quoting is from deposition testimony.

18 Q Okay. Well, let me -- do you remember that
19 Ms. Lim was not talking about 20 percent spend on Google
20 increase? Do you remember that's not what she described to
21 the Court?

22 She described -- well, I can read it to you, see
23 if it -- if you heard this.

24 "In the last few years, thinking about these
25 reports we've been talking about, has there been a change in

1 the amount of information made available to you?"

2 That was the question at page 4866.

3 "Answer: I think you might be referring to a time
4 when we went from a small percentage of keywords being
5 bundled together. And, you know, I think it was like
6 roughly 5 percent of our keywords were not visible. Our
7 keyword performance was not visible at the keyword level.
8 So smaller, more nominal performance sort of bundled
9 together. And I believe there was a point in time when that
10 shifted from 5 percent to roughly 20 percent of the keyword
11 report."

12 Now, when you were listening to the testimony, you
13 heard that, correct?

14 A I heard that, but I do remember there was some
15 clarification around it later.

16 Again, I am not relying on that day's testimony.
17 My number is coming from the deposition testimony of the
18 same person.

19 Q Okay.

20 So this is a simple question: You elected to rely
21 on the deposition testimony where your recollection issue is
22 talking about spend, and not on her testimony here in court
23 where she made clear that the 20 percent related to
24 keywords, not spend.

25 That was your process?

1 A Well, the reason is that, as I said, I was viewing
2 it on VideoLink, and there were some -- lots of
3 interruptions. So I wasn't --

4 Q So you might not have seen that?

5 A Yeah.

6 So I wasn't -- I know it was being debated or,
7 like, clarified, and I wasn't sure what it was.

8 But --

9 Q I understand.

10 A But -- no. I knew the number from before. I was
11 just relying on that number.

12 Q Okay. So you might not have heard her testimony
13 on that particular point?

14 A Yeah.

15 And let me just also add, Your Honor, that this
16 one 20 percent number is -- I'm not hanging my hat on that
17 for this opinion. You know, I think I would -- this is
18 important to know as one example. But, also, there is a
19 broader study I referred to which mentioned 28 percent.

20 Q Let me keep going.

21 You have conducted no analysis of whether
22 advertisers' keywords were affected by any change in
23 Google's SQRs; isn't that true?

24 A Say that again.

25 Q You have conducted no analysis of whether

1 advertisers' keywords were affected by any change in
2 Google's SQRs; isn't that correct?

3 A That's correct.

4 Q In your report, sir, do you offer any analysis of
5 the proportion of any advertiser spend that was affected by
6 a change in reporting thresholds in Google's search query
7 report?

8 A I do not.

9 Again, I didn't think it was necessary to render
10 my opinion.

11 Q And just to complete that one, in connection with
12 your work on this case, you've seen no other analysis done
13 by anyone else that addresses the proportion of any
14 advertiser spend that was affected by a change in the
15 reporting thresholds in Google's SQRs, correct?

16 A Correct.

17 Q Okay.

18 You testified, and, in fact, you even have -- one
19 of your slides mentioned SQRs, correct?

20 A Right.

21 Q And, sir, one of the things you did, you did three
22 reports in this case, right?

23 A Right.

24 Q And each time you did a report, you prepared a
25 list of the materials you considered and relied upon,

1 correct?

2 A Yes.

3 Q And I noticed that in none of those lists was
4 there a single Google SQR identified as something you
5 considered or relied upon.

6 And it's not that I overlooked it, they're not
7 there, correct?

8 A I guess, yeah, that's right.

9 Q Okay.

10 And the reason they're not there, sir, is you
11 actually did not look at a single Google SQR in doing your
12 work on this case; isn't that right?

13 A For the specific purposes of this case, yes. But
14 I've looked at many SQRs over a period of time.

15 And also I looked at, you know, other documents
16 that do cite SQRs.

17 Q The SQRs -- let me just follow-up with a couple of
18 question.

19 The SQRs that you say you've looked at over time,
20 were those Google SQRs?

21 A Yes.

22 Q Okay.

23 And how many years ago was that?

24 A I've looked at them quite frequently over the last
25 decade or so.

1 Q Decade?

2 A Even more.

3 Q Thank you.

4 A But not ten years ago all the time.

5 Q Dr. Jerath, you are not offering any opinion,
6 because you've done no analysis, that Google has, in fact,
7 reduced over time the amount of information it provides to
8 advertisers about the workings of its ad auction; isn't that
9 true?

10 A That's true, but, again, I go back to my previous
11 statement. It's a relative statement.

12 If somebody keeps changing how to do things and
13 don't offer any new information, one can interpret that as
14 they didn't change anything they told or one can say they're
15 not telling about updates. So I want to put that
16 perspective on it.

17 MR. SOMMER: Your Honor, may I approach?

18 BY MR. SOMMER:

19 Q I'm going to show you a document, it's marked
20 DX3221.

21 I want -- this follows up just very briefly on the
22 lack of comparison that you did to any other company.

23 Do you see what this -- the subject matter of this
24 document is?

25 A I do.

1 Q This is Microsoft's -- Microsoft's search query
2 performance report. It's a description of it. Do you see
3 that?

4 A Yes.

5 I mean, is it Microsoft? I'm not sure about that.
6 But it looks like that.

7 Q Well, if you look at the very top, "Microsoft
8 advertising API/Microsoft learn." Do you see that?

9 A Yes.

10 Q Okay.

11 And does that give you a -- and you see the URL at
12 the bottom, that's also reflecting Microsoft. Do you see
13 that?

14 A Yes.

15 Q Okay.

16 And does that give you a comfort level that this
17 is a Microsoft document?

18 A Yes.

19 Q Okay.

20 And, sir, do you see here -- hold on, let me just
21 find my copy.

22 MS. MADDUX: Your Honor, if we can make clear for
23 the record, this is not a document produced by Microsoft.
24 Is that right? It's just being pulled from the website?

25 MR. SOMMER: Printed during the break.

1 MS. MADDUX: But not produced during discovery,
2 correct?

3 MR. SOMMER: Correct.

4 BY MR. SOMMER:

5 Q Do you see here that Microsoft in the second
6 paragraph --

7 Could we put this up on the monitor, please.

8 -- it gives an example of how their product works.

9 "If you were a mortgage lender who was running a
10 campaign with the following keywords, mortgage, home
11 mortgage, and home equity loans, and the report shows that
12 the search query 'mortgage rates' results in many
13 impressions of your ad, you would probably add 'rates' to
14 your keyword list."

15 Do you see that?

16 A Yes.

17 Q Okay.

18 "However, if you do not provide reverse mortgages
19 and the report shows that the search query 'reverse
20 mortgage' results in many impressions, you would probably
21 add 'reverse mortgage' to your negative keywords list."

22 Do you see that?

23 A I do.

24 Q Okay.

25 Now, I know you expressed your view that putting

1 in negative keywords is, I think your words were, it's not
2 efficient, correct?

3 A I said it's cumbersome and effort intensive.

4 Q But we can see here that Microsoft has the exact
5 same process, correct?

6 A I'm not sure what you mean by exact same process.

7 Q Well, I'll --

8 A Microsoft has --

9 Q I'll rephrase the question.

10 A Microsoft has negative keywords as I think it
11 should, but the word "exact" is not clear to me.

12 Q Fair enough.

13 Do you see in the next paragraph it says, "The
14 report will include only search terms that resulted in a
15 significant number of clicks in the last 30 days"?

16 A Yes.

17 Q And if you know, how does that compare to Google
18 in terms of their minimizing data for when there's not a lot
19 of clicks? If you know.

20 A Yeah.

21 From what I recall, Google has a window of last
22 60 to 90 days.

23 Q So Google actually -- Google is actually --

24 A Can I please finish?

25 THE COURT: Hang on. Let him finish his answer.

1 THE WITNESS: From what I recall, Google has
2 counts impression over the last 60 to 90 days. So that's
3 less -- that's more aggregated and less granular.

4 BY MR. SOMMER:

5 Q Thank you.

6 Let me hand out now the binders we prepared.

7 MR. SOMMER: May I approach again, Judge?

8 THE COURT: You may.

9 BY MR. SOMMER:

10 Q And I'm also going to hand out a binder of
11 demonstratives.

12 By the way, Dr. Jerath, have you done any analysis
13 of how broad match simplifies advertising efforts by smaller
14 companies compared to larger companies?

15 Has that been the subject of your analysis in this
16 case?

17 A I have not done that analysis.

18 Q But I take it based on your experience, sir, you
19 appreciate that smaller companies have less resources to go
20 try to figure out millions of keywords, correct?

21 A Yes, they do.

22 Q And do you also appreciate that making the type of
23 change, such as correcting for spelling or semantic meaning,
24 can be a benefit for some of the smaller advertisers?

25 A I think it's a double-edged sword. It's not

1 necessarily a benefit, and I can explain if you would like
2 me to, Your Honor.

3 Q No, let me follow-up on that.

4 THE COURT: Hang on. Let him complete his answer
5 and then you can follow-up on his answer.

6 Go ahead, Dr. Jerath.

7 THE WITNESS: So misspellings especially, now it
8 is possible that advertisers, small and large, but let's say
9 small since you're talking about small, you know, it is
10 possible that they don't want to be matched with misspelled
11 keywords, because it's possible, let's say their analysis
12 has shown that the traffic quality for misspelled keywords
13 may not be as good, let's take that situation.

14 So then they don't want these expanded matches.

15 Now Google is forcing them into this expanded
16 match.

17 So what do they have to do it get out of it? They
18 have to create this list of negative keywords.

19 So you can start imagining, Your Honor, how many
20 negative keywords need to be added to get out of the
21 expanded match from misspellings.

22 Should I, as a small advertiser, should I include
23 keywords where one character is misspelled or missing?
24 Should I include two? Should I include three? I don't know
25 what the Google system is matching me with, right?

1 So we can imagine, this is computatively explored
2 and this could be thousands of keywords in terms of
3 misspellings.

4 And that is actually much more difficult for
5 smaller advertisers than for large advertisers that are well
6 resourced.

7 So it is not always the case that small
8 advertisers see a benefit from all of this. It could
9 actually lead to widening that gap, widening the chasm
10 between small and large, with the large advertisers --
11 exactly because it's effort intensive and cumbersome, as I
12 said, the larger advertisers, they may have access to
13 automated resources to generate these things, but the
14 smaller ones won't. And the smaller advertisers will
15 continue getting matched to these misspellings that they may
16 not want.

17 So that's why I call it a double-edged sword, and
18 I don't think it is clear at all that they always benefit.

19 BY MR. SOMMER:

20 Q Let me just follow-up on the misspelling for a
21 second, because I want to try to use an example that might
22 occur.

23 So assume for a moment, sir, that someone is
24 looking for women's hats, and they type it in but they
25 misspell women, they add an extra E, so it's W-o-e-m-e-n's

1 hats.

2 Are you with me?

3 A I am.

4 Q Okay. Good.

5 Now, the Google technology will correct that
6 misspelling and send to that user ads for women's hats,
7 correct?

8 A I think it would in many cases, yeah.

9 Q And in my simple example, despite the misspelling
10 of the word "women," the consumer would get the ads as if
11 they had not misspelled it, correct?

12 A In this example, yes.

13 Q And that is a benefit to the user, right, who's
14 looking for women's hats?

15 A So as I was explaining almost exactly this in my
16 example to the Judge that --

17 Q I don't mean to interrupt, but can you just answer
18 my question.

19 Is that a benefit to the user?

20 A As I said, not always.

21 MS. MADDUX: Objection.

22 BY MR. SOMMER:

23 Q Not always, okay?

24 A So if you want me to bring back to that same
25 example, I mean, there will be situations where, let's say

1 an advertiser has determined that misspellings bring lower
2 quality traffic in terms of conversions, and they don't want
3 misspellings, rather than want misspellings. I mean, it's
4 on the advertiser, right.

5 So all I'm saying is that it would be good to also
6 have the simple opt-out option, rather than necessarily
7 having to create lists of negative keywords. And this
8 option existed. When it existed, up to 30 percent,
9 30 percent of advertisers were using it, and then it was
10 removed.

11 So if 30 percent of your advertiser base is using
12 an option, it's a significantly valued option, and removing
13 it takes an option away from those advertisers. Yes, they
14 have the negative keyword option, but that's much more
15 difficult to execute.

16 BY MR. SOMMER:

17 Q Last question, what I thought was my simple
18 example.

19 If the user, from the user's perspective, who
20 wants to look and maybe buy a women's hat, is it a benefit
21 to the user to get results even if they've misspelled
22 "women's hats"?

23 A So my report is not speaking to the user
24 perspective. But maybe.

25 Q "Maybe" is your answer?

1 A Yeah.

2 Q Maybe. Okay. Thank you.

3 Let me ask you this, Professor.

4 Do you -- would you agree that there is a tension
5 between advertisers wanting to get more information about
6 who they're targeting and individuals who might value
7 privacy? Do you perceive some tension in this industry?

8 A So I think -- individuals are users; is that what
9 you mean?

10 Q Yes, individuals.

11 A So I think that tension exists and in terms of
12 the -- it exists; however, it exists much more in the
13 display ad business than in the search ad business.

14 Q Sir, I really wasn't distinguishing between
15 formats.

16 I was simply asking in the digital advertising
17 industry, whether you agree that this is tension exists. If
18 you can answer that "yes" or "no," that would be terrific.

19 A I mean, I made the distinction between the
20 different ad formats because I do think it's important for
21 that privacy conversation. There is a lot of conversation
22 about privacy, about all of it -- almost all of it centers
23 around tracking consumers on the Internet when they are, by
24 third-party vendors. That is not really relevant to search
25 ads. That is relevant to display ads.

1 So I think it would be imprecise to club
2 everything under digital marketing and then extend it to all
3 types of ads, which is why personally I would like to make
4 that distinction. And I think it would benefit the Court as
5 well.

6 Q I'll try one more time.

7 If you can answer yes or no, do you perceive any
8 tension between advertisers wanting to collect data on users
9 in any of these ad formats versus users who are online
10 looking for things and their interest in privacy? Is there
11 a tension there?

12 THE COURT: Hang on.

13 MS. MADDOX: Objection, Your Honor; asked and
14 answered.

15 THE COURT: I think he's answered --

16 MS. MADDOX: I think he's already stated --

17 THE COURT: Counsel, I've heard the objection.
18 I've ruled. He's answered it.

19 Go ahead. Next question, please.

20 BY MR. SOMMER:

21 Q You wrote an article, sir, that actually discussed
22 heightening concerns regarding user privacy.

23 Do you remember that?

24 A Could you point me to which article you have in
25 mind.

1 Q Sure. It was one you wrote -- it's Choi and
2 Jerath, "Privacy and Consumer Empowerment in Online
3 Advertising," in 2021.

4 A Yes.

5 Q Okay.

6 And let me just read one portion from that, and
7 then I'll ask you a question. This is at page 3 of your
8 article.

9 "With heightened concerns regarding user privacy,
10 there is a recent movement for empowering consumers with the
11 ability to control how their private data are collected,
12 stored, used, and shared."

13 Do you remember writing that?

14 A I mean, I don't remember writing every sentence,
15 but I'm sure I've written that, yeah.

16 Q Let me just read --

17 MS. MADDUX: I would just say if counsel is
18 reading from a document and article, we would appreciate
19 having a copy of that so we could look it as well.

20 MR. SOMMER: Okay. Do we have DX -- DX3078 is in
21 the binder.

22 MS. MADDUX: It's in the binder.

23 MR. SOMMER: I'm sorry. I should have identified
24 it. DX3078 at page 3.

25

1 BY MR. SOMMER:

2 Q Let me read one more portion of that. It
3 continues as follows:

4 "Notably" --

5 THE COURT: Hang on, Counsel.

6 Why don't you let plaintiffs' counsel make sure
7 they're at the right place here.

8 And if you could just direct --

9 MR. SOMMER: Sure.

10 Page 3. It's up on the screen now, too.

11 Are you all set?

12 MS. MADDUX: Yes.

13 MR. SOMMER: Great. Thanks.

14 BY MR. SOMMER:

15 Q "Notably, between 2018 and 2020, the general data
16 protection regulation, GDPR, has been implemented in the
17 European Union, and the California Consumer Privacy Act,
18 CCPA, and the California Privacy Rights Act, CPRA, have been
19 implemented/passed in the State of California in the
20 United States. These regulations address both consumer data
21 security and consumer privacy rights."

22 Let me stop reading there.

23 Dr. Jerath, when this article was written in 2021,
24 I take it that you were aware that online platforms were
25 also responding to changes in regulations in the GDPR and

1 here in the United States, correct?

2 A So I'll go back to my distinction that I just
3 made.

4 All of these GDPR, CCPA, CPRA -- I'm just using
5 the acronyms -- they're regulation about cookie-based
6 tracking. And that is relevant to display ads. That is
7 relevant to track -- and video ads, like people going all
8 over the Internet and being tracked. These acts -- I mean,
9 I don't remember, obviously, every word of it, but they do
10 not talk in the context of search ads. So I just want to
11 highlight that part.

12 This is about display.

13 And, in fact, in my testimony earlier this
14 morning, I had mentioned that there is increasing privacy
15 regulation happening, which is preventing consumers from
16 being -- from -- preventing in -- firms from tracking
17 consumers across the Internet as they browse the Internet,
18 which weakens the signal for inferred intent, which then
19 weakens the inference of intent, which makes, you know,
20 display ad targeting -- it is expected to make that worse.

21 So I just wanted to say that please don't club
22 this as, oh, this is relevant to all of digital marketing.
23 This is mainly for display.

24 Q Do you remember the question I asked you?

25 A I think you said, "Do you read this?"

1 And I said, "Yes," or something like that.

2 Q I'll put my question to you again from over here.

3 When you wrote this article in 2021, were you
4 aware that online platforms were also responding to changes
5 in regulations in Europe and here in the United States?

6 That was my question.

7 Can I get an answer to my question?

8 A I think I answered that as "yes," and I followed
9 it up with more thoughts.

10 Q Thank you.

11 Now, you distinguish between cookies and other
12 types of privacy issues. I think I just heard that in your
13 answer, correct?

14 A It's -- yes. It's more about like tracking
15 consumers when they're visiting different websites and apps,
16 and that is done through cookies.

17 Q Do you know what a clean room is?

18 A Yes, I do.

19 Q Can you describe that to the Court?

20 A So it's -- a data clean room, it's like -- sort of
21 a clean way of sharing data where, you know, there's a third
22 party that -- so let's say there's one -- there's two
23 parties that are going to exchange data on the same
24 consumer, but they don't -- but they don't know how to
25 transfer the identity of the consumer from one to another.

1 So they'll go to sort of this intermediary, which
2 is a data clean room or cleaned room. They'll both share
3 their data.

4 And, you know, this intermediary will make the
5 match and help them infer. And then you can have a better
6 history for the consumer.

7 So it's sort of nascent technology. This is part
8 of the effort of companies that, you know, they're sort of
9 trembling.

10 There are so many business models based on
11 targeting of consumers. And a lot of companies are very
12 worried that their monetization methods will -- are going to
13 get worse over time because of less inference being possible
14 about consumers.

15 So clean rooms is one kind of technology that's
16 coming up. That's nascent. It's under testing. And to
17 basically match consumer entities from different data
18 sources.

19 I'll also say that it is not clear that clean
20 rooms will be -- I mean, in the end, if you look at the
21 consumers' point of view --

22 THE COURT: Sorry. I think you've answered
23 counsel's question, so let's move on.

24 BY MR. SOMMER:

25 Q And, sir, I'm not -- I don't want to be rude, and

1 don't take this way, but I'm sure both of us want to get
2 through with this. If you could try to answer my
3 question -- if you need to explain it, I will let you. Or
4 if I try to stop you, the Judge will let you. But this will
5 go much easier if you just try to answer to the question I
6 put to you, okay?

7 A Sure.

8 Q So let me try to put it -- that was a long answer.
9 Let me try to put it in terms I might understand.

10 Would you agree that a clean room is a way to try
11 to take data about a user and make sure it's anonymized?

12 A That's sort of an incomplete description of it.
13 It's one component, but there's more going on.

14 Q Okay.

15 Now, let's go back briefly to the search query
16 reports.

17 You said that Google made that change in 2020; is
18 that right?

19 A September 2020, yes.

20 Q Okay.

21 And let me just put up on the screen DX3080, which
22 is a Google help page. Can you focus on the search sub
23 themes and queries on the first page.

24 Was this a document you reviewed in connection
25 with your work, sir?

1 A I believe so. I don't remember each and every
2 document I reviewed at this time.

3 Q But it looks -- the topic looks familiar to you?

4 A Yes.

5 Q Okay.

6 And when you reviewed this, if this was one of the
7 ones you reviewed, Google was describing how some search
8 terms don't have enough query activity; and, therefore, they
9 are omitted from the search terms report in order to keep
10 with our standards on data privacy.

11 Do you see that there?

12 A I do.

13 Q Okay.

14 You can take that down.

15 Are you familiar with something called
16 Ads Data Hub that Google introduced?

17 A I have heard of it, yes.

18 Q Okay.

19 Well, are you aware that that was another
20 innovation introduced by Google to assure that if there was
21 low volume of clicking, user anonymity would be protected?
22 Are you familiar with that?

23 A I think it was a very complicated set of offering.

24 It's a company that has a bunch of different
25 dimensions to it.

1 So Ads Data Hub, from what I remember, it accounts
2 for display ads and search ads, data from both. And, again,
3 the statement you're making is more relevant to display than
4 to search.

5 Q Yeah, but my question was: Do you remember that
6 the purpose of the Ads Data Hub was to maintain privacy when
7 the click query volume was very low so that someone would
8 remain anonymous?

9 If you don't know that, just tell me you don't
10 know. If you do, tell me whether you agree with me.

11 A So click query -- so I don't think that user
12 identity is ever tied to query volume; and, therefore,
13 I don't agree with that.

14 Q Okay. Do you remember the time --

15 MR. SOMMER: Let's just put back up 3080, and
16 let's highlight the same search subthemes and queries that
17 we just looked at.

18 BY MR. SOMMER:

19 Q I'll just read it one more time.

20 "Some search terms that don't have enough query
21 activity are omitted from the search terms report in order
22 to keep with our standards on data privacy."

23 Do you have an understanding of what that sentence
24 is saying?

25 A Yes. I think I addressed it also in my testimony

1 this morning.

2 That I don't agree with this.

3 Q I didn't ask you if you agreed with it, I asked
4 you if you understood it?

5 A Yes, I do.

6 Q And when I asked you about Ads Data Hub -- and,
7 again, if you don't remember or know just tell me, the ad --
8 the introduction of Ads Data Hub was consistent with this
9 sentence, that it was designed to protect anonymity when
10 there was low query volume.

11 Do you know that or not?

12 A I do not know of that claim from Google, no.

13 Q In the article I asked you about a moment ago,
14 which is DX3078, let me just pull out my copy of it, same
15 article, you actually discussed privacy innovations by
16 various companies; isn't that right?

17 A Yes.

18 Q Okay.

19 And if you want to look along in your binder, if
20 you find 30 -- DX -- the fat one, unfortunately.

21 A The fat one.

22 Q DX3078.

23 A That means the big one or the small one?

24 Q The big one.

25 And they're numerical so it should --

1 A Yeah, I have it.

2 Q Why don't you turn to that.

3 That's your article, right?

4 A Yes, it is.

5 Q Okay.

6 Turn to page 49 in your article.

7 And there's a chapter there or a section beginning
8 with "Privacy."

9 Do you see that?

10 A Yep.

11 Q Excuse me?

12 A Yes, I do.

13 Q Okay.

14 And if we go about halfway down where it says,
15 "For instance," about eight lines down, let's just take a
16 look at that.

17 "For instance, Google announced proposals for
18 replacing cookie functionality for advertising purposes
19 under the Privacy Sandbox initiative which addresses ad
20 targeting, ad delivery, ad performance reporting, and user
21 privacy."

22 That's what you wrote in your article, correct?

23 A Yes.

24 Q So you were familiar with Privacy Sandbox, and
25 that initiative by Google, correct?

1 A Yes.

2 Q And if we go to the next page, page 50, you talk
3 about another Google initiative on privacy. It's the bottom
4 paragraph.

5 "The TURTLEDOVE mechanism is also under
6 development at Google. This mechanism enables the
7 possibility of targeting users based on their visit history
8 without sharing user data with third parties."

9 You wrote that as well, right?

10 A Yes.

11 Q And do you know, as you sit here today, sir, since
12 this was written in 2021, whether TURTLEDOVE was
13 implemented?

14 A No, they stopped TURTLEDOVE. I think they've
15 turned it into something else called FLEDGE.

16 Q Okay. That was going to be my next question, it
17 sort of morphed into a different technology, correct?

18 A Yes.

19 Q Thank you.

20 A And, again, as I said, these are all test
21 technologies so there's a lot of activity here right now.

22 Q If we go to page 51, we see other technologies and
23 innovations at the top paragraph, about the fourth line
24 down.

25 "A number of other mechanisms, including Tern,

1 Sparrow, Dovekey, and Parrot, are being developed as
2 refinements of the TURTLEDOVE mechanism at Google and other
3 companies."

4 Do you see that?

5 A Yes.

6 Q Because Google is not the only company focused on
7 these privacy issues, right?

8 A Yes.

9 Q Okay.

10 It's an industry trend. You've seen that, right?

11 A Yes.

12 I'll just remind you, all of these are for display
13 ads. None of these is for search. Not a single one.

14 Q Let me switch topics.

15 I want to talk about the funnel. Can we put up,
16 in the demonstrative binder, DXD-14.003.

17 Do you know who this fine gentleman is?

18 A I can read it. I've seen the photo for the first
19 time.

20 Q So I think you even mention that the funnel is
21 over 100 years old, right?

22 A Yes.

23 Q Okay.

24 So we have a photo of Elias St. Elmo Lewis, who is
25 attributed with being the first to note the funnel all the

1 way back in 1900, so over 120 years old?

2 A That's right.

3 Q Would you agree that digital -- withdrawn.

4 Would you agree that advertising has changed a lot
5 in the last 120 years?

6 A There are more channels of advertising, yes.

7 Q Certainly digital advertising did not exist 120
8 years ago, correct?

9 A It did not.

10 Q You mentioned that you teach certain courses --
11 you have taught courses for years at Columbia Business
12 School on marketing, correct?

13 A Yes.

14 Q Let's put up DX3074.

15 And if you want to look at it in your binder, it's
16 one of your course syllabi.

17 A Could you repeat the number, please?

18 Q Sure. 3074.

19 A I see.

20 Q Just look up when you're there, that way I'll know
21 you're there.

22 A Yeah.

23 Q Okay.

24 And could we go to the course description.

25 Now, the first sentence in your course description

1 says, "Digital technologies and associated capabilities have
2 revolutionized the practice of marketing in the last decade.
3 The new digital marketing platforms that have emerged
4 include display advertising, search advertising, and social
5 media; in addition, mobile is fast becoming a key touchpoint
6 between firms and consumers, as compared to desktops and
7 laptops which were traditional touchpoints."

8 Do you see that?

9 A Yes.

10 Q Okay.

11 And now, do you stand by that -- I take it it is
12 still your view that there has been somewhat of a revolution
13 over the last 10 or more years when it comes to digital
14 advertising, correct?

15 A Yeah.

16 Q Okay.

17 And then I just want to show you one other course
18 description. This was a little more recent. This is from
19 2022.

20 This is DX3075 in your binder, or you can look at
21 it on the screen.

22 This is from the fall term 2022, correct?

23 A Yeah.

24 Q And let's go to the course description.

25 "Digital marketing has seen explosive growth in

1 the U.S. digital marketing spend increase from approximately
2 \$15 billion in 2006 to approximately \$150 billion in 2020,
3 and is estimated to be nearly \$300 billion in 2024."

4 And at the very bottom line there, it says,
5 "Managers are still grappling with this continuously
6 evolving medium."

7 Do you see that?

8 A Yes.

9 Q What did you mean by "managers are still grappling
10 with this continuously evolving medium"?

11 A That managers, you can think of ad managers or,
12 you know, people managing the company.

13 So this medium offers a lot of opportunity but a
14 lot of pitfalls, right.

15 So right here I mention privacy-related
16 regulations. They want to target consumers but don't want
17 to piss them off by over-targeting them. That's one example
18 of the grappling that's happening.

19 You want to understand, you know, there's new --
20 so there's something called MarTech, marketing technology
21 software. Right now -- it's -- so a few years back, there
22 were like 50 of them that you could use, now there's like
23 5,000 of them. So marketing managers, they're like, which
24 one should I use and how should I incorporate all of this?
25 Should I go over the big company sales force or Adobe that

1 offers me one suite of everything versus should I go over
2 with smaller vendors that offer a very precise solution to
3 one kind of advertising. That's another example.

4 Q Let me ask a follow-up, okay?

5 Let me try to make it simple.

6 Having seen this constantly evolving media
7 explosion of changes, would you agree that the digital
8 advertising market is a dynamic and growing market?

9 A Yes.

10 Q And would you also agree that it has undergone
11 dramatic change, even in just the last five years, would you
12 agree with that?

13 A Yes.

14 Q Okay.

15 So we talked a moment ago about your different
16 materials considered lists that you submitted with each of
17 your reports.

18 Do you remember I brought that up?

19 A Yes.

20 So I always get confused on the terminology
21 "relied upon, considered."

22 Q Actually, in fairness, I think you're saying
23 "materials relied upon." We're going to look at them in a
24 second.

25 A Thanks for clarifying.

1 Q Thank you for that correction.

2 And do you recall at your deposition, you reminded
3 us several times that what you relied on was on those lists
4 that you compiled and submitted with your reports?

5 A Yes.

6 Q Now, in the past five years -- that's the period
7 of time I'm asking you to focus on, 2019, '20, '21, '22,
8 '23. Do you have that period in mind?

9 A Okay.

10 Q Okay.

11 In the last five years, as the digital advertising
12 industry has undergone these profound changes, have you
13 performed any experiments or studies or any other kind of
14 empirical work to assess how these changes may have impacted
15 the relationship between ad formats and the purchase funnel?

16 A So there is a paper that I have published, I think
17 about maybe two years ago, 2020, so three years ago, I would
18 say, that looks at consumers' sort of underlying states that
19 they're in, and versus the touchpoints that they're facing
20 and sort of understand that from these touchpoints, what can
21 we infer about consumers and their states, and the funnel is
22 about states.

23 Q Let me follow-up then.

24 If you can find in your binder DX3062, 3062, this
25 is the list of materials relied on that you submitted in

1 connection with your opening report.

2 A Okay.

3 Q Are you there?

4 A I'm there.

5 Q Okay.

6 Now, is the article you just described on the
7 list?

8 A I'll have to check.

9 It should probably be -- have been listed in my
10 academic articles.

11 Q Sir --

12 A So it's not -- I don't see it in the academic
13 articles.

14 I'm just asking, should I keep going further or
15 not?

16 Q No, under academic articles, that's where it
17 should be listed, right, under academic articles?

18 A Yeah.

19 Q It's not listed there, right.

20 No article from you on that topic in the five
21 years is listed in your materials, correct?

22 A Yes.

23 Q Okay.

24 A But on that topic, sir --

25 Q Sir, there's no question pending right now. Just

1 wait for the next question.

2 THE COURT: Next question.

3 THE WITNESS: Yeah.

4 BY MR. SOMMER:

5 Q Focusing on the past five years of seismic change,
6 you actually list three academic articles in connection with
7 your opening reports. Those are the Sawhney, Newman, and
8 Rafian articles, correct?

9 A Yes.

10 Q And can we agree, Dr. Jerath, that not a single
11 one of those academic articles even mentions the purchase
12 funnel?

13 Can we agree on that?

14 A I do not recall, but I think that the Sawhney
15 article would be quite relevant to funnel ideas. But
16 I don't know if it mentions or not. I don't recall at this
17 time.

18 Q Just so we're clear, as you sit here today,
19 is there a single academic article from the last five years
20 that you can say with any confidence mentions the purchase
21 funnel, actually mentions the purchase funnel?

22 A I'm not sure.

23 Q Okay.

24 You also list in your materials relied upon books
25 or scholarly books, correct?

1 A Yes.

2 Q Okay.

3 And in your opening report, materials relied, on
4 over the last five years, there are three listed, correct?

5 A Yes.

6 Q Can we agree that the Chaffey book does not
7 address the question of ad formats and how they may or may
8 not relate to the purchase funnel?

9 Can we agree on that?

10 A It does not address the question?

11 Q It does not address the question of ad formats and
12 how they may relate to the purchase funnel.

13 Can we agree on that?

14 A I don't think I can answer that. I'll have to
15 look at the -- again, I know that it talks about consumer
16 stages. I know it talks about different -- all the
17 different channels. And I'll just have to look at it.

18 I mean, it does address the question very clear
19 and directly.

20 Q I'm trying to ask a simple question. And if you
21 don't know, just say you don't know. And my question is:
22 As you sit here today, do you have any basis to testify with
23 confidence that the Chaffey book addresses ad formats in the
24 context of a purchase funnel?

25 A No, I can't say that. I don't know.

1 Q Okay.

2 The Digital Marketing Essentials book, can we
3 agree that that also does not address the issue of ad
4 formats in connection with the purchase funnel? Can we
5 agree on that?

6 A I think this one does.

7 Q You think it does?

8 A Yes.

9 Q Okay.

10 The Kagan book, the third one, actually does,
11 because I looked at it. And we're going to get back to that
12 one.

13 How confident are you that the Digital Marketing
14 Essentials book --

15 THE COURT: All right. Let's move on.

16 MR. SOMMER: Got it. Yep.

17 BY MR. SOMMER:

18 Q Now, what happened next after your opening report,
19 you received an expert report from Google's expert,
20 Dr. Bucklin, correct?

21 A Yes.

22 Q And you read that, right?

23 A I read the report, yeah.

24 Q And do you remember that Dr. Bucklin was of the
25 opinion that the purchase funnel construct that you talked

1 about in your opening report had collapsed and had grown
2 largely obsolete?

3 Do you remember that was in substance what he was
4 saying, among other things?

5 A Yes.

6 Q Okay.

7 And in response to Dr. Bucklin's report, you
8 prepared a rebuttal report, correct?

9 A Yes.

10 Q And you again created a list of materials you
11 considered, right?

12 A I did.

13 Q Okay.

14 And if you flip forward in your binder to DX3063.
15 Are you there?

16 A I'm there.

17 Q And in terms of academic articles, you listed one
18 additional article from our five-year period, and that was
19 the Powell's -- Paul's article, correct?

20 A Yes.

21 Q And, again, the academic article you listed did
22 not mention the purchase funnel at all, did it?

23 A This Paul's article?

24 Q Yeah:

25 A It's all about hierarchy of effect models.

1 Q Can you answer my question, please?

2 A I am answering it.

3 Q It does not mention the purchase funnel; isn't
4 that right?

5 A That's not right.

6 Q You believe it does mention the purchase funnel?

7 A I'm explaining to you.

8 Q Listen to my question.

9 As you sit here today, sir, do you believe that
10 the Paul's article has the words "purchase funnel" in it?

11 MS. MADDOX: Objection, Your Honor.

12 THE COURT: Hang on.

13 That's a different question than "mentions."

14 So does it have the words "purchase funnel" in it,
15 to your recollection?

16 THE WITNESS: Your Honor, I don't recall that, but
17 I just want to clarify the hierarchy of effects models --

18 THE COURT: Okay.

19 THE WITNESS: -- is basically the idea of a
20 purchase funnel because it's a hierarchy of these stages.

21 THE COURT: Okay.

22 BY MR. SOMMER:

23 Q You also listed two more books from the past five
24 years in your list of materials relied on. That's the
25 Chernev and Grewal books, correct?

1 A Yes.

2 Q Will you agree that neither of these books discuss
3 digital ad formats and how they interact with the purchase
4 funnel?

5 Will you agree with that?

6 A I do not recall at this time.

7 Q Dr. Bucklin then filed his own rebuttal report.
8 Do you remember that?

9 A Yes.

10 Q And he again took issue with your view of how
11 different types of digital ad formats relate to the
12 historical purchase funnel, correct?

13 Do you remember that?

14 A Yeah. I mean, I don't remember exactly what
15 he said in each report, but I generally remember that.

16 Q Okay.

17 And so you prepared a third report. This one was
18 called a reply report, correct?

19 A Yes.

20 Q And you had again, attached a list of materials
21 relied upon. And if you flip forward, that's at DX3064 in
22 your binder.

23 A Yes.

24 Q Okay.

25 You cited three additional academic articles

1 during the past five years, Gordon, Arador, and Sawhney,
2 correct?

3 A Yes.

4 Q And will you please confirm for the Court that not
5 one of these academic articles said a single word about the
6 purchase funnel?

7 A I cannot be sure at this time. I don't remember
8 these papers word by word.

9 Q And as for scholarly books, you did not list any
10 additional sources, correct?

11 A That's right.

12 Q Okay.

13 Let me then turn to the purchase funnel as you
14 used it, and I want to make sure I understand your view of
15 how it's relevant to your analysis in this case, okay?

16 MR. SOMMER: Can we bring up page -- paragraph 86
17 of Dr. Jerath's opening report.

18 MS. MADDOX: Your Honor, is this a particular --
19 do we have copies of this or --

20 MR. SOMMER: They're in the binder. Sorry.

21 MS. MADDOX: Thank you. 3209.

22 BY MR. SOMMER:

23 Q If you need to look at the hard copy, it's in your
24 binder at 3209. But I think we're going to try to put stuff
25 up on the screen or whatever you're more comfortable with.

1 You ready?

2 A Yeah, I'm ready.

3 Q Okay.

4 So in paragraph 86, we see in the second
5 sentence -- well, I'll start right at the beginning.

6 "As discussed earlier, different advertising
7 channels serve different purposes. Therefore, one can
8 create a mapping between marketing goals at funnel stages
9 and the types of advertising that can be best used to
10 achieve each goal.

11 Do you that language?

12 A I do.

13 Q And let me make sure I understand the word
14 "mapping."

15 What you're doing here is you've taken the
16 funnel -- are you with me so far? -- and then you're
17 identifying each ad format and where it best goes on the
18 funnel; is that fair?

19 A That's fair.

20 Q Okay.

21 And then if we go to paragraph 145 of your report,
22 let's see if we can just get that one paragraph up because
23 it goes from one page to the next.

24 What we see here, again, "The idea of full-funnel
25 marketing" -- do you see where that is?

1 "The idea of full-funnel marketing inherently
2 contemplates that different advertising channels are not
3 interchangeable from an advertiser's point of view and,
4 instead, work at different stages of the purchase funnel."

5 Do you see that?

6 A I do.

7 Q Okay.

8 And if I'm understanding, again, your approach
9 here, your opinion is that ad -- from -- withdrawn.

10 Your opinion is, from an advertiser's point of
11 view, ad formats that are at different levels of the funnel
12 are not interchangeable for one another, correct?

13 A So --

14 Q Can you answer that "yes" or "no"?

15 A I believe you're putting words into my mouth.

16 THE COURT: Hang on. Let's -- sometimes it can be
17 answered "yes"; sometimes it can be answered "no."

18 Let him answer your question.

19 BY MR. SOMMER:

20 Q Let me try one more time.

21 In paragraph 145, you're focusing on the
22 advertiser's point of view, correct?

23 A I am.

24 Q And is it your opinion that if ad formats are
25 mapped in at different levels of the funnel, then from an

1 advertiser's point of view, they are not interchangeable?

2 A I think the word "mapped" has to be explained.

3 I use it as more suited and effective. And, yes,
4 they're not interchangeable, yes.

5 Q Okay. Yes. Thank you.

6 And the logical converse of that is from an
7 advertiser's point of view, ad formats that are at the same
8 level of the funnel would be interchangeable, correct?

9 A Not necessarily, because I'm not making an
10 if-and-only-if statement.

11 But, in general, ad channels that are -- if I'm
12 mapping them with the same level of the funnel, they're more
13 interchangeable than with those that are at different levels
14 of the funnel.

15 Q Good.

16 And if that wasn't -- if ad formats at the same
17 level of the funnel were not interchangeable, then that
18 would render the whole purpose of the funnel irrelevant,
19 wouldn't it? And I can explain what I mean by that if you'd
20 like.

21 A I think I understand.

22 But interchangeable is, there's degree of
23 interchangeability.

24 So they're more interchangeable if they're the
25 same level of the funnel. And they're less interchangeable

1 if they're at different levels of the funnel. That's what
2 I'm saying.

3 Q Let me explain what I was driving at.

4 If ad formats are not interchangeable when they're
5 at different levels of the funnel but they're also not
6 interchangeable at the same level of the funnel, then the
7 funnel as a construct in evaluating ad formats is pointless,
8 isn't it?

9 A No, I don't agree with that.

10 Q The purpose of map -- your mapping was to situate
11 each format at the level of the funnel that -- from an
12 advertiser's point of view, could best achieve its
13 objectives, correct?

14 A Best achieve is the main idea here also.

15 Best achieve is an important phrase, and I call it
16 as most suited and effective.

17 Q I'm not sure I got an answer to my question. Let
18 me try one more time.

19 The point of your mapping and putting ad formats
20 at different levels of the funnel was that was your view
21 from -- of an advertiser's point of view of where that ad
22 format would be most beneficial or effective, correct?

23 A Yes, most suited and effective is how I --

24 Q I'm sorry?

25 A Most suited and effective is what I call.

1 Q Most suited. Okay. Thank you. I'll try to
2 remember that.

3 And -- okay.

4 And by interchangeable, you put -- you read the
5 testimony in court of Joshua Lowcock. Do you remember that?

6 A I remember that.

7 Q Okay.

8 You put up several slides of his testimony?

9 A Yes.

10 Q Let me put up one.

11 This is DX14.006 in the demonstrative binder.

12 You used the word "interchangeable."

13 Mr. Lowcock used the word "substitutable."

14 You see his definition on the screen, correct?

15 A Yes, I do.

16 Q And would that also be a fair definition of your
17 use of the word interchangeable?

18 A No.

19 MS. MADDUX: Objection, Your Honor, to the extent
20 this is only a piece of the testimony.

21 Mr. Lowcock was subsequently asked about this
22 exact piece later in the transcript, and that's not
23 reflected here on this slide.

24 THE COURT: Okay.

25 I mean, he can answer based upon the portion that

1 is up on the screen and he was about to answer.

2 BY MR. SOMMER:

3 Q I can ask it in a much simpler way.

4 Can you define interchangeable for me?

5 A So interchangeable means that you wanted to
6 achieve one goal. Interchangeability I'm talking about in
7 the context of goals to be achieved from the campaign. That
8 if you wanted to achieve one goal with a particular ad
9 channel, can you also achieve a different goal with that ad
10 channel sort of with the same suitability, more suitable and
11 effective is what I'm using. So with that in mind, can you
12 also use a different ad channel for the same goal. That's
13 what I mean by interchangeable.

14 Q Okay. Would you agree, Dr. Jerath, that the first
15 step in this effort to do this mapping that you've described
16 is to evaluate at which level of the funnel a particular ad
17 format is best suited?

18 A Most suited and effective.

19 Q Most suited.

20 Would you agree with that?

21 A Yes.

22 Q Okay.

23 MR. SOMMER: Judge, this is a perfectly good
24 stopping time.

25 THE COURT: Okay.

1 All right. So we'll resume at 1:35.

2 Dr. Jerath, just ask you not to discuss your
3 testimony with anyone during the break.

4 Thank you, everyone.

5 COURTROOM DEPUTY: All rise.

6 THE COURT: Just hang on. Let me just talk to
7 counsel.

8 Dr. Jerath, you can just step out.

9 (Pause)

10 THE COURT: All right.

11 Mr. Sommer, I just want to get a sense of what you
12 are anticipating in the afternoon and the length of time.

13 MR. SOMMER: Fair question.

14 I think I'm halfway.

15 THE COURT: Oh, okay. All right. Good. Okay.

16 MR. SOMMER: But you've seen me in action; it
17 might be a little longer.

18 I'm hoping an hour, hour and 10 minutes, and I'll
19 be done.

20 THE COURT: Okay. That's fine.

21 MR. SOMMER: I know you want to plan for your
22 afternoon.

23 THE COURT: I'm just curious where you were in
24 your examination.

25 Okay. We'll see everybody after lunch.

1 Thank you.

2 COURTROOM DEPUTY: All rise.

3 This Court stands in recess.

4 (Recess from 12:32 p.m. to 1:35 p.m.)

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C E R T I F I C A T E

I, William P. Zaremba, RMR, CRR, certify that the foregoing is a correct transcript from the record of proceedings in the above-titled matter.

Date: October 12, 2023



William P. Zaremba, RMR, CRR

<p>BY MR. SOMMER: [22] 5496/13 5498/25 5502/21 5503/8 5509/18 5511/4 5513/4 5513/9 5515/19 5516/22 5517/16 5519/20 5520/25 5521/14 5524/24 5527/18 5538/4 5540/17 5542/22 5544/22 5546/19 5550/2</p> <p>BY MS. MADDOX: [19] 5428/7 5430/12 5435/25 5439/25 5442/4 5452/12 5453/11 5458/12 5462/10 5463/25 5465/12 5465/24 5466/20 5468/5 5471/13 5479/12 5482/9 5483/15 5490/2</p> <p>COURTROOM DEPUTY: [5] 5427/2 5495/23 5496/1 5551/5 5552/2</p> <p>MR. CAVANAUGH: [2] 5427/17 5496/8</p> <p>MR. DINTZER: [1] 5427/15</p> <p>MR. SCHMIDTLEIN: [1] 5427/18</p> <p>MR. SOMMER: [23] 5429/19 5430/5 5464/15 5464/23 5502/20 5503/2 5503/6 5509/17 5510/25 5511/3 5513/7 5520/20 5520/23 5521/9 5521/13 5527/15 5540/16 5544/16 5544/20 5550/23 5551/13 5551/16 5551/21</p> <p>MS. MADDOX: [25] 5427/20 5429/24 5439/22 5458/6 5464/20 5465/9 5465/20 5467/23 5483/10 5483/14 5495/17 5498/20 5502/18 5510/22 5511/1 5516/21 5519/13 5519/16 5520/17 5520/22 5521/12 5542/11 5544/18 5544/21 5549/19</p> <p>THE COURT: [63] 5427/11 5427/19 5427/21 5430/8 5434/25 5435/7 5435/12 5435/16 5435/20 5440/20 5441/6 5441/19 5441/24 5442/2 5451/15 5452/25</p>	<p>5453/3 5459/7 5461/16 5462/9 5463/18 5464/25 5466/4 5466/7 5466/15 5466/19 5468/4 5470/2 5470/7 5479/4 5481/23 5483/13 5488/16 5489/11 5490/1 5495/20 5496/3 5496/9 5498/21 5502/19 5503/1 5503/3 5512/25 5513/8 5514/4 5519/12 5519/15 5519/17 5521/5 5524/22 5538/2 5540/15 5542/12 5542/18 5542/21 5546/16 5549/24 5550/25 5551/6 5551/10 5551/15 5551/20 5551/23</p> <p>THE WITNESS: [31] 5435/5 5435/8 5435/15 5435/17 5435/21 5440/22 5441/9 5441/23 5441/25 5442/3 5451/17 5453/2 5453/4 5459/18 5461/19 5463/20 5465/23 5466/6 5466/11 5466/16 5470/3 5470/19 5479/8 5482/3 5488/20 5489/16 5513/1 5514/7 5538/3 5542/16 5542/19</p>	<p>5551/18 10,000 [2] 5431/12 5431/22 100 [2] 5460/22 5531/21 100 percent [1] 5470/13 10019 [1] 5425/8 10036-6710 [1] 5424/19 1100 [1] 5424/3 1133 [1] 5424/18 11:00 [1] 5483/11 11:04 [1] 5495/25 11:05 [1] 5495/22 11:20 [1] 5495/22 11:21 [1] 5495/25 12 [2] 5423/5 5553/7 120 [3] 5532/1 5532/5 5532/7 12:32 [1] 5552/4 13 [1] 5438/17 1300 [1] 5424/13 1301 [1] 5425/7 14 [1] 5439/2 14.003 [1] 5531/16 145 [2] 5545/21 5546/21 15 [1] 5497/23 150 [1] 5451/13 17 [1] 5439/23 18 [2] 5473/19 5473/21 19 [1] 5444/5 1900 [1] 5532/1 1:35 [2] 5551/1 5552/4</p>	<p>5521/23 5523/3 5530/12 2022 [3] 5429/16 5533/19 5533/22 2023 [2] 5423/5 5553/7 2024 [1] 5534/3 20530 [1] 5424/8 21 [2] 5423/7 5449/16 212 [2] 5424/19 5425/8 22 [1] 5450/16 2200 [1] 5424/18 25 [2] 5453/12 5454/11 26 [1] 5474/24 27 [1] 5458/7 2793 [1] 5424/19 28 [6] 5454/7 5454/8 5471/21 5491/22 5503/23 5506/19</p>	<p>60 to [1] 5512/22 6000 [1] 5424/15 6710 [1] 5424/19 680 [1] 5425/3</p> <p>7</p> <p>70 [1] 5461/4 7155 [1] 5424/8 720 [1] 5424/15 7728 [1] 5425/8 7th [1] 5424/14</p> <p>8</p> <p>80203 [1] 5424/14 86 [2] 5544/16 5545/4</p> <p>9</p> <p>90 [5] 5486/19 5487/2 5491/2 5512/22 5513/2 9:30 [1] 5423/6</p> <p>A</p> <p>a.m [3] 5423/6 5495/25 5495/25 ability [12] 5448/25 5462/22 5468/12 5474/4 5477/16 5477/24 5478/12 5478/17 5481/3 5481/4 5482/11 5520/11 able [11] 5445/5 5445/8 5446/15 5447/12 5453/19 5453/21 5456/2 5456/13 5456/15 5490/17 5504/10 about [108] 5427/21 5429/9 5429/17 5429/21 5430/14 5431/18 5431/20 5432/3 5435/8 5441/13 5443/9 5447/6 5447/25 5448/8 5452/18 5452/19 5453/19 5454/24 5457/16 5459/7 5459/8 5461/6 5464/25 5465/16 5467/1 5467/1 5467/18 5469/19 5470/4 5470/20 5471/1 5471/2 5471/21 5473/5 5473/11 5474/3 5474/10 5475/10 5475/11 5475/14 5475/21 5477/5 5477/16 5477/20 5478/25 5479/15 5479/16 5479/17 5480/4 5480/8 5480/9 5480/21 5480/21 5482/18 5483/21 5485/17 5488/22 5490/16 5490/21 5492/13 5494/18 5495/21 5497/10 5499/14 5499/14 5499/15 5499/25 5500/3 5500/15 5500/21 5501/4</p>
<p>\$</p> <p>\$100 [2] 5460/18 5460/19 \$15 [1] 5534/2 \$150 [1] 5534/2 \$30 [1] 5461/2 \$300 [1] 5534/3</p> <p>'</p> <p>'20 [1] 5536/7 '21 [1] 5536/7 '22 [1] 5536/7 '23 [1] 5536/8 'mortgage [1] 5511/12 'rates' [1] 5511/13 'reverse [2] 5511/19 5511/21</p> <p>.</p> <p>.01 [1] 5431/10 .1 [1] 5431/10</p> <p>0</p> <p>0340 [1] 5424/4</p> <p>1</p> <p>1,000 [2] 5431/11 5431/22 1-cause [1] 5474/19 1-click [2] 5474/13 5474/20 10 [5] 5436/3 5485/4 5497/23 5533/13</p>	<p>\$</p> <p>\$100 [2] 5460/18 5460/19 \$15 [1] 5534/2 \$150 [1] 5534/2 \$30 [1] 5461/2 \$300 [1] 5534/3</p> <p>'</p> <p>'20 [1] 5536/7 '21 [1] 5536/7 '22 [1] 5536/7 '23 [1] 5536/8 'mortgage [1] 5511/12 'rates' [1] 5511/13 'reverse [2] 5511/19 5511/21</p> <p>.</p> <p>.01 [1] 5431/10 .1 [1] 5431/10</p> <p>0</p> <p>0340 [1] 5424/4</p> <p>1</p> <p>1,000 [2] 5431/11 5431/22 1-cause [1] 5474/19 1-click [2] 5474/13 5474/20 10 [5] 5436/3 5485/4 5497/23 5533/13</p>	<p>2</p> <p>20 [3] 5431/21 5491/20 5491/22 20 percent [12] 5471/2 5471/3 5471/16 5471/19 5502/15 5502/22 5503/16 5504/15 5504/19 5505/10 5505/23 5506/16 20-3010 [2] 5423/4 5427/5 200 [1] 5431/22 20001 [1] 5425/13 20024 [1] 5425/3 2006 [1] 5534/2 2012 [1] 5478/9 2014 [4] 5478/12 5478/17 5482/12 5482/16 2017 [2] 5453/13 5453/18 2018 [1] 5521/15 2019 [1] 5536/7 202 [4] 5424/4 5424/8 5425/4 5425/13 2020 [9] 5469/23 5472/2 5473/18 5473/18 5521/15 5525/17 5525/19 5534/2 5536/17 2021 [4] 5520/3</p>	<p>3</p> <p>30 [3] 5441/19 5465/10 5528/20 30 days [1] 5512/15 30 percent [5] 5441/13 5478/25 5517/8 5517/9 5517/11 30/70 [1] 5461/4 3010 [2] 5423/4 5427/5 3062 [1] 5536/24 307-0340 [1] 5424/4 3074 [1] 5532/18 3080 [1] 5527/15 31 [1] 5465/21 32 [1] 5491/19 3209 [2] 5544/21 5544/24 3249 [1] 5425/13 333 [1] 5425/12 335-2793 [1] 5424/19 34 [1] 5468/6 354-3249 [1] 5425/13 39 [1] 5475/25</p> <p>4</p> <p>40 [2] 5431/21 5477/12 40 percent [2] 5441/13 5441/20 400 [1] 5431/22 40th [1] 5425/7 434-5000 [1] 5425/4 44 [1] 5494/9 450 [1] 5424/7 4866 [1] 5505/2 49 [1] 5529/6 497-7728 [1] 5425/8</p> <p>5</p> <p>5 percent [2] 5505/6 5505/10 5,000 [1] 5534/23 50 [2] 5530/2 5534/22 5000 [1] 5425/4 508-6000 [1] 5424/15 51 [1] 5530/22 549-7155 [1] 5424/8 5th [1] 5424/7</p> <p>6</p> <p>60 [1] 5513/2</p>	<p>60 to [1] 5512/22 6000 [1] 5424/15 6710 [1] 5424/19 680 [1] 5425/3</p> <p>7</p> <p>70 [1] 5461/4 7155 [1] 5424/8 720 [1] 5424/15 7728 [1] 5425/8 7th [1] 5424/14</p> <p>8</p> <p>80203 [1] 5424/14 86 [2] 5544/16 5545/4</p> <p>9</p> <p>90 [5] 5486/19 5487/2 5491/2 5512/22 5513/2 9:30 [1] 5423/6</p> <p>A</p> <p>a.m [3] 5423/6 5495/25 5495/25 ability [12] 5448/25 5462/22 5468/12 5474/4 5477/16 5477/24 5478/12 5478/17 5481/3 5481/4 5482/11 5520/11 able [11] 5445/5 5445/8 5446/15 5447/12 5453/19 5453/21 5456/2 5456/13 5456/15 5490/17 5504/10 about [108] 5427/21 5429/9 5429/17 5429/21 5430/14 5431/18 5431/20 5432/3 5435/8 5441/13 5443/9 5447/6 5447/25 5448/8 5452/18 5452/19 5453/19 5454/24 5457/16 5459/7 5459/8 5461/6 5464/25 5465/16 5467/1 5467/1 5467/18 5469/19 5470/4 5470/20 5471/1 5471/2 5471/21 5473/5 5473/11 5474/3 5474/10 5475/10 5475/11 5475/14 5475/21 5477/5 5477/16 5477/20 5478/25 5479/15 5479/16 5479/17 5480/4 5480/8 5480/9 5480/21 5480/21 5482/18 5483/21 5485/17 5488/22 5490/16 5490/21 5492/13 5494/18 5495/21 5497/10 5499/14 5499/14 5499/15 5499/25 5500/3 5500/15 5500/21 5501/4</p>

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