IN THE UNITED STATES DISTRICT COURT 1 FOR THE DISTRICT OF COLUMBIA 2 3 UNITED STATES OF AMERICA, Civil Action et al., 4 No. 1:20-cv-3010 Plaintiffs, 5 Washington, DC vs. November 2, 2023 6 GOOGLE, LLC, 1:32 p.m. 7 Defendant. Day 33 Afternoon Session 8 9 10 TRANSCRIPT OF BENCH TRIAL BEFORE THE HONORABLE AMIT P. MEHTA 11 UNITED STATES DISTRICT JUDGE 12 **APPEARANCES:** 13 For DOJ Plaintiffs: KENNETH DINTZER 14 U.S. Department of Justice 1100 L Street, NW 15 Washington, DC 20005 16 MEAGAN BELLSHAW U.S. Department of Justice 17 450 Fifth Street, NW Washington, DC 20001 18 DAVID DAHLQUIST 19 U.S Department of Justice 209 South LaSalle Street, Suite 600 20 Chicago, IL 60604 21 For Plaintiffs State of Colorado & 22 State of Nebraska: WILLIAM CAVANAUGH, JR. Patterson, Belknap, Webb & Tyler, LLP 23 1133 Avenue of the Americas #2200 Suite 2200 24 New York, NY 10036 25

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1	PROCEEDINGS
2	THE COURT: Welcome back everybody. Mr. Sommer, ready
3	when you are.
4	CONTINUED DIRECT EXAMINATION OF MARK ISRAEL
5	BY MR. SOMMER:
6	Q. Thank you, Judge.
7	Welcome back, Dr. Israel.
8	A. Thank you.
9	Q. We were about to move on a little deeper on to
10	substitution, and I was up to slide 72. So let's get that
11	up, let's see if I can get it up. There it is, 72.
12	Can you describe to the Court the concepts you're
13	addressing in this slide, please.
14	A. Yeah, so as I mentioned earlier, I'm going to try to
15	present the evidence that I've been able to review and
16	develop on substitution between ad formats, as we talked
17	about. So there's really three forms of evidence that I'll
18	go through. The first one and you had asked about
19	empirical studies before, and I'll come to that. As I said,
20	tried to make what you know, what's possible of the
21	empirical evidence in the record. There's only so much of
22	it, though. And so the first thing I've done is look at what
23	the people in the marketplace are doing, particularly the
24	people who are providing tools, who are serving the needs of
25	advertisers under the logic that if they're investing in and

providing tools to help people substitute across channels, that indicates that there's an important demand for that, and that's something people want to do.

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So I'll look at the tools, then I'll go to the empirical 4 5 evidence that's available. And then I'll spend a fair bit of time on what Professor Whinston presented as his three main 6 7 factors that he is -- affecting the substitutability of ad products. And I'll describe why my conclusion from his 8 9 factors, as well as my own, is that there's greater 10 substitution between Google search ads and other formats than 11 between Google search ads and other general search ads.

Q. All right. Let's start with the tools that you mentioned. Performance Max, is that one of them?

14 A. Yeah, so this is -- this slide has a description of 15 the Performance Max offering from Google. So just to take a 16 step back -- and I'm sure you know much of this, but I 17 mentioned Google Ads earlier, right. So Google Ads is the 18 native interface through which people buy Google search ads. 19 So there's an auction running in the background, but 20 generally advertisers work through Google Ads to submit their 21 campaigns and their bidding strategies and so on. So you can 22 submit various -- advertisers can come to Google and submit 23 various campaigns.

In a recent development at Google -- which I think you'veheard about, which is their fastest growing campaign form is

1 called Performance Max. And the key feature of Performance Max is that it explicitly -- you don't set a search campaign 2 or a PLA campaign or a display campaign separately. You tell 3 it your goals, you give it a budget, and it uses AI 4 5 effectively to shift your budget across channels in order to maximize return. So this is saying it will optimize 6 7 performance in realtime across channels. If you have a CPA, which is cost per action, or a return on an advertising spend 8 9 target, it will do that for you. So Google is providing a 10 tool that explicitly doesn't separate between display, 11 search, PLA; it optimizes across them.

12 Q. And did you see testimony from Dr. Raghavan that also13 addressed this issue?

A. Right. And he was clear, using the sort of same
logic I've been describing, an advertiser comes in with a
budget, and Google figures out where to put money in that
budget in order to maximize their return on ad spend.

18 Q. Is Google the only ad platform that offers an ad19 optimization tool like Performance Max?

A. Definitely not. So on the next slide, we see
Microsoft has a similar, although in some ways broader,
offering. So Microsoft offers something called Smart
Campaigns. Interestingly, Microsoft -- the name of
Microsoft's sort of technology that manages these is also
called Performance Max. But it's Smart Campaigns, it's the

same idea: Automatically optimize your budget for the best
performance. One interesting notable difference is Google
Ads is doing this across Google stuff, Google search. Google
also has a display network of display ads. Google is
optimizing across those. Microsoft is explicitly optimizing
across its own Bing search ads, also Google Ads, also
Facebook and Instagram.

8 So you give Microsoft a campaign, and it will optimize
9 your budget across those. So it's explicitly considering how
10 to move money across channels.

11 Q. Are these ad platforms the only tools out there or12 are there others?

13 There's lots of others. The ones that I just Α. 14 described are native to Google and Microsoft, so Google and 15 Microsoft offer them. Probably the place that I think you 16 see this the most -- or certainly one of the most, is with 17 advertising agencies. It's a lot of what advertising 18 agencies are doing for their advertising clients, is helping 19 them optimize -- move money between channels. And so the 20 next couple documents are from an advertising agency, IPG --21 there's been a witness from them. And then Reprise is a part 22 of IPG that manages some of these technologies.

So on slide 75, we see IPG/Reprise has something called
optimization engine. It's a realtime budget optimizer. It
mentions that it looks across channels: display, video,

1 search, social, OTT -- which is over-the-top video, connected 2 television and so on. And it says -- it recommends budget reallocations away from underperforming channels to 3 outperforming channels for more impactful business outcomes 4 5 and better ROI versus in-channel optimization only. So it's sort of a clear description of this move money to where the 6 7 ROI is higher. Q. And with that same company, IPG/Reprise, that's 8 9 featured on the next slide as well? 10 Right. So they have a guide to paid search reporting Α. 11 and optimization, a publication from the same company. And 12 they indicate, again, measuring the performance across 13 multiple channels. The highlighted part says: "As an 14 example, if paid social is performing well within the target 15 ROI but paid search is not, then we may recommend moving the 16 budget to ensure we spend in the most efficient channel." 17 And Dr. Israel, is IPG the only ad agency that offers Q. 18 advertisers these types of optimization tools? 19 Α. Definitely not. 20 And did you see testimony from Mr. Lowcock from IPG Q. who testified at this trial? 21 22 Yes. He said every agency or every significantly Α. 23 sized agency that he's aware of has such tools. That's also 24 my experience in the industry. Agencies have to compete for 25 the business of advertisers, so they basically have to offer

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1	them these tools or they won't be effective in maximizing
2	returns.
3	${f Q}.$ So you've mentioned the platforms have tools, the ad
4	agencies have tools. Are there other optimization tools out
5	there as well?
6	A. There's a variety of firms, sort of third-party
7	tools, that work with the agencies often or work with the
8	advertisers to help them with this sort of function.
9	Q. So on slide 78
10	A. So Nexoya is an example of a company that provides
11	these services. They provide a budget optimizer. Their
12	statement is: "Optimize your digital ad spend with automated
13	cross-channel portfolio management."
14	${f Q}$. And then we see one from a company called Grid
15	Dynamics?
16	A. Right. And I think maybe, yeah, if we theirs
17	says the same: "Optimally allocate budgets across marketing
18	channels. Measure the true contribution of each channel."
19	So it's another similar service.
20	Q. And there's also one from ChannelMix?
21	A. ChannelMix. Again, theirs talked about protecting
22	optimal media mix, protect budgets and reduce wasted spend.
23	You know, all of these are evidence of what the service
24	that's being provided, invested in and demanded is taking
25	advertising budget and move money around between channels to

1 optimize return, you know, with specific language about 2 moving money from underperforming to overperforming channels. 3 What about Google itself, have you seen documents Q. showing whether it uses ROI to make its own ad buying 4 decisions? 5 Yes. I mean, Google's an ad buyer, so Google as a 6 Α. 7 seller is moving money around to generate returns. What's on here is actually work that I've done from Google's data, 8 9 which is just here making the simple point that this is 10 Google advertising for the Play Store. So you can -- they'll 11 say sign up for the Play Store to get music or to use the 12 Play Store for apps or whatever, they advertise that in

various ways. And so this is just showing that over time,

channels is varying quite a bit. As the bullets say, it's

the proportion of the money they're spending across different

between zero on search and 55 percent on search; and display,

17 between 25 and 85.
18 Now, again, this is -- Google's doing this for a variety
19 of reasons; to be clear, they're optimizing over time. But
20 it clearly shows that as far as the mix in their budget, it's
21 not like search always get a certain percentage. These are
22 fluid movements across channel.

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Q. Have you found any other evidence in the record that
advertisers shift between search and other forms of
advertising?

1 So this is an attempt to find in the record Α. Yes. 2 where I could find a place to do an empirical study of my 3 own. As I said, there's limited places where I have data on 4 the ROI or the price and the ad movement such that you can 5 actually do econometrics. I don't think plaintiffs' experts have done it. There's limited places where there's 6 7 sufficient data. What I looked at here was one example. So you may recall in the basically early fall -- late summer, 8 9 early fall of 2020, there were some advertisers who boycotted 10 Facebook, boycotted Meta in response to some of Meta's 11 policies. Most of those boycotts were very short, so most of 12 them in the data were less than a month, really no time to 13 study.

14 The one example where there was a sustained boycott 15 longer was Nike. So Nike boycotted Facebook, got rid of all 16 spending on Facebook for July, August and September of 2020. 17 So the way that I think about that is it's effectively like 18 Facebook saw a large decrease in the ROI -- or Nike saw a 19 large decrease in the ROI on Facebook, right -- or a decrease 20 in quality, however you want to think about it, a large 21 increase in price, it's equivalent to that, enough that they 22 eliminated all spending on Meta, on Facebook for three 23 months. Now, that's a large decrease at Meta, but what it 24 does is let me see where that money went to. 25 And so what we see -- you know, I did my own empirical

1 work here, but honestly, the clearest statements come from 2 Nike documents themselves. Nike says: "When we paused, we 3 reallocated most of our social investment in display and search." They indicate they looked at other social 4 5 investment options that they didn't find as attractive, and they reallocated their money to display and search. And then 6 7 they indicated that after relaunch of the budget allocation, the percentages have generally shifted back. And I'll talk 8 9 about the empirical work I did and what I have controlled 10 for, but honestly, the cleanest statement of this is Nike's 11 overall summary here. Above the summary, they have some sort 12 of one-week snapshots. Those are just certain weeks during 13 the time period. But their summary, as a whole, is: "We 14 reallocated most of our social investment in display and 15 search." 16 So, again, the way I would think about this is 17 effectively a large price increase on ads at Meta. 18 Advertising flowed out of Facebook, and it went to display 19 and search, showing substitution across channel. 20 Professor Whinston addressed this boycott as well in 0. 21 his testimony, if my memory is right? 22 I'm not sure I recall. Α. 23 Q. In his report, okay. 24 Α. But I've done some empirical work that I'd be happy 25 to talk about on it.

Q. Well, is there anything we should glean from this particular chart?

3 So we can -- this is my look at the data. So it's Α. just on the right-hand side of that main slide. So it's a 4 little hard -- it's me actually not just going to the Nike 5 document, but doing some data work where I could. So if you 6 7 look at the dashed purple line, that's Nike's spending on advertising at Meta. So you see it coming along, coming 8 along, and then for that three-month period, from July of 9 10 2020 through September of 2020, it goes to zero.

And then what you see happen in response, you see three lines spike up. So non Meta social goes up a little bit, display come up a lot for sure, and social -- and search goes up a lot. So you see the money being reallocated, some within the social channel, but obviously a lot of it to search and to display. Given what their options were, they found that re-optimization to be optimal.

I also, on the next slide, I think, described -THE COURT: I'm sorry to interrupt. So why wouldn't this
be an example of the cellophane fallacy? Can you justify or
establish that the ROI that they got back from these
substitutes was similar? I mean, in other words, just
because they stopped and substituted doesn't mean that these
were adequate substitutes.

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THE WITNESS: Yeah, I guess I would say two things. One,

1 in the document, it refers to the performance generally being 2 good. Although, I don't want to say I recall they said exactly the same, but that generally being satisfied. But I 3 think what I would say to that is it certainly is a big 4 change for Meta itself. But that was just for Facebook, 5 right. So even -- I don't think it's cellophane, because 6 7 cellophane would say all the other substitutes that are out there are basically gone because you've monopolized, so you 8 9 have to find some really distant substitute. This is saying 10 there was a change in just that one platform, just at 11 Facebook. The other substitutes in the market are what they 12 are in the market. So we're seeing where it diverts to given 13 that one particular provider went way down. 14 So where I would see cellophane is if Facebook had 15 successfully squished everybody else. And so you saw 16 something like Facebook went down and so they started 17 advertising on TV or something, right, because the other 18 digital options were all gone. But here, it's one particular 19 digital provider got -- made bad, and we see what other 20 digital options that they went to. And some of it was to 21 other social, but they didn't see those options as attractive in the market as shifting a lot of it to search and to 22 23 display.

24 BY MR. SOMMER:

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Q. On the next slide in this series, we see three bullet

1	points up at the top
2	A. Right.
3	Q. on slide 86?
4	A. Yes. So that's I mean, those bullet points are
5	sort of my summary of what we would take away from this, that
6	there was a big increase in price, effectively a big loss of
7	purchasing at Meta, at one platform. Nike reallocated, they
8	switched a little bit inside the social channel. But they
9	found the options that were available at search and display
10	to be more attractive, and so they switched to search and
11	display in larger portions.
12	${f Q}$. Did you do some additional empirical work on this
13	study, this particular study of Nike?
14	A. I also did a regression analysis. The results of the
15	regression analysis are shown here in very simple bar chart
16	form. But basically what the regression analysis did, it's
17	statistical analysis that asked for every penny or every
18	dollar, say, that went away in Facebook advertising. So it
19	predicted search advertising as a function of advertising on
20	Facebook. And it says when the Facebook advertising went
21	away during the boycott, how much did the search advertising
22	go up; controlling for seasonality, COVID, things like that
23	in the regression.
24	And there's two results that I got here. My basic result

that I did first was to -- was 31 cents. So for every dollar

of reduction in Facebook advertising, 31 cents went to 1 2 search. Then Professor Whinston actually suggested looking at time trends in the data, and whether there were trends 3 that would affect things, so I did that in the second bar. 4 What I did was be careful to control for the time trend that 5 6 existed before the boycott separately from the time trend 7 after the boycott. So I put in time trends for before, and a 8 time trend that started in the holiday season after. And 9 then I got result of -- with the time trend control, the 10 result went up finding a dollar reduction in Facebook led to 11 47 cents increase in search. But, again, that was 12 controlling for these sort of before and after time trends as 13 an additional check.

Q. Dr. Israel, Professor Whinston testified that he
believes advertisers do not substitute between different ad
formats.

17 Can you explain your understanding of his view, and your18 reaction to his view?

A. Yeah, what I heard him say -- and this is his slide
that's up here now. So in his slide, he presented -- I mean,
you were here obviously, this is his slide. He presented a
number of factors that affect the substitutability of ad
products. But then he was clear in his testimony that he
thought there were -- the top three were very important, so
he focused on what he called the top three factors that

affect substitution. So what I've done in slides -- many slides coming after this is really dig into those top three factors, and explain why I think a proper interpretation of them says that there actually is a lot of substitution. In fact, arguably, stronger substitution between Google and other channels than between Google and Bing, for example.

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So also the three factors that he focused on were: The role in consumers' purchase journeys, the characteristics of the audiences and the degree to which they overlap, and the degree to which ads can be effectively targeted. So what I want to do is go through those three factors and explain why Professor Whinston's factors actually support a lot of substitution.

14 Q. Let's go slightly out of order and start with factor 15 number two, and explain to the Court why you're starting with 16 factor two.

17 So Professor Whinston and I certainly agree on factor Α. 18 number two, and agree -- I mean, this is prominent in the 19 economic literature, that for two ads -- or two ad channels, 20 two ad types to be substitutes for one another, they have to 21 allow the advertiser to reach overlapping audiences. And Professor Whinston talked about this at some length. I think 22 23 I have a quote from him, and I'll give my own logic on it. 24 But the basic idea is, if we're thinking about 25 substitution, if one ad channel gets worse, what I've lost is

the ability to target certain people who were -- I could find through that ad channel. I've lost the ability to get certain consumers who might have been purchasing. So what that's going to make more attractive is other channels that let me reach those same people, right, because suddenly I need a new way to reach those individuals. So that's -- I agree this is a very important factor.

As I say next -- I mean, my view is this is the most 8 9 important factor, although I'll talk about the others. I 10 think that's consistent with the economic literature as well, 11 that audience overlap is a driving force of advertiser 12 substitution. And the reason is, if you think about the 13 other two factors, the role in the purchase journey, where it 14 is in the journey -- I'll talk about that one, and that can 15 matter. But if there's not strong audience overlap, then 16 you're reaching different purchase journeys, the journeys of 17 different people.

18 And effective targeting, if you don't have good audience 19 overlap, you're targeting different people. So really, the 20 kind of meat, the substance of it here is what lets me get to 21 the same individuals. If I lose access or reduce access at 22 one channel, I want a channel that lets me find those same 23 people so I don't miss out on their spending.

24 Q. You mentioned that Professor Whinston testified on25 this point. Is that what's depicted in slide 90?

1 Yes. So Professor Whinston -- I mean, I agree with Α. 2 this statement from him. He gave this example of if I want 3 to reach Ms. Smith, if I don't reach her in the New York 4 Times and the price went up, I can go to Sports Illustrated. 5 But if the audiences at the New York Times and Sports Illustrated are separate, then maybe they're attractive to 6 7 advertise in, maybe they're not, but they're not substitute 8 ways to reach Ms. Smith. And so the fact that I don't use 9 the New York Times -- obviously it would apply to people 10 generally and not just Ms. Smith. But if they don't have 11 overlapping audiences, then the loss of the New York Times 12 wouldn't make the Sports Illustrated more attractive because 13 it wouldn't be reaching the same people.

14 Q. And I guess you have an example of that in your next15 slide?

16 Yeah, so the cleanest example you would have of this Α. 17 would be advertising in different cities, right. So if I'm 18 advertising in -- thinking about an advertisement in Kansas 19 City and an advertisement in Cleveland, even if it's exactly 20 the same advertisement with all the same other brown shoe 21 factors of market definition, it's the same ad, those are 22 different cities with different people. Those ads aren't substitutes for each other. Whereas if I'm advertising and 23 24 I'm running two ads inside Cleveland, even if one's a radio 25 ad and one's a newspaper ad, those aren't perfect

substitutes, but they're substitutes to some degree because I can reach the same people.

In this case, because it's digital targeting and we talk a lot about point in the purchase journey, what's really going to matter the most is what formats let me reach the same people within roughly the same time, right. So if I wasn't going to advertise one, so I miss out on someone who was interested in shoes, how else can I find that same person on the internet. That's really the question.

So the punch line ultimately is going to be that there's 10 11 not much at all audience overlap between Google and Bing. So 12 Google and Bing are kind of like Kansas City and Cleveland, 13 although not that extreme. I'm not saying they're totally 14 separate, but they're really different sets of people. So on 15 this very important, probably most important, dimension, 16 they're not close substitutes. But I'll go through more on 17 that.

18 Q. Let's return to empirical evidence. Have you done19 some empirical analysis on audience overlaps?

A. Yes.

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Q. Let's go to the next slide. What do we see here?
A. So this is -- back to using the Google panels data
that we talked about before. Here, in order to get a close
time period but somewhat more time, I look at what's called a
session in the Google panels data. We talked about visits

before. You could look at that here. The numbers would go down some, but the pattern would be similar. But if you look in a session, a session is defined as -- remember, we said visits where you go and then it's a five-minute break. In a session, it's a 30-minute break. So you're putting together a little more activity.

7 So what I ask is for anyone who used Google search during a session, what other platforms were they also found on in 8 9 that same session. So that's exactly the sort of 10 close-in-time audience overlap question. So if they were 11 found on Google search, where else could you find them. And 12 what you'll see here is that, perhaps probably intuitively, 13 relatively few of them -- very few of them were also on 14 Microsoft Bing or DuckDuckGo, they're not using both general 15 search engines. They sort of don't really have a need to, 16 and I'll talk more about that.

17 Interestingly, I think here a few more of them can be 18 found on Yahoo! search, which starts to go to the intuition. 19 I don't know if you've used Yahoo! search at all lately, but 20 Yahoo! search has a search bar, but it also has kind of a 21 bunch of news and stuff on the page. So there's a little 22 more overlap there, because the person -- they can get search 23 from Yahoo!, but they can get more. So there's more reason 24 for them to overlap.

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And then if you go to Amazon or Meta, you see enormous

1 overlap. So if you're not -- if you're missing out on 2 somebody on Google search because you're reducing your 3 advertising there, and you want to get this audience overlap 4 so you can hit that same person and hit them with your 5 message, you're just much, much more likely to find them on 6 Amazon or Meta or some non-GSE property than you are to find 7 them on Bing.

8 This is the sense in which I mean Bing and Google are not 9 as extreme as Cleveland and Kansas City. I don't want to say 10 there's none or they're in totally different -- they're in 11 different markets, I'm not saying that. I'm just saying that 12 Amazon and Meta are better places to find that audience 13 overlap.

14 Q. Did Professor Whinston address the issue of audience15 overlap in his testimony?

16 A. Yes. I mean, this was one of his points about 17 substitution. And he agreed that there's not much overlap 18 between Google and Bing. Now, he said that's true in the 19 current state, which sort of sets up this question about is 20 that a cellophane issue or something else -- which I want to 21 talk about. But as far as what's true in the data and what's 22 true in economics, it seems that Professor Whinston and I 23 agree that audience overlap is a very important dimension of 24 substitutability. And that as things stand, he even agreed 25 to the statement that the next best alternative -- right, the

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1	question was: "If I'm an advertiser, again, and I'm looking
2	for alternatives to reach the people who are on Google, my
3	next best alternative would be to advertise on Facebook or
4	Amazon, not Bing, correct?" And he agreed: "In the current
5	state, that's correct."
6	Q. And okay, let's go to the cellophane point for a
7	moment. Do you believe the audience overlap patterns that
8	you have studied in the real world present a cellophane
9	issue?
10	A. No.
11	Q. Can you explain why?
12	A. Yeah, it's on the next slide. So I think it's a good
13	question to ask here, right. I mean, as I said early on, we
14	should one thing we should do when we think about
15	cellophane fallacy in this case is test for it, and see if
16	the tests support cellophane fallacy as the issue. And so
17	that's what I've done here, I've tried to test for it, both
18	in terms of economic logic and also whatever ways I can test
19	for it in the data.
20	So does it appear and the question, again, is does it
21	appear that this fact this fact is: not much overlap
22	between who uses Google and who uses Bing, not much overlap
23	between GSEs, but lots of overlap between Google and Amazon
24	or Facebook. Is that fact driven by the conduct, by the fact
25	that Google has allegedly harmed Bing. And I find no for at

least four reasons.

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2	Number one is the audience substitution patterns are
3	driven by how people use the internet, right. So and we
4	talked about this earlier, and you asked. There's clearly
5	commission between, say, Google and Amazon for queries. But
6	as you said, Amazon also does other stuff, Google also does
7	other stuff. So there's a reason for a user to use both of
8	them. They compete for the queries, but the other stuff they
9	do means there's reason to be on both. So in one session,
10	it's not surprising to find somebody on Google and also find
11	them on Amazon; it's not surprising to find them on Google
12	and also find them on Bing.
13	If we can go to the next slide just for a second. I
14	think Professor Whinston seemed to agree with this or at
15	least he
16	Q. Can I interrupt you for one second?
17	A. Yes.
18	Q. Because I don't know if you misspoke or I misheard
19	you, but you said it wouldn't be surprising to find them both
20	on Google and Amazon, and then you gave another example.
21	What was the second
22	A. It should have been Google and Facebook.
23	${f Q}$. Okay, because I think you said Google and Bing.
24	A. It would be surprising to find them on Google and
25	Bing.

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Q. It would?

A. Yes.

Q. Sorry.

No, I probably misspoke. So Professor Whinston on 4 Α. 5 the next slide seems to agree -- and I want to spend a minute on this point. He seems to agree -- he quotes me and says: 6 7 "Common-sense that you wouldn't go to both Bing and Google." So we seem to now agree that there's not going to be a lot of 8 9 audience overlap between Google and Bing, which means they're 10 not going to be close advertising substitutes, right. What 11 he says in his reports and his testimony is -- he does a lot 12 of this in his report. He takes -- he tries to argue this 13 back to the user side -- what we talked about earlier -- and 14 say, well, that's because Google and Bing are so much alike, 15 which means on the user side they must be closest 16 substitutes, right.

17 So his argument is he seems to be agreeing that because 18 they do sort of the same thing, there's not going to be a lot 19 of audience overlap, so you're not going to find the same 20 people on the advertising side. He says aha, I think that 21 makes my point, that they must be closest substitutes on the 22 user side. And I just want to make clear, since this is the 23 time to talk about that, that I very much disagree -- and we 24 had this discussion before.

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Google -- as I said earlier, Google and Amazon, Google

and Expedia, they can compete face up for the query, they
both go after queries. They also, as you pointed out, do
some different stuff. So you're going to find people on both
of them because they do some different stuff. So somebody
could search on Google or Amazon, that's straight up
competition. But then either way, they could be on Amazon to
buy, and you can advertise to them there.

So my conclusion on this is that -- the first one is
there's no cellophane fallacy. The reason there's not a lot
of audience overlap is because Google and Bing only do the
same thing. That doesn't contradict my user point, because
Google and Amazon also do the same thing for queries, but
they both do other stuff, too, which creates a reason for a
user to use both.

Bottom line, it's not surprising that I see you on Google and Amazon for different purposes. I wouldn't expect to see a user on both Google and Bing. So Google and Bing are more like Cleveland and Kansas City, they have less audience overlap. And that's not a cellophane issue, that's just the way the internet is used.

If you can go back up -- could you go back up to my -thank you. So I said there were four answers on cellophane. That was the -- that's sort of the most fundamental one. But I want to make three other points, because I tried to test this every way I could because it's a really important point. Professor Whinston and I agree, audience overlap drives a lot of substitution. And now we seem to be agreeing that there's less between Google and Bing than between Google and other platforms. I really wanted to test this carefully.

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5 So the second reason why it doesn't seem to me to be cellophane is that even if you do it in the other direction, 6 7 if you ask for a Bing user or a DuckDuckGo user, are they more likely to also be found on Google or also to be found on 8 9 Amazon or Facebook. So Google is very large in the current 10 situation. So if this was cellophane, that it's only 11 happening because Bing is small, you wouldn't see it in the 12 other way. You wouldn't see it -- you would see lots of 13 overlap with Google.

14 But what we actually see, if we can go down two slides, 15 is the same pattern for -- this is for Bing. It's different 16 data, and I'll explain that in a second. First of all, just 17 to highlight what it's showing. On the left-hand side 18 there's desktop, on the right-hand side there's mobile -- if 19 you're down on 96. In each case, it's saying that for people who use Bing, there's more audience overlap on desktop. You 20 21 find more of them on Amazon than you find them on Google. On 22 mobile, you find more of them on Facebook than you find on 23 Google.

As I said, these are different data, because the Google
panels data I used before doesn't have -- you can't get a

hundred percent of the Bing users from the Google panel's 1 2 data. So this uses Comscore data. The overlaps are all lower, because Comscore just let's me look at an hour rather 3 4 than a session. But the pattern stays the same. If I look 5 at everyone who uses Bing and say where else can I find them, where is there audience overlap, it's bigger with Amazon on 6 7 desktop or Facebook on mobile than it is with Google. 8 If you go down one more, that's just the same story, but 9 for DuckDuckGo. If I take every DuckDuckGo user that I have 10 in the Comscore data, I find more of them on Amazon on desktop or Facebook on mobile. There's more audience overlap 11 12 with these other channels. 13 Done? Q. 14 Α. Yes. 15 Okay. Early in your testimony, I believe you used --Q. 16 you made reference to something called the circle principle. 17 Is that relevant here? 18 Α. Yes. 19 Q. Tell us what the circle principle is. 20 THE COURT: I'm sorry, can I interrupt. Just to be 21 clear, this analysis relates -- well, let me ask, does it 22 relate only to the search ads market and the search text ads 23 market or does it also include -- I'm sorry, the general 24 search market and then the general search text ads market or 25 does it also extend to the general search market?

THE WITNESS: I think it -- it should extend to all of 1 2 them. And again, just to make clear why, the audience overlap we're looking at is among users. I know we kind of 3 4 jumped back to the user side to make the point. 5 THE COURT: Right. THE WITNESS: The audience overlap is just saying if 6 7 you're looking for audience overlap, you're not going to find 8 if between two general search engines as much as you're going to find it between general search engines and Amazon or 9 10 Facebook. 11 **THE COURT:** I thought -- maybe I'm misunderstanding, but at least the DOJ plaintiffs, one of their ad markets is a 12 13 search advertising market which would include an Amazon or a 14 Facebook. 15 THE WITNESS: Oh, I see. 16 THE COURT: So in terms of thinking about different 17 audiences, the fact that a user -- excuse me, that a user is 18 on both, I'm not sure it would help with that market. **THE WITNESS:** So in terms of which one is it responsive 19 20 to. I mean, it's primarily saying there's substitution with 21 Amazon and Facebook. So in the case of Facebook, I think 22 you're right, that if there was a query done on Facebook, 23 that would be included. Obviously, the overwhelming majority 24 of advertising on Facebook is not search advertising. So if 25 you wanted to get to a user -- if you wanted to take

advantage of this audience overlap with Facebook, by far the way you do that is to do social media ads on Facebook. So this would be saying the Facebook social media platform should be in the market because it's a closer substitute.

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In the case of Amazon, this sort of goes back to the 5 point I made early on in saying they're a strong substitute 6 7 with Amazon. I agree that at least one of the three markets, one of the DOJ markets, includes search ads on Amazon. As I 8 9 said early on, it does not include product, when you go to 10 the product listing page. Those are other ways to substitute 11 on Amazon. So I think it's more making the case that all of 12 Amazon should be in. So it certainly would say you need a 13 market that includes those Amazon search ads. I think it's 14 making the case that Amazon product ads are going to be 15 closer than Bing is because they get the audience overlap. 16 And it's very much making the point that social, Facebook 17 should be in the market, because that's got more audience 18 overlap. And almost all Facebook advertising is social media 19 advertising, not search advertising.

20 THE COURT: So then what about the theory that non-search 21 ads are reaching a different audience because they are at a 22 different point in the purchase journey? I'm not going to 23 use the word funnel.

24 THE WITNESS: Honestly, I don't want to ever put off one25 of your questions, but there's really a bunch of slides on

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that coming up.

THE COURT: Great, okay.

3 THE WITNESS: I mean, as I said early on, my response at
4 this point is that they are -- they're really -- I would say
5 it slightly differently from what you said, with respect.
6 They're reaching overlapping audiences, the same people. The
7 question would be are you reaching them at a different time
8 in their journey.

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THE COURT: Right.

10 THE WITNESS: And so the first point I would make is even 11 if that were true -- and we'll come to the journey, that's 12 still going to get you more substitution than reaching an 13 entirely different journey, right. So if you reach different 14 people, you're reaching somebody else's journey, you're not 15 substituting for the person. That's kind of like radio and 16 newspaper maybe, at least they're both in Cleveland, they're 17 both getting after the same people.

But I'm going to go on at some length about why I alsothink that that purchase journey logic doesn't hold up.

THE COURT: Okay.

21 BY MR. SOMMER:

Q. The circle principle?

A. So the circle principle says -- this is the way it's
described in the academic economic literature. Also, it's
described in different language in like the horizontal merger

guidelines. It says that if you're going to include a
product in the market -- basically, I said earlier you
shouldn't skip over closer substitutes. So if you're going
to include a product in the market, you should also include
everything that's a closer substitute.

So the circle -- it's really well illustrated on the 6 7 right-hand side of this picture. Based on audience overlap -- which, again, Professor Whinston and I agree is 8 9 important, and I would argue is particularly important so 10 that you're reaching the same people. Based on audience 11 overlap, Facebook and Amazon and Instagram -- or Facebook and Amazon at least, from what we saw. Really, Meta -- which is 12 13 Facebook and Instagram, and Amazon are closer for Google than 14 Bing and Yahoo! on this dimension -- which, again, we agree 15 is very important.

So just to make clear, I am not saying that Google and Bing are not in the same advertising market. They're alternative ways to digitally advertise. They have some audience overlap, it's just smaller. So my view would be I agree that Bing should be in this market. But then by the circle principle, so should Facebook and Amazon, because they have better audience overlap.

So if you go to the next slide, it just -- it's more
circle principle.

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Q. Yeah, I think I'm there. Ninety-nine?

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1	A. Oh, I see, yes. My fault. It looks so similar.
2	Q. Yes.
3	A. Plaintiffs failed to follow this principle. Their
4	definition would include Google and Bing and Yahoo! search,
5	but not Facebook's social media ads, at least not Amazon's
6	product ads. And so based on audience overlap which is an
7	important you know, we're agreeing is important, they're
8	violating the circle principle. They're jumping over
9	Facebook and Amazon to get to Bing.
10	${f Q}$. So we've just spent a fair amount of time on number
11	two in Professor Whinston's list. Let's not forget about
12	numbers one and three. Do you address those in your next
13	slide?
14	A. Yea, and this was your question where I promised we
15	would come back soon. So his number one and number three,
16	number one was the role in consumer purchase journeys.
17	Number three was the degree to which ads can be effectively
18	targeted. I mean, to give credit, he's saying his
19	argument is purchase journeys can matter, as you said, and
20	the degree to which ads can be targeted can matter. My first
21	response was audience overlap determines whether you're even
22	reaching the same people. But I'd like to go on and talk
23	about these other two. The points that I will make are
24	summarized on slide 100.

So for purchase journeys -- and you said you won't use

1 the word funnel, I'm using it here. But purchase journeys, 2 the key is there's not a simple funnel, rather the current understanding is there's this complex nonlinear path that 3 consumers go on. Why does that matter? Because of two 4 5 reasons, really. One is it means all sorts of different ads 6 can be right next to each other in the journey. I might 7 search and then go on social and then go on display, so they're really quite proximate -- they're proximate to each 8 9 other in time. Different ads can happen at different points 10 in the process.

11 And really, these days, advertisers think about how do I 12 get somebody to buy, just how do I get a return on my 13 investment. It's no longer just push them down to the bottom 14 of the funnel, it's just convince them somewhere along the 15 journey to come buy the product. And so given a nonlinear 16 journey, these ads really all sort of touch each other along 17 the journey, and you don't have this separation that people 18 used to think about in the funnel.

19 So that's my response on the funnel, and I'll go through20 more slides.

21 THE COURT: Sorry to interrupt. I mean, we've had a
22 number of advertisers say that there are -- there is a
23 greater value to those customers who are closest to the
24 purchase point, and so not all customers or target audience
25 members are created equally. Advertisers get the greatest

ROI presumably on those users who are closest to wanting to buy something. And at least Professor Whinston's thesis is that certain types of advertising is better at targeting those folks than others.

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5 THE WITNESS: I'll go through it in some detail. I think I have two basic high level responses. One is once the 6 7 funnel -- once the journey is complicated and nonlinear, it's very hard to know who is closest to purchasing. Commonly you 8 9 see somebody search, then stop for a while and go do display, 10 then do some social. And so once you have it nonlinear, this 11 idea that one is close to purchase and one is not is at least 12 quite hazy. And so there -- and advertisers, I think 13 increasingly -- and I'll show documents on this -- think of 14 different ways to be able to get people who are close to 15 purchase, right.

16 Now, you might say, well, that could all be true, but 17 maybe search still seems the closest, maybe there's still 18 some difference. First of all, I'll point to advertisers 19 saying differently. But second of all, that goes back to my 20 point about how prices can adjust. People are focused on 21 ROI. If search is quite likely to lead to a conversion, and 22 a display ad is slightly less likely to lead to a conversion, 23 that's really why you see a price difference between them, 24 search is more expensive. But that doesn't mean they're not 25 substitutes, it means they are. Because you can buy more

1 display ads for your money. And thus, even if it's not quite 2 as effective at getting people to convert, you've got more 3 shots at them. The prices are not perfect, ROIs are not identical, but the prices are generally helping to equate 4 that. It's sort of like you can get a 10 percent shot with 5 search, and if you think you can get a 2 percent shot with 6 7 display -- you know, one's 1/5th the price of the other, then 8 you can compensate for that. 9 BY MR. SOMMER: Did you see evidence from the trial record confirming 10 Q. 11 your view that the consumer journey is nonlinear? 12 Α. Yes. 13 What do we see on slide 101? Q. 14 Α. And I don't think we need to spend a lot of time 15 here. Multiple people have said -- I think there's a 16 consensus that the funnel is something that's been taught, 17 but it's not a linear, go from the top to the bottom the way 18 a funnel sounds. It is a journey which is this sort of 19 nonlinear winding path. So like Dr. Jerath said consumers 20 can skip stages, in some cases go to one, come back. That's 21 what I was describing, they can jump around. Which means, 22 again, it's not like any of them are right next to purchase 23 and any of them are far away, it's much more winding than 24 that. 25 Q. Those weren't the only two who made that point,

right?

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2	A. Professor Whinston agrees, Mr. Vallez agrees. I
3	don't think this is a controversial point. I also agree we
4	should think more about how advertisers look at it and where
5	they substitute, which I've been trying to do. But it
6	certainly is not a bright line that one is close to purchase
7	and one is not, which creates this ability to substitute,
8	especially if the prices help to equalize the ROI.
9	Q. Picking up a little more on your point that
10	advertisers are looking for consumers anywhere along the
11	consumer path in the hope of making a conversion.
12	Did you find some documents from the advertisers
13	themselves that make that point?
14	A. Yeah, so the next few slides have some documents from
15	advertisers. And I will note and I'm sure you've heard
16	this, advertisers do two things when I've talked to them, and
17	you see it in the documents. They both say the funnel is not
18	tight and it's nonlinear, but a lot of them will still speak
19	in funnel language. It gets taught a lot in MBA programs
20	that I've been part of, is people teach the funnel. But then
21	they say the funnel is nonlinear and not really quite a
22	funnel.
23	So you see in the Wells Fargo document, for example, that
24	they use lower funnel as a phrase still, but they indicate

that included in lower funnel is display and social and

search and direct mail, for example. Allstate is on the right-hand side here. Allstate also has a full funnel media strategy and language in their document. But when they say acquisition -- which is close to purchase, you know, acquisition is another word that gets used, they say acquisition can include paid search, can include display, aggregators, social and so on.

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Q. One more slide?

A. Yeah. American Airlines on the next slide. American
Airlines is interesting, because they explicitly say
conversion. American Airlines draws a funnel, and they say
conversion includes display, search and social. American
also says mid funnel includes display, social and search. So
it's not like search is always just at the bottom.

15 I mean, I also -- when you look through the documents --16 and what I've seen is consistent with the substitution that I 17 measured, I think there's a lot of consensus these days that 18 social, in particular, can be quite a down funnel activity. That's what TikTok and Meta have done over time, is get all 19 20 of these signals of user intent from what they watch on 21 videos and what they click like on such that they don't have 22 a search query per se, but they have a really good idea of 23 what's on a person's mind at that point in time.

24 The last one here is OMD, which is part of an advertising
25 agency. OMD draws -- I suppose they're drawing a nonlinear

1 consumer journey. And you see over on the active intent 2 side -- which is now how they talk about it, not purchase, 3 but intent, when you have those intent signals, they have social and search over there on that active intent side. 4 5 All right. You've talked a little bit about social Q. media and signals through social media. We're going to get 6 7 to an issue that's near and dear to my heart, at least. Because of the change in the season, I couldn't show golf 8 9 shorts, but because it's now cold out, they're golf pants. 10 What is depicted on slide 105? 11 So slide 105 is an Instagram advertisement. I mean, Α. 12 we sort of switched topics to what I introduced before, which 13 is evidence of various forms that other channels beyond just 14 search allow effective targeting. This is an example --15 actually, I'm not sure if this is embarrassing or not, but 16 I'm actually a fairly big Instagram user. Instagram, if 17 you -- I mean, I buy things on Instagram all the time. 18 Whenever I talk to people who are younger, they tell me they watch videos, they click like on Instagram, and then it pops 19 20 up these ads that say "shop now" and you buy them there. 21 One other example for Instagram -- and it's just another 22 example, but it's something that I know. I actually serve on 23 a college board where I help -- actually, independently of 24 this case, help them with their marketing. I can just tell

you in that example that they've always tried to find

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1 18-years-olds who want to go to college by what are they 2 searching for. They struggle to find 18-year-olds on Google 3 search now, shifting a lot of budget to Instagram. Because people can like a college, they can like a competitor 4 5 college, and they immediately serve them an ad. And what the performance people are getting is this intent, that these ads 6 7 are popping up quickly. People are showing what they like, and the ads are popping up. 8

9 Q. You had a second example of people doing that type of10 conversion, not just on Instagram. What's that?

11 Α. So this is -- I am told this is a TikTok ad. Unlike 12 Instagram, I'm not a big TikTok user. But we did choose a 13 TikTok makeup ad. I mean, TikTok, I think, was the driver --14 TikTok is growing rapidly. But TikTok's role in all of this 15 is as a driver of this understanding among social media, that 16 if you get people to engage with your content, watch your 17 videos, click like on your stuff, you know what they're doing 18 right then, you know what they're interested in, and TikTok 19 puts buy now ads there. Again, this is not like old school 20 display where you're just popping up a banner. This is 21 showing somebody an ad in the context of the app based on 22 what they've been doing.

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Q. Can that also be seen on display ads?

A. Yes. So, again, I put a lot of emphasis myself on
social media as particularly targeted, given sort of the

1 TikTok revolution and how it's done. But there's two ways 2 that display ads can be targeted to people. One is 3 contextual display is what I would call it, which is put a display ad on a display page which is on topic. So this is a 4 5 tennis site, and there's ads for tennis rackets, right. And if we stick with makeup, if you go to a makeup site, you're 6 7 going to see ads for makeup. The other way that display ads can be targeted is re-targeting, which is use what you know 8 9 about the user from other parts of their journey and show 10 them the right display ad. But those are two ways that it 11 can be done.

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Q. On slide 108, what's depicted here?

13 I mean, this is Amazon, and we were talking about Α. 14 Amazon before. As you said, I don't think there's a dispute 15 in the case that Amazon is quite targeted. Amazon can do 16 search ads on the search page. This is an example of what I 17 talked about before. This is an Amazon product page. So I 18 have now searched and then found this Stumptown Coffee 19 Roasters. But when I click on that page, in addition to 20 seeing the product I clicked on, there's multiple ads on the 21 page for other coffee. So this is definitely a person who is 22 close to purchase, very close, but other people are showing 23 this person ads for other types of coffee based on that 24 signal.

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And as I said, this type of Amazon ad, where it's not on

the search page but it's on the product page, is not at any point in this market. In Professor Whinston's data work, he explicitly subtracts all of these ads from Amazon. It's about a third of Amazon's ad business is this type of ad.
Q. I want to shift gears slightly here. One of the plaintiffs, as you know, has the claim that search text ads

are a distinct market from PLA/shopping ads because they're

not substitutable for one another.

You're aware of that claim?

A. Yes.

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11 Q. And have you found evidence in the record to support 12 your view that that's not correct?

13 A. Yes. And I would say -- I mean, this does connect 14 that what we were just looking at for Amazon was obviously a 15 form of PLA. And so one of the pieces of evidence was Amazon 16 itself. So this is testimony from Mr. James at Amazon, 17 deposition testimony, where he was asked about a statement 18 about an intersection of purpose with text ads and shopping 19 ads. And you see here he says that there's a shopping ad 20 that can fulfill the same customer's need. When they're 21 querying, you know, a text ad could also fulfill the same 22 need. I mean, to be clear, he goes on and says there may be 23 advantages in one or the other. So they're not exactly 24 identical, but they're filling this overlapping need for the 25 same person, right. And so that's the sense in which I think he's saying, and I would agree, that they're close
substitutes.

Q. How about Mr. Booth from Home Depot?

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A. Mr. Booth is even more clear on the dimension of
substitution that you've asked about, right. So the question
for him was: "If your team observed today that product
listing ads were delivering a higher return on ad spend than
a search text ad, you'd expect that within a matter of days
spend would be reallocated from the text ads to the product
listing ads, right?" And he says: "Yes."

11 THE COURT: Does it affect your view that there is no
12 such text ads market, the text ads -- or put differently,
13 product listing ads are limited to only certain types of
14 commercial products, you can't advertise services, you can't
15 advertise non-tangible purchases?

16 THE WITNESS: Right, so I would say this relates -- I 17 haven't emphasized it as much on the ads side, but it relates 18 back to what I said on the user side. That if you think 19 that's the concern, then what I would do is not cluster 20 everything together, and break those -- you know, you could 21 use verticals on the ads side as well. So I think the right 22 conclusion would be where a PLA ad can work, like for any 23 product, it's got to be a close substitute. Which means it 24 shouldn't just be left out of the market, it should be in the 25 market for that part that you cluster together.

I agree with you, though, there are other types of ad 1 2 services and so on where you don't show PLAs. Then you would say the social ads may be good substitutes, display ads on 3 the relevant kind of display site. Other SVP ads, so not 4 PLAs on Amazon, but if it's a travel service, then 5 advertising on Expedia. If it's a financial service, then 6 7 advertising on various financial websites would be substitutes. So I haven't emphasized it as much here, but I 8 9 think if that's a concern, my answer would always be don't 10 define away the competition. If competitive conditions are 11 different -- maybe it's just physical stuff and not physical 12 stuff, you could think of those as two separate clusters, and 13 in each case you would include the competitors.

14 BY MR. SOMMER:

15 Q. One final source on this PLAs and text ads being 16 substitutes. You reviewed Dr. Raghavan's testimony in this 17 regard?

18 A. Yes, and it's on the slide here. I'll just focus on
19 the highlighted parts. It says as PLAs grew in popularity,
20 advertisers started moving more and more of their budgets
21 from text to PLAs. Advertisers will freely move money
22 between PLA and text ads.

If I could quickly, just one more comment from the Google
point of view. I know there were some questions about
they're not in the same auction. There's different auctions

1 for like every query and so on. But I agree that there are 2 distinct auctions. So in sort of the guts of the system, 3 there are different auctions. But again, when an advertiser interfaces with Google Ads, they are setting parameters that 4 let them buy both text ads and PLAs at that level. 5 And Google Ads goes and does the bidding. They're given 6 7 information to optimize to see how well they're performing next to each other. If they use something like Performance 8 9 Max, it's freely moving money between them.

So I would just say I wouldn't personally focus too much on the auction itself, because that's sort of in the guts of the system. I would say that the tool, like a Google Ads tool that they're able to use, is letting them bid on both and see how both are performing and move money between them.

Q. So let me just ask you about your next slide. Verysophisticated question on my part, what's the upshot of this?

17 This is really just the summary of what we've been Α. 18 saying, so I won't spend long. This is -- all of these to me 19 are close competitors for targeted ads that can have audience 20 overlap, especially if the other three boxes, aside from 21 GSEs, overlap with GSEs. As you brought up, some of them may 22 have more or less conversion, more or less targeting, but 23 prices can adjust to compensate for that. So in my view, 24 there's all these sort of ways out there, these new and 25 growing ways, to target customers. So it can be GSEs, it can

1 be SVPs, social media, display ads. All of them provide the 2 ability to target, right. They all provide -- you know, we saw they can be up or down, the so-called funnel. 3 Thev generally all provide closer audience overlap with Google 4 5 than Bing does. So if you're going to have a market that includes Google and Bing -- as I think it should, these other 6 7 forms, in my view, need to be in the market as well. 8 Now, again, you might ask would they all be there for 9 every type of ad. Maybe some are better for physical 10 products and some are better for services, and so you could 11 segment that way. But they're all ways to target customers. 12 **Q.** Let me ask you to take a look at the next slide. Is 13 this a chart that you prepared? 14 Α. Yes. 15 And what was the source for this chart? Q. 16 This is eMarketer data. So eMarketer is sort of the Α. 17 industry source on all things advertising data. 18 Q. And Your Honor, the underlying eMarketer data is in 19 evidence as DX1228. 20 Dr. Israel, does the chart fairly and accurately reflect 21 the underlying data that you used to make it? 22 Α. Yes. 23 MR. SOMMER: Your Honor, we offer this chart. I've 24 marked it DX3243. 25 MR. DINTZER: Your Honor, we don't have any objection to

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1	the chart coming in as a demonstrative.
2	MR. SOMMER: It's being offered as a 1006 exhibit, Your
3	Honor.
4	MR. DINTZER: Your Honor, this we would need a chance
5	to review this and to evaluate it, so we would ask the Court
6	to withhold and allow us a time to consider it.
7	THE COURT: Okay.
8	BY MR. SOMMER:
9	Q. Dr. Israel, can you share with the Court what you
10	think is significant about the chart you prepared?
11	A. It's just showing you what's happening to advertising
12	revenue shares, digital advertising revenue shares, in the
13	U.S. over time. So I would point out I guess three or four
14	things from it, at least to start. One is that over the last
15	several years, Google's share is declining as a percentage of
16	all digital advertising revenue. So it's declined since 2015
17	or so. That's really been driven sort of in order by three
18	phenomenon well, two primarily so far. One is that
19	starting in 2010, here you see the enormous expansion of Meta
20	as an advertiser. And I think if you look at the information
21	about Meta in the record and that you may have heard, this is
22	really the growth of Meta and Facebook as providing targeted
23	advertising where you can measure ROI. They have their own
24	auctions. They have the whole platform set up such that you
25	can go use all of the information they have about users to
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1 target them and advertise to them. So that was number one. 2 Number two, starting a bit later, especially after 2017, 3 you see the growth of Amazon. Amazon, obviously an important competitor, I think there's some agreement on that. But 4 what's changed about Amazon is really an increased focus on 5 advertising revenue. Amazon was more about selling products, 6 7 but they have recognized this ability to sell ads against searches and against products, and they've grown 8 9 dramatically. And I would say others are copying that, 10 Walmart, other platforms are starting to do similar things. 11 One of the things you see on this chart, it's obviously 12 smaller so far, but it's the more recent growth of TikTok. I 13 mean, to me, that's on the path towards coming -- I mean, I 14 think the numbers -- there's projections of them growing to 15 10 billion and beyond. TikTok is sort of, to me, on the path 16 of being number three in this series. It was Meta, it was 17 Amazon and now it's TikTok.

Q. Is there other evidence, Dr. Israel, that you have
looked at and considered that shows that the ad market is
thriving notwithstanding plaintiffs' claims that Google is
somehow constraining competition?

A. Well, I've looked at -- just taken a deeper dive into
these revenues for the three examples I just listed.
Obviously, those are examples of a broader advertising space.
But on slide 115, here not using eMarketer data, using Meta's

8551 1 own data that was -- you know, is in the record, I have 2 what's happened to Meta's advertising revenue over time. That's really an exponentially increasing growth path to the 3 point where today Meta is over \$60 billion in revenue, and 4 really roughly equal in size with Google. 5 What about the next slide? 6 Ο. 7 The next slide is Amazon. So Amazon is, what I said Α. before, a later start. They really turned their attention to 8 9 advertising a bit later, 2016 and beyond. But you see this 10 exponential path for them as well to where they've grown by 11 2021 to being over -- almost 25 billion, and on a rapid 12 growth path showing their ability to compete. 13 And slide 117 is the TikTok example? 0. 14 So TikTok is more recent. Through the eMarketer data Α. 15 through 2021, you see 2 billion. They certainly have been 16 growing. I think there was testimony in this case about them 17 hitting 10 billion, I think that was global. But they're on 18 this -- they seem, to me, to be on the growth path of these 19 other examples. Q. So we've covered the competitors, which was number 20 21 one. Let's turn to the second of your ads side opinions, and 22 that's monopoly power; is that right? 23 Α. Yes. 24 Please take the Court through the general views you Q. 25 have on the monopoly power issue.

A. So in some ways, the transition here is similar to on
the user side. It's my view that there's many more
competitors on the advertiser side than are in the alleged
markets. And so therefore, my first conclusion is that
indirect evidence doesn't support monopoly power. Because
indirect evidence, remember, is about market structure, and
there's lots and lots of players competing.

And then I turn to the second point here is plaintiffs 8 9 also provide no direct evidence of monopoly power. And this 10 is a similar point. Plaintiffs would need -- you know, 11 direct evidence of monopoly power, in my opinion, would need 12 to be evidence of an output restriction relative to some but 13 for world in which that power was reduced. Plaintiffs 14 haven't defined such a but for world at all or shown an 15 output restriction. In fact, on the advertising side as 16 well, output growth has been explosive. Google's been a part 17 of that, along with Meta, Amazon and others. But what you 18 actually see is an output explosion, especially in recent 19 years, nothing that looks like an output restriction.

20 Q. The Court heard from Professor Whinston, his view
21 that direct evidence actually establishes that Google has
22 monopoly power in search advertising. Do you agree with
23 that?

A.

No.

24

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Q. Can you explain why?

1 Yeah, so basically the direct evidence -- I think Α. 2 we're going to -- I was going to turn to that in a bit, so I 3 don't know if you want to jump ahead --Am I pushing ahead? Let me not push ahead. Let me 4 Q. get back to output. You said explosive output a couple of 5 We have that in a chart in 120, correct? 6 times. 7 Thanks, so that's where I was looking next. Α. I'm just here to facilitate. 8 Q. Yeah, so the chart on 120 is, again, from eMarketer. 9 Α. 10 It's looking at U.S. digital advertising spend. So you see 11 this rapid growth. You see the sort of turning up, the kind 12 of exponential growth, especially more recently. So again, 13 just from output numbers, you see an industry that looks to 14 be thriving, not to be suffering from monopoly power. The 15 other thing that I can do with eMarketer is eMarketer 16 makes -- every so often they'll make a projection of where 17 they see -- where they think advertising spending is going. 18 So in November of 2010, they would publish their chart on 19 advertising spending and then they would publish a 20 projection. 21 And so I graphed several of these projections. The

21 And so I graphed several of these projections. The 22 general pattern is that advertising spending has -- in nearly 23 all cases they publish, has outstripped their projections. I 24 think it's interesting, even around 2010 when there's -- you 25 know, the allegations here -- or at least that's as far back

1 as they go, you still see output beating projections. What I
2 take from this is, at least relative to this industry source,
3 nothing is happening that's caused output to fall below what
4 they expected.

5 I will note, just for completeness, there were a couple times when -- and I don't have every line on here. There 6 7 were a couple of times when, for a little while, projections were above actual. That was only during COVID, and then it 8 9 crossed back after that. So it's not like they're always too 10 low. I mean, COVID actually was something that caused output 11 to fall below what they expected. But that's the only case 12 where that's happened. Otherwise, nothing that's happened in 13 the market has done anything except exceed their 14 expectations.

15 Q. Have plaintiffs presented any evidence that you've 16 seen that output would have somehow been higher but for any 17 conduct -- or alleged conduct on the part of Google?

18 A. I haven't seen any discussion of a but for world or a19 comparison to a benchmark or anything that would show that.

20 Q. Let's go to the next slide, 121. What is shown here,
21 Dr. Israel?

A. So this is -- I mean, just as we did on the user
side, you can look at output, you can also look at measures
of quality. So the way I've tried to measure quality -- and
I'll use this a couple of times in the rest of my testimony,

1 is basically the click-through rate. If ads are higher 2 quality, if they're a better match, then more people are going to click on them. So the sort of goal of targeted 3 advertising is to match it to the right user. So this is 4 looking at Google's click ratio. So just to be clear, it's 5 the number of clicks relative to the number of queries that 6 7 return any ads. So I'm not adding up all of the ads and dividing, I'm 8 9 saying did this query return an ad at all, and how many of --10 in how many of those cases do you get a click. So how well 11 are you doing putting an ad on the page which is attractive 12 to the user. 13 THE COURT: So this is the ratio of clicks to queries? 14 **THE WITNESS:** Queries with ads. 15 **THE COURT:** Queries with ads, great, okay. 16 THE WITNESS: So you see in 2011, that was just over 17 10 percent. So about 10 percent of the time that a query had 18 an ad, it was clicked. By 2021, that's over 30 percent. So 19 the ads that are being put are matching to users better in 20 the sense that they're being clicked on more regularly. 21 BY MR. SOMMER: 22 Did Professor Whinston identify factors that he Q. 23 claimed indicate that Google has substantial market power in 24 the search advertising side? 25 A. Yes.

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- Q. Have you collected those on the next slide?
- A. Yes.

Q. Can you describe them to the Court, please.

So Professor Whinston had -- he went through several 4 Α. factors. He mentioned market share and barriers to entry, 5 which are his indirect factors effectively. And looking at 6 7 market structure. He described the advantages of -basically the third one that's summarized here. But it's 8 9 basically that he alleged Google had large advantages over 10 Bing on the mobile side, and those advantages would give 11 Google monopoly power. And then he discussed what he called 12 low advertiser responsiveness allowing Google to raise its 13 text ad prices significantly. So basically pricing knobs is 14 the term that's been used, but basically a claim that Google 15 has had control and been able to raise its prices.

Q. Let's just briefly go through each of Professor
Whinston's arguments, starting with the market share point
which is addressed in slide 123.

A. So this is really the same response from on the user
side. Market shares are only as good as the market that you
define. So the market that Professor Whinston is defining
is -- only includes text advertising, or text advertising and
PLAs in some cases, and leaves out all the competition from
other SVPs, social media and so on. And so the shares here
don't reflect the fullness of the competition.

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Q. How about barriers to entry, as described in slide 124?

3 It's the same issue as we described last time. He's Α. 4 arguing for barriers to entry to become a new GSE -- this is on slide 124. But he's acknowledged, as I showed before, 5 that it's easier to enter as an SVP, right. So that would be 6 7 another way to enter as an advertising competitor. Also, particularly relevant in advertising is social media as a 8 9 competitor for advertising. And here, we have evidence of 10 TikTok has entered recently and growing substantially. So as 11 soon as you acknowledge competition from social media and 12 SVP, the story about entry changes entirely.

13 Q. What about Professor Whinston's argument that Google 14 enjoys monopoly power as a result of its alleged advantages 15 on mobile?

16 A. So yeah, I mean, this, again, relates to stuff I said 17 on the user side in the sense that having a high quality 18 product -- to the extent it's true, it is a high quality 19 product, it's not evidence of monopoly power. But on the 20 advertiser side, I really think there's another really important point to make about mobile. A lot of this case, as 21 22 I've said, seems to be about mobile. It seems to be focused 23 on what's there or what's been lost in competition between Google and Bing, say, in mobile. But that's missing, to me, 24 25 the real action in mobile. Mobile is super competitive.

That's really where Meta is strong, where TikTok is strong, where apps are strong, where a lot of the focus of Instagram ads and so on are strong.

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So to me, Google versus Bing is not the issue in mobile
advertising especially. The issue in mobile advertising is
all of these other ways that people who are using phones are
being targeted by other advertising.

8 Q. Let's get to the last of Professor Whinston's four
9 points. This one relates to the so-called pricing knobs.

10 Yeah, so this one is fairly long, because I think Α. 11 this is one where a lot of attention has been spent, and so 12 I'm going to spend some attention here. I mean, just to take 13 a step back. As I understand the argument, it's that Google 14 has certain -- the argument is that Google has certain levers 15 it can pull or knobs it can turn, it's been said, to change 16 the price of auctions. The argument would be that ability 17 to -- under the argument, to control prices implies monopoly 18 power.

19 The first comment I would make on that is even if it was 20 all true, that, to me, is not monopoly power. At most, an 21 ability to control prices is evidence of some market power. 22 It doesn't tell you they restricted output, so it goes back 23 to market power versus monopoly power. But the other three 24 points -- the three points I would really focus on are, 25 number one, that these pricing knobs that get all this 1 attention, I think properly understood, actually illustrate 2 Google has limited pricing power, limited ability to even 3 control, affect its own prices; really, a limited ability to prevent its own prices from going down a lot of time. So the 4 first point would be -- and I'll talk about this. I think if 5 you really dig into the pricing knobs and think about what 6 7 they mean relative to other firms, they indicate a lack of pricing control. Not a complete lack, but less than a lot of 8 9 firms have.

10 Second would be that focusing just on nominal prices, 11 just on what's happened -- you know, even if a price goes up 12 after a change of any sort, you need to ask what happened to 13 quality. Quality adjusted prices are what matter. And then 14 third, if you do fully all in control for quality, as Google 15 has done in the ordinary course in analyzing its own prices, 16 you see that quality adjusted prices have actually gone down, 17 not up.

18 Q. Let's go a little further on the -- on Google's
19 limited pricing power that you mentioned, and look at slide
20 127.

A. So the basic point here I would make -- and then I'd dive in in a little detail. But the basic point I would make here is that you need to set the context for all this discussion of pricing -- so-called pricing knobs, right.
Google's prices are ultimately set by an auction. That

1 doesn't mean that Google has no influence at all or can't do 2 anything. But it certainly means that Google has less 3 ability to set its prices than most firms. Most firms, even those that clearly don't have monopoly power, if they want to 4 5 change their prices, they change their prices. And you'll see -- as I said, most firms in the market 6 7 have some market power. So you'll see local restaurants increase the prices on a bottle of wine fairly substantially, 8 9 they have some market power over the ability to do that. 10 They don't have to run an auction, they just change the 11 price. So if the question is control over prices, all of 12 this discussion about knobs and what do we do about our knobs 13 is actually -- and a lot of documents on those, is actually

14 Google struggling with how can it influence its prices, 15 right. Whether it's a monopoly or not, optimal prices change 16 over time as quality changes, as demand changes. And Google 17 has to try to -- it doesn't get to set them directly, it has 18 to try to influence them through these knobs.

And so what -- the way I would -- the second bullet, the way I would understand the discussions in the documents on pricing knobs -- and I've read these documents carefully, there are -- you know, it's really Google trying to deal with two issues that affect its pricing. And I need to get a little technical for a minute, and some of this will stay that way.

1 So there's two issues that affect Google's pricing when 2 you dive into it. Number one is the one I just alluded to, 3 Google -- auctions set prices, Google doesn't. So whatever knob Google tries to turn, if that's the term we're using, 4 whatever it tries to do, all the advertisers react, they 5 change their bidding strategies. So if Google changes a 6 7 parameter, if it changes semantic matching or some term you've heard, advertisers all see that and experiment. They 8 9 see it at least by experimenting and seeing what happens, and they change their bidding strategies. So in many cases, 10 11 Google turns a knob, as it's being called here, and prices 12 don't go up at all. Even if an allegation is being that was 13 the attempt, they go down.

14 And second -- and this is where I need to get technical 15 for a minute. The issue with the Google auctions or the way 16 they work -- and we've been through this some, the way they 17 work is the winner wins, and the winner pays a price based on 18 number two. But it's not exactly number two's bid, it's 19 basically adjusted by the relative predicted click-through 20 rates, right. And so you can think about that as number one. 21 If number one's click-through rate -- predicted click-through 22 rate gets better, number one basically gets a discount. Ιt 23 doesn't have to pay as big a price to match number two 24 because its click-through rate is doing the work. 25 So what you see in a lot of these documents is this group

1 called AQ, this auction quality group, is trying to do things 2 to make those click-through rates better. A better auction 3 has better click-through rates. It's trying to make the 4 click-through rates better for the winner. That's good for 5 everybody. But if you do that and nothing else changes, that 6 means number one gets a discount, because that click-through 7 rate got better.

And so the issue that Google is -- a lot of these 8 9 documents are struggling with is if we try to make our -unlike most other firms I've ever seen, if Google tries to 10 11 make its auctions better by having a better click-through 12 rate, that's going to cause its price to go down, because 13 that click-through rate is going to create this discount 14 effect. Lots of what's being described in these documents is 15 not how do we raise prices, it's how do we create auction 16 quality while dealing with this other issue; that if we don't 17 do something, auction quality will actually drive our prices 18 down.

19 Q. And do you have a chart that sets forth some of your20 analysis on this very point?

- A. Yes.
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Q. Is it slide 120?

23 THE COURT: Before we turn to another, why don't we go
24 ahead and take our afternoon break and just pause here, and
25 then we'll resume at 3:15. Thanks, everyone.

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1	(Recess taken at 2:56 p.m.)
2	(Proceedings resumed at 3:17 p.m.)
3	THE COURT: Mr. Sommer actually, before we and
4	maybe you're going to go over it, but could you rewind,
5	Dr. Israel, where you were before the break?
6	THE WITNESS: Yes.
7	THE COURT: The caffeine is helping.
8	BY MR. SOMMER:
9	${f Q}.$ So Dr. Israel, we were talking about your view that
10	Google actually has limited power to control prices. Do you
11	recall that?
12	A. Yes.
13	${f Q}$. And where I was about to go was to ask you whether
14	Professor Whinston presented a chart on this issue to the
15	Court during his testimony?
16	A. He did.
17	Q. Okay. Let's go to
18	A. Sorry, just to be clear, did you want me to go back
19	over some earlier testimony?
20	THE COURT: Are you going to review what we just talked
21	about?
22	MR. SOMMER: No, no okay, I misunderstood you, Your
23	Honor. How far back do you want me to go?
24	THE COURT: I just need him to comment on the pricing
25	knobs.

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BY MR. SOMMER:

Q. Just give us a summary of what you covered in about the last 10 minutes or so on pricing knobs, and then we'll --THE COURT: You don't have to go far, 10 minutes, just the last few.

THE WITNESS: So we've seen discussion of pricing knobs. 6 7 I think of them as parameters of the auction. And the argument from Professor Whinston and plaintiffs, that those 8 9 indicate that Google has pricing power. My basic point is 10 that what they actually indicate and the sort of struggle 11 with them in the documents is that Google doesn't directly 12 control its prices. It has to try to work through the 13 I don't want to tell you that means it has zero auction. 14 influence at all. But the fact that it has to work 15 indirectly through an auction, and that its bidders can react 16 and ultimately determine the prices, is less pricing control 17 than we see for lots of firms who can just set their prices.

18 Another point that I made that's probably where the 19 caffeine will help is there's two things, I think, that are 20 worth understanding about the pricing knobs and what drives Google to have to use them. One is -- the first one was 21 22 Google can change the parameters of its auction. Advertisers 23 are constantly experimenting with strategies, and looking at 24 what their other alternatives are to Google and so on. So 25 after Google does that, Google doesn't know what's going to

happen to prices. Advertisers can change how they bid, they can go bid -- they can switch to another competitor. That's where the competition comes in. So the prices get determined in auction based on what the bidders do. And so you'll see lots of cases we'll go through where there's a pricing knob, which plaintiffs are claiming was an attempt to increase prices, and prices go down right after it.

The second point, which is where I said I had to get a 8 9 little technical, is there is this fundamental -- I mean, the 10 Google auction was a big innovation. It has lots of good 11 properties as an auction. It has this feature that if you 12 make the click-through rate, the fit for the top bidder 13 better -- which is what the auction quality guys are trying 14 to do, they're trying to really get the top guy to have a 15 really -- be really likely to be clicked on, right, that's a 16 good match. The way that the pricing works is that means 17 that effectively gives a discount to the top guy, because 18 he's got better. And so Google's in this position that I 19 haven't seen in another firm that I've -- or another case 20 that I've looked at where if the auction quality guys make 21 the auction work better, the price goes down because the 22 winning bidder doesn't have to pay as much per click. 23 **THE COURT:** This is the second-price auction? THE WITNESS: Well, the second-price auction combined 24

with that it's not -- in the simplest second-price auctions,

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1 I just pay what the second price guy bids. But here, I pay 2 it times -- you know, it gets adjusted by the click-through 3 rate. So I don't have to pay exactly his bid, I have to pay -- and I have an example of this. But I have to pay just 4 enough that when you multiply my bid times my predicted 5 click-through rate, it matches his value. So if the first 6 7 guy starts to look really good on click-through rate, he can win the bid with a lower CPC because he's being bumped up by 8 9 that click-through rate.

10 So a lot of what the auction quality guys are doing is 11 they're in a separate room making the auction work better, 12 making that number one click-through rate go up. And that's 13 having the effect, without any adjustment, of pushing CPC 14 down. Prices are going down in response to that quality 15 improvement. So lots of discussions you see in Google 16 documents are just grappling with that: We want to improve 17 our quality, but as a profit maximizing firm, we don't want 18 that to drive our prices down, that doesn't make sense to us. 19 So they're trying to deal with that.

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THE COURT: Thank you.

Yes.

21 BY MR. SOMMER:

22 Q. I'd asked you about a chart Professor Whinston had23 prepared?

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Q. Did you include that in your deck?

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A. I did.

Q. That's slide 128. Just like when he presented it, it's redacted here, but can you describe to the Court your view on this slide?

5 Α. Sure. So there's a couple different points I would make about this slide. So this -- first, I want to focus in 6 7 on it kind of at a micro level, and then I'll take a step back to the overall pattern. So this slide is Professor 8 9 Whinston presented what he called the Google search ads price 10 index for PCs and mobile phones, and he put on notable 11 auction changes. So the first thing that I noticed from this 12 slide is there's lots of ups and downs in prices. Overall 13 the index goes up -- and I'll turn to that next, but there's 14 lots of ups and downs. And if you look at some of the quote, 15 unquote knobs that we've heard the most about, you'll see 16 that after that knob was implemented, prices clearly go down. 17 I don't know, can I name some of the text that's on here? 18 Q. Yeah, I think we can name the names without going 19 into the numbers. Go ahead.

A. So if you look at RGSP, almost all the way to the
right, that certainly has got attention in here as a knob
that is claimed to be increasing price. Price goes down for
several months after RGSP. You see the same thing for
semantic exact which has been referred to. You see the same
thing for butternut squash which has been referred to. So

you see that -- the sort of the knob's connection to these prices is uncertain at best. If you go through them all and look in the few months before and after each knob, there's no consistent pattern of the prices going up after the knobs that we've been talking about, right.

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So that's my point number one, is the connection between 6 7 these knobs and prices, I don't see it in the chart. What I 8 do see is an overall pattern of the price index going up, not 9 really tied to the knobs. And I'd like to make two comments 10 about that -- or a lot of what I'd like to focus on really is 11 stepping back from the knobs a bit -- and I'll come back to 12 them, you know, what's going on that we see this price index 13 going up. The first thing that I would stress is, based on 14 the Google documents themselves, including the document that 15 this index has been in, I wouldn't put a lot of emphasis on 16 this index. Because Google itself says this is basically a 17 sort of tracking index on a set of queries. They don't 18 intend for it to represent what an -- any advertiser would 19 actually pay. It's a way they're using to track what's 20 happening over time. They explicitly say it is not designed 21 to capture what advertisers are doing for the queries that 22 they're actually buying. So I wouldn't put too much emphasis 23 on it, given how it's used.

24 But that said, we can still look at it and think about if25 we think that some measure of price was going up, what might

1 that tell us. And we can probably go to the next slide for 2 that. Q. And that one's also redacted, so be a little bit 3 cryptic, but please do describe it to the Court. 4 So this is making a point of -- one way I could make 5 Α. it empirically. The point is that nothing about this price 6 7 index is in any way controlling for quality. So we're not looking at a quality adjusted price at all. We're not asking 8 9 has the auction gotten better, have characteristics of the 10 auction become more attractive to bidders. We are just 11 asking is this price index -- which, again, is not really 12 tied to advertisers, but is this price index going up. 13 As one way to illustrate that, this chart looks at what's 14 happening over time to the price index versus a measure of 15 the quality of the auction, which is the click-through rate, 16 right. So auctions do better when they get better 17 click-through rates. That means they're better matching ads

18 to queries. That's one measure of quality that's available 19 in the data.

The way this chart works is it indexes everything to the end of it. So everything comes up to a hundred at the end. But by looking at it over time, you can see which of the lines are increasing more. And you'll see that the quality line, the ratio of ad clicks line, has started from lower, it's going up by more than the price index.

1 Does this tend to show that Google's ads quality is Q. 2 increasing over time? It definitely shows that the ad quality is 3 Α. increasing. I mean, there's many ways to measure quality. 4 But it's saying that by this sort of very basic measure of 5 quality, which is how much of the ad's being clicked on, the 6 7 quality on that metric is increasing faster than the prices 8 are. 9 Q. Did Professor Whinston acknowledge that his analysis 10 did not account for changes in quality? 11 A. Yes. So to be fair, he was asked: "It doesn't 12 improve for Google's search advertising technology?" He says 13 correct. Above that he acknowledges it's a price index. So 14 he's acknowledging that this is not a quality adjusted price, 15 this is, at most, just the price. I would stress, again, 16 it's really a sort of narrow price index. It's not even 17 really a measure of the prices that any advertisers pay. But 18 it's -- as it stands, it definitely does not control for 19 quality. 20 **THE COURT:** So what is your understanding of what it is 21 as a price index? If it is not actually reflecting actual 22 prices paid, what is it measuring? 23 THE WITNESS: So it is -- I mean, it's not measuring what

any advertiser would actually face. Google chooses a set of
queries, not designed to be representative of what any

particular advertiser pays, and critically not allowing for 2 the fact that advertisers will optimize queries over time. 3 It fixes a set of queries, and it measures what happens on that set of queries. So the price index, as I understand it, 5 does go up for that set of queries, which is why I don't want to end there, I want to think about what that could be. 6

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THE COURT: I remember, this was -- Professor Whinston compared this to like a consumer price index.

THE WITNESS: Right, but it's not even that, because for 9 10 two reasons. One is a consumer price index is -- a lot of 11 care is taken to make sure that the basket of goods is 12 representative of what consumers are buying. Google, in 13 their documents, overtly doesn't do that. They pick a sort 14 of set of queries to track. So these queries could go up, 15 but there's not an attempt made to make sure they are 16 representative of what advertisers. They explicitly say this 17 is a health of the system thing that Google is doing to check 18 what's happening.

19 Second, they explicitly say advertisers have the ability 20 to re-optimize over what queries they buy, and they're not 21 trying to adjust for that either. They're just taking a set 22 of queries and seeing what happens over time. So the way I 23 would say it is I wouldn't put too much emphasis on it, 24 because it's not designed as a measure of what advertisers 25 pay. That said, I think it's worth us talking about why it's

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1	going up which I admit I don't want to stop with that, but
2	I don't want to put too much emphasis on it given what it is.
3	BY MR. SOMMER:
4	${f Q}$. Dr. Israel, what is the significance, if any, of
5	looking for an increase in nominal prices?
6	A. On its own, I would say nominal prices, especially in
7	a situation where we know quality is going up
8	${f Q}$. Let's take that scenario first. Is that depicted in
9	slide 131?
10	A. Yeah. So if we know quality is going up, nominal
11	prices don't tell us much or anything, really, they tell
12	us about nominal prices. They don't tell us whether users
13	are better off or advertisers are better off, right, they
14	tell us about nominal prices. And so one thing we know in
15	the context of auctions, again, is that if the quality of the
16	auction improves, if it's a better auction, better queries,
17	the auction is run better, you're going to get if you make
18	the auction work better for people to bid on, you're going to
19	get more advertisers attracted to that auction, it's a better
20	auction. And that's going to put upward pressure on prices,
21	because more people are interested in a better auction.
22	That's a quality effect. That means people are getting more
23	quality and therefore they're bidding more.
24	That's also and Professor Whinston agreed with this,
25	that's driven by competition. That means there's a better

1 quality auction, more people come in, they compete and the 2 competition between advertisers sets the price. As the --3 and that's the reason I focus so much on the knobs not being really what seems to drive it. The claim seems to be it's 4 the knobs that drives the price. But if the price goes up, 5 6 the knobs don't seem to really change things in any 7 consistent pattern. If the price is just going up with 8 quality, that generally would mean it's a better product, 9 more demand, more advertisers are interested in the better 10 product.

11 You've heard the term thicker auctions, that there's more 12 people in the auction. But thicker auctions are a good 13 thing, right. Because what you want to happen in an auction 14 is the advertiser who values that query the most wins, that's 15 the best outcome. Thicker auctions, having more people in 16 the same auction, means we're going to find the best match. 17 He only has to pay the second price, so he's going to get a 18 benefit himself, right, because he only has to pay the number 19 two price. So he's going to capture some of the benefit, and 20 the auction's going to work better because we're matching the highest valued advertiser. Thin auctions mean even if they 21 22 create lower prices, the problem is they're only thin because 23 there's less competition, you're not finding the right 24 advertiser for the query.

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Q. There's been a fair amount of testimony about

Google's innovations in the ads auction process. Have you considered certain innovations, certain specific innovations in evaluating the knob issues and price issues?

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A. Yeah, I have. The first one is still on this slide 4 on 131. So there's been a lot of discussion about format 5 pricing. Formats in ads are things -- and this may have been 6 7 covered. Formats in ads are things that get added to your search ads, so like a phone number. And so that's a pretty 8 9 clear example of you get more for your ad, and therefore 10 there's some charge for that; for getting more, the price 11 goes up. In some cases, that's also because -- in a lot of 12 cases where there's a format, the ad is just bigger so it 13 takes up more of the SERP. And so there's an opportunity 14 cost, taking up more of the space so you can't show something 15 else in that space.

So to me, formats are a pretty simple example of what's being sold, the thing that an advertiser is buying changed, right, they're getting -- having their phone number in the ad is helpful to them. And so if there's a higher price for that, that's a quality effect, right, that seems natural.

21 Q. On slide 132, do you address some of the other22 innovations that impacted on the auction?

A. Yes, so I focus here on three that I've heard
discussion of. The first one's pretty simple, the next two
are less simple. The first one is semantic matching.

1 Semantic matching is this Google innovation over time that 2 when an advertiser says it wants to bid on a particular 3 keyword, the idea is don't match that based on the specific words, match it based on the meaning. So the example -- it's 4 not really misspellings, it's more like if I say I want to 5 bid on shoes for running and the query is running shoes, 6 7 those mean the same thing so you should put me into that auction. That has the effect of making the auction thicker, 8 9 but in the sense that it's actually capturing the people who 10 expressed an interest in that term. I mean, it's just 11 matching it by meaning rather than by syntax.

Again, that's an example of a price that could -- it depends on how everybody reacts and what happens, it could cause a price to go up. But that's because you're getting a better performance in the auction, and you're bringing the people into the auction who have the most value on that term.

17 Q. And I take it the user is getting fed with an ad that18 the user is interested in?

A. That's a good point for these things generally that I should have said. There's a lot here. But this is not -- I mean, it's important to keep the user side in mind, right. A reason that it's valuable to have a better match, to have a thicker auction and to get the best match, is because the user gets an ad that's better targeted for them.

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THE COURT: Isn't it evidence of monopoly power that

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Google is able to make these changes without giving the advertiser the ability to opt out?

So use the semantic matching, for example. It was my understanding that one of the effects of it in theory on a particular auction, it could create a thicker auction. That may increase the price, a smaller advertiser may not want to participate in that.

THE WITNESS: So my understanding -- and I think there 8 9 was testimony from people who were closer to every detail 10 than I am, is that you can use negative keywords, which I 11 think is a way to opt out, say I don't want to be included in 12 some of these terms. So I'm not going to be included in that 13 case. My general understanding of what I've seen in the 14 record, actually from what I've seen, would tend to go the 15 other way from your smaller advertiser example in that 16 smaller advertisers don't have big teams to go figure out 17 every word they could put into the auction.

18 So if I'm a smaller advertiser and I want to bid on 19 running shoes, I want to be put in the auctions for running 20 shoes, even if somebody spelled that differently or called it 21 shoes for running. From what I've seen in the record -- and 22 this is from memory here. But from what I've seen is it's 23 more larger advertisers who have more ability to be 24 sophisticated about this, who liked the fact that they could 25 be in the thin auction before. They could go bid -- they

could bid for various versions of it, and that auction may be thin and they might win on the cheap.

3 But that's really not -- that means they're just not having to face competition from other advertisers who would 4 want that term. So I don't see that as monopoly power 5 that -- I mean, first of all, I understand there to be an opt 6 7 out option. But second of all, either way, having the auction bring together the full set of bidders who are 8 interested in that is good for users because there will be a 9 10 better match. It seems to be good for smaller advertisers if 11 it helps them -- you know, helps them match all the terms 12 that they want. And it ultimately creates -- the winner by 13 competition is going to be the guy with the highest value. 14 And that person is still, by the nature of a second-price 15 auction, not going to pay more than it's worth to them. 16 They're going to have surplus leftover or value leftover 17 because they pay something based on the second price. So I 18 don't see it as monopoly power.

I guess another -- I'd have to check, but I think -- my recollection is that other auctions are doing similar things, this isn't Google alone, because this is a way to try to get the right people in the auction.

23 BY MR. SOMMER:

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24 Q. Okay. So let's get to one that's a little more25 complicated, squashing.

A. Okay. So squashing, squashing is -- so if we could flip over a slide, it probably will help.

Q. Okay.

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And again, sorry to have to be a little bit 4 Α. 5 technical. We talked about this before. This is an example that illustrates the point of squashing. Basically what 6 7 squashing is, squashing is really directly going after the point that I raised to you, which is if they improve the 8 9 quality, if they improve the pCTR, they'll drive their price 10 down. So I think what's worth looking at, just for starters, 11 is forget the rest of the text, just look at the first line 12 of numbers that says initial. So this is just a hypothetical 13 example that was in my report.

14 So this is a situation where advertiser one -- and for 15 this whole hypothetical, just imagine that the query, the 16 person here, would bid on advertiser one's ad, but they 17 wouldn't click on advertiser two's ad. So the initial set up 18 lays out one way the auction might happen, which is 19 advertiser one bids \$2.50. Google's algorithms tell it 20 there's a 70 percent chance of a click. So they're not 21 getting it exactly right, but they're saying there's a 22 70 percent chance of a click.

What the mechanism says is the LTV -- and here I'm
simplifying from some -- giving you the simplest form. The
LTV for advertiser one, their value is \$2.50 if there's a

click, times a 70 percent chance of a click, is \$1.75. Advertiser two bids \$3.00. The system tells them there's a -- Google thinks there's a 30 percent chance that will get clicked on. So doing that same multiplication, you get an LTV of 90 cents.

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So what happens in this auction? Advertiser one wins the 6 7 auction because they have the higher LTV. The price they have to pay is -- and this is what I was saying earlier about 8 how it depends on the click-through rate as well. They have 9 10 to pay \$1.30, that's the term, it is \$1.30 times advertiser 11 one's pCTR. So they pay \$1.30 and there's a 70 percent 12 chance of a click, that gives you 91 cents. That's just 13 enough to beat advertiser two's value. So they don't have to 14 pay the full bid, advertiser two, they pay just enough such 15 that when you multiply their bid times what the system says 16 is their click-through rate, they beat advertiser two's 17 value. So basically their winning bid is adjusted down some 18 by the fact that their click-through rate is a bit higher. 19 So now suppose Google improves its -- it invests money, the auction quality guys do more work and they improve the 20 21 pCTR, they get better at predicting, right. What could 22 happen -- and again, this is all very specific to the case. 23 But what could happen in that case is the pCTR goes -- you 24 know, for advertiser one, it goes up to 80 percent. It's 25 doing a better job of predicting. For advertiser two, it

1 falls to 10 percent. So the system has gotten better -- the 2 right answer here is a hundred percent and zero. It's very 3 hard to figure that out. But the system has gotten better at doing -- at dividing them up. It's now more accurate, right. 4 And that's good, because it's making a better prediction, 5 it's going to create better matches. The effect of that, 6 7 though, is that the winning price falls to 39 cents. And the reason is advertiser one just now has to beat this lower 8 9 value for advertiser two, and it gets the benefit of this 10 higher predicted click-through rate to do so.

So squashing was entirely designed to -- this is a problem, because the auction quality guys are saying I have a better mousetrap; I can predict click-through rates more accurately; I can create better matches; I can put the right ad on the page; but if I do that, I'm going to crush the --I'm going to drive the price way down potentially.

17 So what squashing did -- and there's academic literature 18 on how this can be efficient, it basically squashes the lower 19 predicted click-through rates up towards the higher one a 20 bit, right. It's true, to be clear, that has the effect of 21 increasing this winning CPC a bit. Not all the way up to 22 130, but a bit. But the reason to do that is because now 23 when the auction quality guys come to the businesspeople and 24 say: I can make the auction better, they don't also have to 25 say: But if we do it, our price is actually going to go way

That means they can improve the quality without down. 2 squashing their own revenue.

3 Google is a profit maximizing firm. You want it to have incentives to make its pCTR better. You need some mechanism 4 5 to deal with this issue, which is the general one I talked about with the knobs. Which is if pCTR gets better, you can 6 7 end up driving the price way down. They're not raising the price from the \$1.30, they're implementing the better pCTR, 8 9 but at least offsetting this effect.

Q. Okay.

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11 If you go to the next slide, this is from one of --Α. 12 this is from the document about squashing, so it's one of 13 these pricing knob documents. But the callout here exactly 14 describes what I was saying. The auction quality guys are 15 saying we have this learn UI, which is a better mousetrap. 16 It increased the accuracy of our predictions and added 17 clicks, but it lost CPC and was revenue negative. So they'd 18 be in the position as a business of we can do something that 19 makes the auction work better, helps users, creates a better 20 match, but if we do it, we're going to lose revenue on it.

21 And so the last highlighted sentence says: "Ads quality 22 wants to continue launching such advertiser value creating 23 launches, but needs a mechanism to help Google share in the 24 value that our launches create." That's -- squashing was the 25 way to do that.

I If you -- and there's an example of what they're doing ultimately raises the final price on that lower line a bit. But that's so that they don't have this, what I'd call, perverse effect of improving the mousetrap. If most firms improve the mousetrap, they get a higher price. This mousetrap gets better, the price goes down, and they're trying to deal with that.

8 Q. How about RGSP, Dr. Israel? That's much simpler, I'm9 sure.

10 Just one last thing I'd mention on squashing on that Α. 11 previous page. It also illustrates the point that whatever 12 they do, it depends on -- one page up, it depends on how 13 advertisers react. Because in practice, they say prices went 14 up 60 percent of the time and down 40 percent of the time. 15 So even though they implemented squashing, it wasn't like it 16 was a hundred percent price increase, it depended on what the 17 advertisers did.

18 RGSP.

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Q. RGSP.

A. It actually is a little simpler, at least the way
that I'm going to explain it. Because the other issue with
these auctions is this stuff is predictive, right. We're
trying to figure out who's got the higher value, but that's
based on predictive click-through rates. I don't know for
sure which -- you know, I don't know for sure. You have

situations where one person's value is just one cent higher than another person's value, we're pretty close together. If you don't have any randomization -- which is what the R stands for, the guy with the higher value wins -- even though it's barely higher, he wins always, he's guaranteed to win.

Google's fear has been that that creates a 6 7 winner-takes-all phenomenon; that you never get a chance to see how well that lower option would have performed. So RGSP 8 9 says if the values are really close together, then with some 10 probability -- or if they're close enough together, to be 11 fair, with some probability, I will reverse the order so that 12 I can give the number two guy a chance to win, if he was just 13 a tiny bit behind. And sometimes I'll put him in first as a 14 discovery mechanism, just to see how well it does. So it 15 doesn't pick the highest rank guy in the moment, but it lets 16 the system learn how that ad would have performed. 17 Otherwise, they wouldn't have ever gotten that information.

18 Q. Did you review the testimony of Jerry Dischler on19 this point?

20 A. Yes.

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Q. And was that informative?

A. Again, the testimony is consistent with the
explanation that I'm giving. He says: "We do this so we
don't have biases and winner-takes-all dynamics." That's
what I was describing. "What we do is, some percentage of

1	the time, we flip them to see if actually somebody may be
2	better, in order to improve the user experience.
3	Otherwise" and his example is Amazon always shows up on
4	top. You never figure out if somebody would perform you
5	know, be better than Amazon. And then there was this
6	question and answer about: "Does that mean the winning
7	bidder may not have the highest value or ad rank?" And he's
8	acknowledging: "They wouldn't have the highest value in that
9	particular option." But he's saying, really, that's because
10	we just haven't been able to explore the value of that person
11	unless we let them win sometimes. We have to put them on the
12	page sometimes and see if they get clicked on or we'll never
13	know.
14	${f Q}$. Was there another Google document you looked at that
15	was related to this point of prices falling from quality
16	increases?
17	A. Yes, so
18	${f Q}$. And I'll just caution you that parts of this are
19	redacted, as you can see in your deck, but go ahead.
20	A. So this is a thing called excess CPC. This is
21	Google's metric that they reported over time. I think they

last reported a value in 2020. But it was their attempt to

something like a quality adjusted price. To say on the one

measure -- to balance these effects, to actually measure

hand, advertisers are getting more value from these

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improvements; on the other hand, CPCs are coming up -- may be coming up over time. But what we want to know is who -- are advertisers getting more value on net or less. So basically they're converting it all into an equivalent price effect.

So this metric they had, consistently over time the value 5 is negative. Which means all in, accounting for advertiser 6 7 value -- Professor Whinston says this in his report, too. If you account for advertiser value and what's happening to 8 9 price, the quality adjusted price is going down. That's what they found in their last full report in 2018. I think there 10 11 was another statement that it was still true in 2020. But 12 it's all in when you account for the quality and what the 13 price is, the quality adjusted price is lower.

So for everything else I've said, I think the takeaway really can be here they were tracking this. Advertisers are getting more benefit, Google is sharing in that, you know, what's the net effect on advertisers. And the answer was guality adjusted prices are going down.

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Q. Benefitting advertisers?

20 A. Yes, and users. All of these things are beneficial
21 to users, because they're trying to improve the quality of
22 the match.

Q. Let's get to your final opinion on the digital
advertising side, and that's number three on your list: A
failure to show harm to digital advertising competition or

advertisers.

2 Can you describe what we see in slide 139, Dr. Israel. 3 A. Yes, so this is, for the first time today, after a 4 long time, not about market definition or monopoly power. I'm turning to this question I raised at the beginning, which 5 is think about competitive effects. As I said, I'm not 6 7 analyzing the defaults or anything like that. The question I'm asking is straightforward, it's let's suppose something 8 9 happened to make Bing bigger, have plaintiffs shown that 10 competitive outcomes, that competition would be better.

And Professor Whinston had -- what's on this slide is what Professor Whinston said. He gave two conditions under which there would be -- the current system would be adverse to competition.

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Q. This is slide 139; is that right?

16 Yes. So Professor Whinston's sort of two-step logic Α. 17 was, first of all, scale affects advertiser participation and 18 ad relevance. So his argument is if Bing effectively has 19 less scale, it won't get as much advertiser participation and 20 ad relevance. And then his argument two is, because of that, 21 because of what he's calling Bing's inability to get this 22 participation and relevance, his argument would be Google 23 doesn't face as much competition, and therefore Google has reduced incentives to compete. 24

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So he's saying there's a weaker Bing with less

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1	advertisers, and therefore Google doesn't have as much
2	incentive to compete, and that's bad for competition.
3	${f Q}$. Did Professor Whinston provide any data or empirical
4	evidence to support his views?
5	A. I want to be careful. I would say what Professor
6	Whinston provided was some data, as I recall, about Bing's
7	ability how much money Bing makes. So there was evidence
8	in his reports about Bing's monetization, about how much
9	money Bing makes. That's not really the question, right.
10	That's looking at a particular firm or a particular
11	competitor. The question is would competition be better off,
12	would advertisers be better off, and I can't think of
13	anything he did on that topic.
14	${f Q}$. Were you able to find some relevant data that
15	informed your views?
16	A. Yes. I tried to dive into each of these two prongs
17	of his argument one at a time.
18	${f Q}.$ Let's start with the first one. What do we see on
19	slide 140?
20	A. So the first one is focusing on his claim that
21	because of Bing's smaller size, it gets less advertiser
22	participation, just there's fewer advertisers at Bing. There
23	are fewer advertisers at Bing, the punch line's going to be,
24	but Bing, by its own language, has the majority of the large
25	advertisers. And the large advertisers in this industry make

1 up the overwhelming majority of the dollars. So if you want 2 to put a firm -- if you want to put competitive pressure on a firm, you challenge its dollars, you challenge its revenue. 3 And so what the slide on 140 is showing you is this 4 5 industry is extraordinarily skewed towards the largest advertisers in terms of revenue. In some industries, we talk 6 7 about an 80/20 rule, that 20 percent of customers make up 80 percent of revenue. Here, it's a 2.5/90 rule. 8 **THE COURT:** I'm sorry, 2.5 what? 9 10 **THE WITNESS:** 90. The top 2.5 percent of Google's 11 advertisers make up 90 percent of the revenue that's spent on 12 Google. So why do I care? Because what this tells me is if 13 Bing is able to attract just the very largest advertisers, 14 it's putting -- it's able to compete, challenge the vast 15 majority of Google's revenue. So it's not -- really, there's 16 a long tail here, but what threatens Google as a competitor 17 is its revenue. And that means if you can challenge for the

Q. And there are a couple of redactions on slide 141, so
navigate around those percentages. But please explain to the
Court what you've found on this slide.

large advertisers, you can put that Google revenue at risk.

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A. Sure. So this is really just, first, extensions of
what I showed you on the chart. So you can see the top
2.5 percent -- sorry, I won't give the revenue number then -well, I just did that one on the last page.

1 THE COURT: That's fine. 2 BY MR. SOMMER: 3 Q. That's all right. You see the percentages here then. These top 4 Α. percentages of Google advertisers make up the vast majority 5 of Google revenue. There's Microsoft testimony in the record 6 7 saying the vast majority of large advertisers advertise at There's also a Microsoft document saying 26 percent of 8 Bing. 9 the advertisers at Google also advertise at Bing. Putting 10 those together, we would say the vast majority of Google 11 revenue is also advertising at Bing and thus at risk; Bing is 12 competing for that revenue. 13 Q. Let's turn to the second of Professor Whinston's 14 points, the profit point. 15 So yeah, this is -- the second point is really Α. 16 that -- so the first point is Bing is competing for most of 17 the revenue. The second point is, as I mentioned earlier, 18 Professor Whinston is really -- his evidence, his arguments 19 focus on the money Bing makes, not on competition. So what 20 I'm saying on slide 142 is the relevant question to me, as an

21 antitrust person, is not whether Bing would be better off in 22 some alternative world, but whether competition would be 23 enhanced and advertisers would be better off. That's what we 24 want to ask. That's the question that Professor Whinston --25 that I haven't seen any evidence on.

1 It's true that if you -- if Bing had more queries, right, 2 some queries would move over to Bing. They wouldn't be on 3 Google anymore, they'd be on Bing. There would be an auction run for them on Bing. People would bid on those queries on 4 Bing. But the question is would that change anything about 5 competition, right. We said earlier that different GSEs --6 7 different auctions on different GSEs tend not to be the same people, so it's not obvious at all those auctions would 8 9 compete with each other. We also said earlier that a lot of 10 other platforms are out there competing.

11 I think, based on the evidence in this case, if you took 12 a chunk of queries at Google and moved them over to Bing --13 say, because the default was different, you just would have 14 the auction run in a different place. But I haven't seen any 15 evidence that would actually increase competitive pressures 16 on those prices. Because there's all this other competition, 17 and the circle principle that I went through said Bing and 18 Google actually aren't each other's closest competitors.

So I think what we see is, yes, Bing would make more of the revenue, but I don't see a basis to say that would actually increase competitive pressure on those auctions.

THE COURT: If you spread the auction participants out over two different general search engines of equal quality, would there not be -- do you think there would be fewer participants in the individual auctions and therefore would

have a reduced price pressure?

2 **THE WITNESS:** So I'll try to tie that back to the points 3 that I've been making. So if there was a thinner auction, for whatever reason, the prices in that auction -- not 4 5 always, but would tend to be lower. I mean, in some sense, that's a -- Bing today says it has thinner auctions, right, 6 7 which means Bing today has relatively low prices, which might say that's a low price auction that's out there in the market 8 9 now. But more generally, I also think thinner auctions are 10 getting you lower prices by being less efficient. They're 11 not putting -- they're not going to find you the best match 12 if you don't have the people in there.

13 I guess my most fundamental point I was just making would 14 be, though, most of the dollars are already at both places, 15 so I'm not sure it's a spreading out effect. I think what 16 happens is if you move more of the auctions over to Bing --17 those queries were attractive to advertisers. If you move 18 them to Bing, they're still going to be attractive to 19 advertisers, they're just going to bid on them at a different 20 place. So I don't -- it doesn't seem to me that you're --21 you know, what determines how attractive -- especially for 22 the large advertisers who make up most of the dollars. What 23 determines how attractive a given query is to bid on is the 24 query and the person. You move it to Bing, they bid on it at 25 Bing. But I don't see why that auction gets thinner

1 necessarily if that query was attractive. So if you spread them out more, you get a price reduction 2 3 effect. I think that's not necessarily efficient, but I don't see why you'd get that here when you'd just move the 4 5 same queries to a different place and the large advertisers 6 are already there. 7 BY MR. SOMMER: Q. Dr. Israel, we've come to the end of your advertising 8 9 side, and we see again the summary of your opinions. But we 10 still have one more topic to cover, and that's SA360. 11 Have you formed opinions relating to SA360? 12 Α. Yes. 13 Can you describe to the Court your opinions in that Q. 14 regard? 15 So one last change, and then we're almost done. Α. So 16 just to take a step back, for me at least. The allegations, 17 as I understand them, in SA360 are that by not rolling -- the 18 claim is that by not rolling out all of the features to 19 Bing -- particularly so-called auction-time bidding, at the 20 same time that SA360 rolled them out to Google, that in some 21 way foreclosed Bing from competing effectively. So I really 22 have sort of three buckets of opinions. I mean, I disagree 23 with that claim. 24 Number one and two are the first kind of bucket of 25 opinions, and that is if you're thinking about a foreclosure

claim, does SA360 really have the power to do that. So SA360 faces a lot of competition, and SA360 has a modest share. So the first point is SA360 is not -- doesn't seem to be must have, it faces a lot of competition. There's other options for advertisers. So that's points one and two, and I'll go through those.

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7 Point three is I just think if you look at the evidence in the case and what's actually being done, it doesn't 8 9 support this claim that Google is somehow acting differently or acting on some incentive to harm Bing. It doesn't support 10 11 a foreclosure claim, just looking at the facts of what Google 12 is doing relative to everyone else. And then the final 13 bucket of claims is really four and five, which is if you 14 just look at what's happened, there's no evidence at all that 15 there's been any foreclosure or that anyone's been harmed. 16 So really, it's the three buckets are SA360 faces 17 competition, evidence doesn't support foreclosure, and the 18 outcomes don't support harm.

19 Q. Let's turn to the competition bucket first. Can you20 take us through slide 146, please.

A. Yeah. This is a lot simpler than what we were doing
before, so I'll try to be quick. SA360 is a tool that you
use to bid on search advertising. There are lots of other
tools, so-called management tools: Adobe, Kenshoo/Skai and
Marin are all out there. Just as an aside, many of them

1 allow you to bid on things like Facebook and Amazon and 2 TikTok as well. But first of all, there's three other major search engine platforms. And then I really think it matters 3 4 a lot that there are these big native tools, you can bid 5 directly in Google Ads or directly in Microsoft Ads. Tons of people do, large advertisers, small advertisers. Those are 6 7 the guts of the system. So the new features, that's where 8 it's all happening. The new features roll out there first, 9 and then over time get added to these multi-platforms. So 10 the native tools are large and growing and important in terms 11 of competition. 12 Q. You have a reference to Professor Baker at the bottom 13 of slide 146? 14 A. Yeah, thank you. So Professor Baker acknowledges 15 that he hasn't defined a separate relevant market for SEM 16 tools. So in that sense, he hasn't defined a market that 17 would rule out the native tools. And I don't think you could 18 support one given the strength and the growth of the native 19 tools. 20 Have you prepared some data on a slide in this Q. 21 regard? 22 Α. Yes. 23 Okay. Part of it is redacted, the one on the right, Q. 24 but do your best. 25 A. So this is just looking at where our bids -- where is

revenue for Google search ads and Bing search ads coming from, like which tools. So the one on the left that I can refer to tells you that on Google, it's almost 60 percent. It's grown over time from 50 to almost 60 percent comes from Google Ads from the native tool. And SA360 has also grown some over time, but makes up only about 20 to 25 percent on Google.

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Q. Why is that relevant?

9 Α. Again, this is this SA360 faces competition, and this 10 is just a market share version of that. SA360's share on 11 Google is about 20 percent, it's not that large. The one 12 that's redacted is the same thing for Bing. So you'll see 13 native tools also large and have grown, not quite as large as 14 on Google, but quite large. SA360 has also grown. It's a 15 little larger on Bing than on Google. I would also -- I 16 think the two points I would take is, one --

17 THE COURT: I'm sorry, I just want to make sure I 18 understand it. These are numbers of SA360's revenue and what 19 platform -- advertising platforms are what share of SA360's 20 revenue?

THE WITNESS: It's a share of all search ad spending on
Google. The denominator is all search ad spending on Google.
The numerator would be what percentage of that comes from
native tools, what percentage of that comes from SA360.
THE COURT: I see, okay.

1 THE WITNESS: So if you want to spend money on Google 2 search ads, where is it happening? It's happening in native 3 tools mostly, and 20 percent from SA360. If you want to spend money on search ads on Bing, where is it coming from? 4 Again, most of it coming from native -- or about half of it 5 coming from native tools. And SA360, you see the number 6 7 here. So SA360's share in both cases -- you know, it's a competitor, but it's not a dominant share. 8

9 I also think it's worth noting on this page that SA360
10 makes up a reasonably -- it does make up a reasonably big -11 you know, modest, but reasonably large share of total
12 spending on Bing ads. If you think about what that means, it
13 means Google has put out and is investing in a tool that
14 generates a lot of revenue for Bing.

15 THE COURT: If you take a look at the slide on the left, 16 the chart on the left, if you make the assumption that people 17 who advertise on SA360 are more interested in shifting their 18 ad spend, because it's easier to do it on an SEM tool than it 19 is between native tools, would those numbers not indicate 20 that the amount of advertisers who are actually doing the kind of shifting that you described earlier is not as high 21 22 you might think?

23 THE WITNESS: I think from what I've -24 THE COURT: Or is not as prevalent as you've suggested?
25 THE WITNESS: I think from what I've seen in the record,

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1	I would say no. I mean, I understand where your assumption
2	started, but the large advertisers very often are present on
3	these native tools. The native tools are where the things
4	roll out first. They are I mean, large advertisers are
5	all over Google ads and Microsoft ads, and they're shifting
6	money by using those directly. So one answer to that is I
7	just think that the native tools definitely are where things
8	come out first, and the large advertisers are using them to
9	shift money.
10	The other thing that I'd note there that relates back to
11	what I said
12	THE COURT: And I guess the right chart would support
13	that proposition?
14	THE WITNESS: Yeah, that a lot is coming from the native
15	tools.
16	THE COURT: Right.
17	THE WITNESS: And if a lot of the revenue we saw in
18	the earlier charts, in order to have that much of the
19	revenue, you must have the large advertisers. And Bing and
20	Google are both saying the large advertisers are on both, so
21	they must be using native tools on both sides. Recall, also,
22	from a long time ago now that I went through the Smart
23	Campaigns on Microsoft. So even if you're on the Microsoft
24	native tool, it let's you bid into Google and Facebook and
25	Instagram. So even the Microsoft native tool has this

multihome -- this ability to shift dollars, it's got an ability to bid in Google auctions.

3 BY MR. SOMMER:

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Q. Let me take you to the next slide. There's a visual there. If you could explain to the Court what the point of this is.

7 A. Yeah, so this turns to this auction-time bidding question in particular. The allegation -- the heart of the 8 9 allegation, as I understand it, is that Google -- SA360 has 10 rolled out auction-time bidding for Google but not for Bing, 11 and that indicates some sort of foreclosure or some harm. То 12 me, this chart is the most important, I think honestly, 13 response to this. Which is that Google -- SA360 is doing 14 nothing unique, right. If you -- it's true, as was discussed 15 in court, that Skai has rolled out auction-time bidding for 16 Bing. But none of the other three tools have, including two 17 that are independent. They're not owned by Google, they're 18 making independent business decisions.

So everyone here has fully rolled out auction-time bidding for Google, right. Three of the four are in the process of developing auction-time bidding for Bing, but none of those three have done so. So if I was going to say what's the test for whether SA360 is acting differently because it's owned by Google, I would say compare it to the independent guys. Two-thirds of them also haven't rolled out

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auction-time bidding for Bing.

Q. Professor Baker testified that Google has an
incentive to use SA360 to foreclose competition. Do you
agree with his conclusion?

A. No.

Q. Can you explain why, please?

7 Yeah, so that's the slide on 149. And I just -- I Α. don't see how the evidence supports this argument. Most 8 9 fundamentally, I mean, Google is supporting and investing in SA360 on which you can bid into Bing. If it wanted to 10 11 foreclose Bing, an obvious thing to do would be don't support 12 that functionality or don't invest in it -- being able to 13 advertise into Bing at all, right. We know that over time, a 14 large percentage of Bing's revenue is coming through SA360. 15 Google continues to invest in SA360, so Google is investing 16 in a tool that is generating a large amount of revenue for 17 Bing.

18 If I look at those facts, all these facts I've seen, it 19 appears to me the best explanation is Google supports SA360 20 as a tool to support search advertising, and it rolls out 21 features over time in a way that it finds makes business 22 sense. And those decisions don't look different in terms of 23 auction-time bidding from independent players, right. It's 24 got this tool, lots of people are using it for Bing. And 25 Bing continues to have a lot of sales there, and it's not

making different decisions in terms of auction-time bidding relative to two of the other three independent players.

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THE COURT: In a sense, is that a fair comparison with 3 4 respect to, I guess, it's Adobe and Marin? Because the 5 development for auction-time bidding for Google was a fraction of the cost of the overall -- of a company's overall 6 7 ability to bid. So building auction-time -- you know, bidding, as I understand it, is an expensive, time-consuming 8 9 proposition. It's even more so for Adobe and Marin than it 10 is for Google, because those are smaller companies. Skai, I 11 think, is number two, and so perhaps it would have more of an 12 incentive than the other three and four.

13 THE WITNESS: Although, I think -- I mean, I hear what 14 you're saying. I mean, these are not tiny companies. The 15 way I would think about that, they're all competing for the 16 same pie, right. And so if they're smaller, then they're 17 looking for ways to differentiate themselves and get ahead. 18 What really matters is how much revenue can you capture from 19 doing that. It's not how much revenue do I have today, it's 20 if I make this investment, how much can I go capture. And so 21 if they look and say SA360 is the market leader but they 22 don't have this technology, if I can go build it, I could 23 capture that revenue. So in terms of incremental revenue, I 24 don't really see it that way, because they have the ability 25 to go capture it.

	8601
1	I mean, I understand the point you're making. I guess my
2	bottom line would be if I'm trying to evaluate is Google
3	doing something unique because it owns SA360, I would still
4	try to look at all of the other benchmarks and see if it
5	stands out.
6	BY MR. SOMMER:
7	Q. Dr. Israel, Professor Baker also claimed that
8	Google's conduct related to SA360 harmed the ability and
9	incentive of SA360 advertisers to multihome, and thereby
10	harmed Bing's ability to expand inexpensively.
11	Do you agree with that conclusion?
12	A. No. I think I would I mean, I would rather
13	just we've been here a long time cut to the chase on
14	slide 151.
15	Q. Okay, let's cut to the chase. Go ahead.
16	A. So this is the other sort of most important bottom
17	line test, is I went and looked in the if you think that
18	rolling out auction-time bidding on Google but not Bing was a
19	big disadvantage to Bing, you would expect to see that after
20	that happened, Bing struggled on SA360 because it was at a
21	weaker position. It just didn't happen in the data. So this
22	is total spending on SA360 as the denominator, how much is
23	Google, how much is Bing. You can see the dashed line.
24	That's when auction-time bidding came out on Google. These
25	don't really even wiggle.

So is auction-time bidding attractive to advertisers? 1 Ι 2 think advertisers have said yes. But what matters for 3 competition is did this decision by SA360, this timing, take away Bing's ability to compete for dollars. And it just 4 doesn't show up here, right. Bing is -- among the universe 5 of SA360, Bing is -- nothing happens. Bing is not unable to 6 7 compete for dollars, even within SA360, after this change. So what I said before was SA360 makes up a lot of Bing's 8 9 revenue. When auction-time bidding rolled out for Google and 10 not for Bing, that didn't change, those shares didn't even really wiggle. 11 12 MR. SOMMER: Well, Dr. Israel, since we cut to the chase, 13 I have no further questions at this time. Thank you. 14 THE COURT: Thank you, Mr. Sommer. So why don't we get 15 started with the --16 THE WITNESS: Is there any chance I could use the 17 restroom? 18 THE COURT: Yeah, of course. 19 MR. DINTZER: Your Honor, actually, we're happy to make a 20 down payment. It's not going to surprise the Court, I 21 suppose, that we are not going to finish tonight. 22 THE COURT: I didn't think you would. 23 MR. DINTZER: And so we're happy to start tonight, or if the Court -- if it would be the Court's pleasure, we'd be 24 25 happy to start up first thing in the morning.

THE COURT: I take it you're not going to finish tomorrow 1 2 either? 3 MR. DINTZER: Given the girth of data and information, it seems unlikely. And the plaintiffs -- I mean, the defense 4 has given us their schedule for next week, and it seems to 5 have a great deal of space built in. So as far as next week, 6 7 it doesn't look like we'd be pushing anything aside. 8 MR. SOMMER: Judge, let me just inquire gingerly, since I 9 know Dr. Israel has some commitments next week. Any chance 10 the Court has additional time tomorrow? That's a no, okay. 11 Thank you. 12 THE COURT: No, I've got -- yeah, I really don't. I've 13 got some criminal matters that have been pending for a while 14 tomorrow afternoon. 15 Well, look, let's go ahead and take a 10-minute break, 16 and we'll at least get started and use the next half hour. 17 So we'll resume at 4:25. Thanks, everyone. 18 (Recess taken at 4:17 p.m.) 19 (Proceedings resumed at 4:27 p.m.) 20 THE COURT: Mr. Dintzer. 21 CROSS-EXAMINATION OF MARK ISRAEL BY MR. DINTZER: 22 23 Q. Thank you, Your Honor. 24 Dr. Israel, you dispute that the general search services 25 are a relevant antitrust market; is that right?

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A. Yes.

Q. But you have not defined a relevant market that includes Google search; is that right?

A. I think what I said, what will be accurate is not the precise metes and bounds, not the borders of one. I've
described additional competitors that need to be in that
market, but I have not described where the ultimate boundary
would be.

9 Q. Okay. So you've not indicated this is a search
10 market that would include Google -- any of Google search,
11 right?

A. I'm not sure how to answer that differently. I have not defined the exact boundaries of the market. I've tried to indicate what competitors would be in there, sufficient competitors that I think belong there, to indicate an absence of monopoly power.

Q. So you have -- so I just want to make sure that we're on the same page, Doctor. You have not provided the Court with the contours of a complete product market, including Google search; isn't that correct?

A. I have not provided the ultimate outside boundaries.
I've indicated additional competitors that would need to be
in it. But there may be more, I have not reached that
decision.

25

Q. And we're going to talk about query-by-query. But

	8605
1	you haven't done a query-by-query analysis for any market; is
2	that right?
3	A. I've analyzed queries. I'm not sure what else you're
4	asking.
5	Q. Well, so you've talked about how queries are
6	necessary to build the market, right?
7	A. I think what I said is the product is an answer to a
8	query, and you should group together those products in a way
9	that makes sense given competition.
10	${f Q}.$ And you haven't done that, you haven't built a set of
11	queries into a product market; is that right?
12	A. I've described groupings that I think are logical and
13	would make sense.
14	Q. But you haven't done them you haven't provided
15	them in a market, you haven't said this is a market and it
16	contains these queries; is that correct?
17	A. I still think it's the same answer. I've described
18	competitors that I think needed to be included. I have not
19	described the precise boundaries.
20	${f Q}.$ Sir, you testified in the American Airlines-Jet Blue
21	antitrust case?
22	A. Yes.
23	${f Q}$. And the case involved an alliance between American
24	Airlines and Jet Blue called, I think, the Northeast
25	Alliance, or the NEA?

	8606
1	A. That's correct.
2	${f Q}$. And the NEA involved coordination by competitors in
3	an industry that, on a domestic level, is highly
4	concentrated, often volatile, at least as found by the trial
5	court?
6	A. I don't recall, those words may be in the opinion.
7	Q. You've read the opinion?
8	A. Yes. I don't remember all the words, but that may be
9	in the opinion.
10	Q. Of course. You were the defendant's lead expert?
11	A. I was one of three experts.
12	Q. But you were the defendant's lead expert?
13	A. I don't know if that's how I would characterize
14	myself. I was one of three experts.
15	${f Q}$. Did the trial court characterize you as one of the
16	defendant's as the defendant's lead expert?
17	A. Again, I don't recall, the court may have.
18	Q. You provided lengthy testimony?
19	A. That's correct.
20	${f Q}$. And in its opinion the court wrote: "When it comes
21	to Dr. Israel's analysis predicting the NEA's benefits, his
22	projections are contaminated by his reliance on scenarios
23	designed and selected by the defendants"?
24	A. That sounds like what the court wrote.
25	Q. The court rejected all of your opinions?

	8607
1	A. That's correct.
2	${f Q}$. And at trial, you testified that you remembered
3	conversations with executives and lawyers from two years
4	earlier, although you took no notes; is that correct?
5	A. Yes, I did remember those conversations.
6	Q. And you testified to that; is that right?
7	A. That's right.
8	${f Q}$. And the trial court found that this testimony was not
9	credible, right?
10	A. I think there was a footnote saying it was not
11	credible that I had those memories.
12	Q. Well, that you testified about those memories, right?
13	A. I did.
14	${f Q}.$ The court held that your view of the antitrust market
15	was oversimplistic?
16	A. That may be, I don't recall. I mean, it definitely
17	disagreed with my characterization, I just don't recall if
18	that was the word.
19	${f Q}.$ The court found that the defense experts, including
20	you, had, quote, the demeanor and tone of an advocate
21	invested in the outcome of the case, unquote?
22	A. That sounds right.
23	${f Q}.$ The court held that you rendered opinions based on
24	false assumptions?
25	A. I think that's what I think that's among the

	8608
1	reasons the court disagreed, yes.
2	Q. The opinion states: "In his lengthy testimony,
3	Dr. Israel also demonstrated a misunderstanding and
4	misapplication of antitrust concepts."
5	A. That sounds like language from the opinion.
6	${f Q}.$ The opinion states: "The Court emphatically rejects
7	this arbitrary, unfounded view."
8	A. That sounds right.
9	${f Q}.$ And finally, the opinion states: "The Court finds
10	Dr. Israel's opinions rendered in this case are entitled to
11	no weight." Is that correct?
12	A. Yes.
13	${f Q}$. Now, you testified here that Google serving results
14	for serving results for noncommercial queries, I believe
15	in response to the Judge's question. Do you recall that?
16	A. I'm sorry, could you repeat that?
17	Q. Of course. You discussed Google's serving of results
18	for noncommercial queries. Do you remember discussing that
19	with the Court?
20	A. Yes.
21	${f Q}$. And you likened that to free samples for advertising?
22	A. Yes.
23	${f Q}$. You know that consumers don't pay for any queries on
24	Google, right, so they're all free, right?
25	A. To consumers there, there's no monetary cost,

	8609
1	correct.
2	${f Q}$. And you say that Google shows noncommercial queries
3	to build its brand; is that right?
4	A. I believe that's what I said, yeah, that sounds
5	accurate.
6	Q. Google serves 80 percent of queries only to build its
7	brand, that's your theory?
8	A. I think what I said is they show them to firms
9	maximize profits. It's not monetizing those in another way.
10	So the benefit is to improve its ability to make money, which
11	is happening on other queries. So the benefit is improving
12	the reputation to do so.
13	${f Q}$. Or it's to get people to type in all their queries
14	regardless without knowing whether they're commercial or
15	noncommercial so that Google can answer them, right?
16	A. I think it's trying to encourage people to type their
17	queries in. Whether it's all or more, it's trying to
18	encourage people to find Google to be an attractive place to
19	type queries.
20	${f Q}$. Right. But you said that Google's answering the
21	noncommercial queries to build their brand. There are other
22	ways to build a brand, right?
23	A. Yes.
24	Q. In fact, most companies build a brand without
25	creating an enormous index and crawling the web, right?

	8610
1	A. Certainly most companies don't crawl the web.
2	${f Q}$. Okay. And so and Google invests billions of
3	dollars in building its index and crawling the web, right?
4	A. Right, and makes substantial revenue doing so on the
5	queries that it monetizes.
6	Q. Exactly. So 80 percent of what it does is not
7	monetized, and it monetizes on the 20 percent not to
8	scale, it's late in the day, that it does monetize, right?
9	A. That sounds right.
10	${f Q}$. And but to the user, they just type their query in
11	and Google answers it, right, whether it's a commercial query
12	or noncommercial query?
13	A. I mean, the user experience is somewhat different
14	based on whether ads are served and so on. But yes, the bar
15	is the same.
16	${f Q}$. Right. And have you done any research about whether
17	users when they're typing or tapping to put in a query,
18	whether they know that it's going to be a commercial or
19	noncommercial query, whether an ad is going to come up or
20	not? Have you done any research at all about that?
21	A. I don't think I specifically studied whether users,
22	no.
23	${f Q}$. So a user might just think, oh, I've got a query and
24	I'm going to put it in. And the fact that Google can answer
25	this 80 percent gives them a crack at this 20 percent,

1 because Google answers everything, right? From the user's 2 point of view, they don't have that distinction, right? I don't know what you mean by a crack at. It makes 3 Α. sense and is consistent with my opinion that the user learns 4 5 that Google is good at doing this. 6 Q. At answering all queries? 7 At answering gueries, sure. And I don't know what Α. you mean by all queries. The user doesn't learn that Google 8 9 is going to be my source for all queries. The user learns 10 that when I type something into Google, I tend to get a good 11 answer. 12 Q. And you haven't seen any documents where Google 13 evaluates if they could build their brand more effectively or 14 more efficiently if they invested their money in some other 15 product or some other avenue, have you? 16 I mean, they do advertise in other ways. Α. 17 But that's not my question, sir. My question is you Q. 18 said that Google does this 80 percent for brand building for 19 this. And my question is have you seen any Google documents 20 where they describe it as such; where they say, look, we'll 21 invest this money in building -- in indexing and crawling the 22 web instead of advertising or doing what most companies do, 23 flyers or billboards of whatever? Have you seen anything at 24 Google that says that that's why they're investing?

A. I've seen lots of things at Google indicating that

	8612						
1	they're investing to have a reputation for being good at						
2	providing results.						
3	Q. Exactly. Now, for your search analysis, we're going						
4	to talk obviously we're going to go through everything						
5	that you've done. But for your search analysis and you						
6	can tell me if I'm wrong and you still have your binder up						
7	there for your deck, right?						
8	A. Yes.						
9	Q. Am I right that you don't cite a single Google or						
10	Bing internal document to support your theories?						
11	A. I'm sure there were citations to documents in my						
12	report.						
13	Q. Right, but I'm talking about what you presented in						
14	court?						
15	A. I just I don't recall.						
16	Q. You're welcome to look. I saw one document, if I'm						
17	right, the BofA document, which actually comes from Professor						
18	Whinston's report.						
19	But other than that, can you think of any documents						
20	Google-Bing documents that you cite to support your search						
21	theories?						
22	A. I mean, there's some Google information about my						
23	you mean by search theories, you mean the user side theories?						
24	${f Q}.$ The user side theories, I'm happy to discuss it that						
25	way.						

A. Either way is fine, I just wanted to be clear. I
mean, the slides will speak for themselves. I don't
remember.

Q. Okay. Didn't you think that -- I mean, here you have 4 5 the biggest search engine in the world, certainly the biggest in the United States, and you have complete access to all 6 7 their documents. And you don't cite a single document to support your theory about how Google's -- about Google's 8 9 search market, not a single internal document that discusses 10 it, shows that somebody at Google thinks the same way that 11 you do?

A. I mean, I tried to cite what is relevant to each opinion. I don't think -- I mean, in general, it's going to be more data than documents, where I can get it. But in each opinion, I tried to cite what in the record was most relevant.

Q. Now, you are not addressing whether Google's conduct
on the user side is in any way exclusionary or whether it
harms competition on the user side of the market, right?

A. I certainly think some of my opinions speak to that
in terms of the extent of competition would be a factor in
such an analysis. But I don't do a separate competitive
effects analysis the way I do on the advertising side.

24 Q. Do you know if Google looked for business documents25 that support your theory?

	8614					
1	A. I don't really even understand. Who at Google? I					
2	don't					
3	${f Q}$. Do you know if people looked at Google for business					
4	documents that support your user side theory?					
5	A. I don't know what people at Google looked for. I					
6	looked with the help of my team for all the documents I could					
7	find in the record on all sides to form my opinions.					
8	${f Q}$. And so you tell me if you agree with this statement:					
9	"I do not address whether the alleged conduct is in any way					
10	exclusionary or whether it harms competition on the user side					
11	of the market or harms the users themselves"?					
12	A. I think that's from my initial report. I just					
13	wanted the distinction I was drawing was, based on my					
14	assignment, I do a competitive effects analysis on the					
15	advertising side, but not the user side.					
16	${f Q}.$ So you do not offer any opinion on the user side					
17	regarding exclusionary conduct or harm to competition, right?					
18	A. I mean, again, I think the clearest answer would be					
19	my opinions are relevant, but I don't separately go on to					
20	analyze the competitive effects.					
21	${f Q}.$ Is the statement from your report still accurate?					
22	A. I mean, it's in the context of several paragraphs					
23	describing what I do and don't do, and it was in my opinions					
24	today. There's not a separate competitive effects analysis					
25	on the user side. I just don't want to say that opinions					

1 about market definition and monopoly power on the user side have no bearing on such a thing. 2 **Q.** But you did, you said it in your report, right? 3 So I'm just asking you do you -- are you saying right here now 4 5 that you are going beyond what you've said in your report or not? Do you want me to read it to you again or do you know 6 it? 7 I know it. I'm offering the opinions that are in my 8 Α. 9 report. So I think the accurate statement, just to make sure 10 we're all clear, is I'm offering opinions on market 11 definition and monopoly power which may be useful to the 12 Court in analyzing those questions. But I'm not separately 13 analyzing the competitive effects on the user side. 14 Q. You're not offering an opinion about whether a 15 general search services market would have significant 16 barriers to entry, right, on the user side? We're going to 17 get to the ad side. 18 I'm thinking. If, by a general search services Α. 19 market, you mean a market that only includes general search 20 engines? 21 ο. Sure. 22 Then I'm not analyzing that market, because I don't Α.

22 A. Then I m not analyzing that market, because I don't
23 think it's the correct market. I'm analyzing it insofar as
24 determining that it doesn't include the relevant competition.
25 Q. I didn't quite track that, so I just want to make

8616 1 To the extent that the Court finds a general search sure. 2 services market, you don't have an opinion about whether there would be significant barriers to entry; is that right? 3 If, by that market, you mean it only includes general 4 Α. search services, then I haven't offered an opinion about 5 those factors in that market. 6 7 Q. Now, whether products should be included in markets 8 depend on the degree of substitution at competitive prices, 9 right? 10 A. As long as we agree -- and we could discuss more on 11 the definition of competitive prices, then I agree with that 12 statement. 13 The purpose of market definition is to figure out the Q. 14 competitive products? 15 That's a little narrower than I would probably say. Α. 16 I would probably say the purpose is to figure out competitive 17 constraints, but competitive products is close. 18 Q. Market definition is meant to be a useful tool in 19 antitrust cases? 20 That sounds right. Α. 21 And you don't perform a horizontal merger test, Q. 22 right? 23 You mean a hypothetical monopolist --Α. 24 Q. I'm sorry, it is late in the day. 25 A. It's got the same letters.

	8617						
1	THE COURT: Wrong case.						
2	BY MR. DINTZER:						
3	Q. You know, I made the mistake of writing the initials						
4	here instead of writing it out, Your Honor.						
5	So a hypothetical monopolist test?						
6	A. Yeah, it's what I described to the Court. I don't						
7	perform a formal test, I use the concepts as guides.						
8	Q. Now, General Motors has a website, right?						
9	A. That sounds right.						
10	${f Q}$. And on that website, it has one of those magnifying						
11	glasses to enter queries, right?						
12	A. I think you showed me this at my deposition, so I						
13	presume it still does.						
14	${f Q}.$ Can we bring it up. Yes, we did talk about it at						
15	your deposition. If somebody went to General Motors, hit						
16	that magnifying glass and searched for what kind of car to						
17	buy, you conclude that that would be competition for Google,						
18	right?						
19	A. I think I said a very little bit. Any query as I						
20	said this to the Court, any query that Google could have						
21	gotten and doesn't got doesn't get takes a little bit away						
22	from Google. I certainly wouldn't say that needs to be in						
23	the market, but I agree that an issue that Google faces is						
24	there's a lot of ways to do queries. I named the ones that I						
25	think probably need to be in the market. But there are other						

	8618						
1	ways to do queries, and those are queries that Google doesn't						
2	get.						
3	${f Q}$. In your deposition, I asked you to name three major						
4	corporations that do not compete against Google for queries.						
5	Do you remember that?						
6	A. I think it was the very first thing you asked me.						
7	Q. Okay. Do you remember what your answer was?						
8	A. I think I said General Motors, Pepsi and Coke.						
9	Q. Well, to be clear, you said you couldn't name any						
10	major corporation that doesn't compete, right?						
11	A. No, I don't think I said that. I think I said off						
12	the top it was the first question of the deposition, so I						
13	just said off the top of my head I'm not thinking of any, and						
14	then I gave you three.						
15	Q. The three that you gave me let's work with that,						
16	Pepsi, Coke and GM. You believe that each of them and their						
17	little query bar on their websites where they answer queries,						
18	that they compete with Google to some extent in answering						
19	queries, right?						
20	A. I mean, a tiny bit. Google's trying to answer as						
21	many queries as it can, and that took one away out of						
22	80 billion.						
23	${f Q}$. Okay. And can you name any corporation in the United						
24	States that doesn't compete with Google for queries?						
25	A. I mean, I wouldn't say those corporations compete						

1 with Google in any meaningful way. There are some queries 2 that move away. So I don't know off the top of my head if 3 there are corporations that have never gotten a query. We're not talking about anyone who should be in the market. But 4 Google's trying to answer queries, and there's lots of ways 5 to do it, and Google has to deal with that competitively. 6 7 Q. And you keep talking about the market, and I'm just asking, any entity that has one of those little boxes that 8 9 answer queries is in competition with Google for the queries 10 that go in that box, under your theory, right? 11 A tiny bit for one query. I mean, this is like Α. 12 saying anything I could do with my time competes with 13 anything else I could do with my time. A tiny bit. But 14 that's not how we analyze antitrust. 15 Q. Well, sir, but you're the one that came up with the 16 query-by-query analysis, right? 17 Α. No. 18 Q. You believe that the market analysis is query-by-query, right? 19 20 I mean, I think I was clear on this. I think the Α. 21 product is an answer to a query, and we should group together 22 queries that are reasonably grouped together. 23 So that would be query-by-query, right? Q. 24 Α. I don't really agree with that description. I think 25 you build it up by looking at queries. But I tried to be

	8620						
1	clear that you should aggregate as far as you can, but not go						
2	beyond that to where you're missing competitors.						
3	${f Q}.$ Just about every website on the internet has a search						
4	bar somewhere, right?						
5	A. That sounds right.						
6	Q. So like the DOJ website has a search bar?						
7	A. Probably.						
8	${f Q}$. And does the Department of Justice compete with						
9	Google for queries?						
10	A. Again, in this extremely remote way, if somebody						
11	types something in there they might have typed for Google,						
12	then 1/80 billionth of Google's queries might go there.						
13	${f Q}$. And the same for the website for U.S. District Court						
14	for the District of Columbia?						
15	THE COURT: For the record, we do not compete.						
16	MR. DINTZER: But you do have a little search bar. In						
17	fact, we've got it up on the screen there. We would agree						
18	with Your Honor. We're certainly not trying to create						
19	anyway.						
20	MR. SCHMIDTLEIN: We'll stipulate to that, Your Honor.						
21	THE COURT: Good. I don't want there to be a conflict.						
22	BY MR. DINTZER:						
23	${f Q}$. Not at all. But you do believe that any query like						
24	that is one that Google potentially could get and so is						
25	potentially in competition for it?						

1 If it doesn't go to Google, then Google lost that one Α. 2 query. Again, I don't contend that's constraining Google in 3 the definition you gave before or that Google's focused on I think what we should do is look at queries and see 4 that. 5 who is getting a significant number of them. 6 Q. And I want to make sure that I get you right. You 7 believe search competition happens query-by-query, right? I believe users make -- I think the demand side --8 Α. the product is a query, and the demand side substitution 9 10 happens on the product that consumers choose. 11 Q. So the idea --12 Every time a -- like in any market, every time a Α. 13 consumer makes a choice between two products, that's a piece 14 of competition. 15 So search competition happens query-by-query, right? Q. 16 In terms of the competition for each user, I think Α. 17 that's right. Now, again, I've never said analyze each query 18 as a market or something, you aggregate as much as you can. 19 Q. You keep saying that, aggregate as much as you can. 20 But how are you going to aggregate the queries if you're not 21 going to look at the queries? You need to look at them to 22 aggregate as much as you can, right? 23 There's ordinary course definitions, there's Α. 24 verticals. I mean, our job is to try to look -- all I want 25 us to do is look where the competition is happening, look

1 who's in the market. So if there's different products, then 2 we need to think about how competition plays out for those 3 different products. Well, sir, but the market can -- well, let's take --4 0. 5 whether Amazon is a competitive constraint on Google varies by query? 6 7 When Amazon is a competitive constraint for a large A. 8 class of queries and not for others. My standard is 9 aggregate enough up that you don't leave Amazon out. Don't 10 aggregate to the point where you decide Amazon is not 11 competition. 12 Q. So I need you to answer my question, sir. Whether 13 Amazon is a competitive constraint on Google varies by query; 14 there are some queries that you believable Amazon is, and 15 some queries you believe that they're not, right? 16 A. Yes, Amazon is a competitor for shopping queries. 17 That's a well-defined category that we can analyze. 18 Q. But there are some queries that Amazon gets that it 19 doesn't compete with Google, even under your theory, right? 20 Sorry, I didn't understand that question. Α. 21 Google gets some queries that it doesn't compete with Q. 22 Amazon for, you'll agree with that? 23 I agree with that. Α. 24 Okay. And are there queries that Amazon gets that Q.

Google doesn't compete for?

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- 1
- A. Not obviously to me.

Q. But the query-by-query analysis is just the starting
point, and then figuring out how meaningful groupings of
those queries, that's the next step, right?

A. I would agree that the product is an answer to a
query, and what we ought to do is try to find reasonable
groupings of them. You don't need to look at 80 billion of
them to do that, you need to just break them down enough that
we see who the competitors are.

10

11

12

Q.

A. Do I have it? I don't have it.

So let's go to, in your first report, table 13.

Q. No, we're going to get it to you.

13 THE COURT: Can I ask a question. In your view, the fact 14 that hypothetically we could define smaller vertical search 15 markets, sub markets, does that then foreclose the definition 16 of a general search market that would subsume not only those 17 verticals, but noncommercial verticals?

18 THE WITNESS: Again, I think the right standard is not to 19 group together products where competitive conditions are 20 different, because you effectively average over different 21 sets of competitors. So going with my view, which is that 22 market definition is a tool to be useful, I think it's most 23 useful if we have categories in which the competitive sets 24 are more equal. That said, if the Court wanted to sort of 25 roll things up in some way, what really would matter to me is

1 don't leave Amazon and Expedia and these guys out of it, 2 right, because they are competing for large swaths of it. So 3 don't say a competitor has to do everything to do anything. THE COURT: And I think you said that -- you said 4 5 something about different competitive conditions for each vertical. Can you describe what you mean by that? 6 7 **THE WITNESS:** Well, it's basically just different firms are competing for them. 8 9 THE COURT: It's just different competitors? 10 THE WITNESS: Yeah, different competitors. I mean, 11 another just an example, you know, we were just talking about 12 an airlines case. So when the DOJ -- one thing we've always 13 agreed on about airlines is you define markets route by 14 route; and you break it down, you don't roll it all up into 15 one. And one reason you do that is because there's different 16 airlines competing on different routes and you can assess 17 that. If you rolled it all up, you might say Jet Blue 18 doesn't compete with American because they're not everywhere. 19 I'm just saying break it down enough so that you can analyze 20 who the competitors are in a meaningful way.

21 BY MR. DINTZER:

Q. Now, you'll agree that no browsers default to searchverticals, right?

24 A. That's a very short, general question. Can you ask25 it one more time?

	8625					
1	Q. Sure. You know what a browser is?					
2	A. Yes.					
3	Q. And you know what a search is that the term you					
4	used, search vertical?					
5	A. I think I borrowed the term that the States had used					
6	which was specialized vertical provider.					
7	Q. So let's just use SVP.					
8	A. Yes.					
9	Q. So we've got our browser and we've got our URL bar or					
10	our search bar. You can choose the browser, but none of them					
11	default to anything other than a general search engine,					
12	right? And we can go through them, Chrome and the like. But					
13	they all default to a search engine, right?					
14	A. I'm just struggling a little with default, for what					
15	purpose. Because there's been testimony here that they do					
16	attempt to answer a lot of questions by looking at SVPs.					
17	Q. So you know what a default is, right?					
18	A. Well, I mean, it can mean various things. If you					
19	mean there's sort of a default search engine that they put on					
20	the browser, and that's what we're talking about					
21	${f Q}.$ That's what the case is about, sir. The default					
22	search engine that they put on the browser, that that any					
23	of them default to anything other than					
24	A. I would agree the default browser, in the way you're					
25	using it, is a general search engine, we talked about that.					

	8626					
1	Q. You can't name any that default to an SVP, right?					
2	A. That fill this role of the search engine, no. We					
3	talked about this, right, because they need something that					
4	could cover any case.					
5	Q. Cover any case. That's a general search engine,					
6	right?					
7	A. Yeah, that sounds right. I mean, as we've been					
8	discussing, general search engines will answer any query, and					
9	they compete for categories of queries with SVPs.					
10	${f Q}$. And SVPs, in reverse, they do not cover any query by					
11	nature, right?					
12	A. Yeah, they cover the set of queries that they cover.					
13	MR. DINTZER: And with that, Your Honor, I can crack his					
14	report, but it might be a good time to wrap up, if that's					
15	okay with the Court.					
16	THE COURT: Okay. So why don't we conclude for the day.					
17	It's a little bit before 5:00 o'clock. Dr. Israel, I'll ask					
18	you to step down and step out. I just want to talk about					
19	scheduling. I'll just ask counsel for Google to let you know					
20	what time to return tomorrow.					
21	THE WITNESS: Okay.					
22	THE COURT: Thank you, Dr. Israel. Have a nice night.					
23	(Witness not present)					
24	THE COURT: Mr. Dintzer, do you have a ballpark sense of					
25	what we're looking at in terms of length of your					

cross-examination? It can be a large ballpark, I'm not 1 2 asking for specified time, but I understand. MR. DINTZER: It's pretty lengthy, Your Honor. We need 3 to go everything that he went through -- I mean, except for 4 5 SA360, which our friends will be taking care of. So at a 6 very minimum, two and a half hours. It is --7 THE COURT: That seems --8 MR. DINTZER: It's lengthy. 9 THE COURT: No, I was going to say an underestimate. 10 MR. DINTZER: And to be fair to my team, one of the 11 things I need to do is talk to them. I mean, we've seen a 12 lot here today, they covered a lot of ground. I mean, I'm 13 giving the Court an estimate --14 **THE COURT:** No, no, what I'm trying to figure out is 15 whether if we tweaked the schedule tomorrow we could finish 16 with Dr. Israel, but that doesn't seem realistic. 17 Let me ask, Mr. Schmidtlein, what is your current 18 thinking about Monday, and do you have folks coming in from 19 out of town? What's the thinking about fact witnesses early 20 next week? 21 MR. SCHMIDTLEIN: We have two Google employees, fact 22 witnesses, who are -- who will be here ready to testify on 23 Monday. Obviously, if the second of those needs to get 24 pushed back, they can be pushed back by a day. We have that 25

flexibility, I suppose. But we do have two fact witnesses

25

who will be here testifying on Monday.

2 THE COURT: And do both of those -- one or more of those witnesses have flexibility in terms of when they can be here? 3 4 MR. SCHMIDTLEIN: I believe so. I believe so, yes. 5 THE COURT: See what you can figure out this evening. Look, if you've got say, for example, a fact witness who is 6 7 scheduled to come Monday and says I can only be here Monday, then we'll break up Dr. Israel's testimony as needed to 8 9 accommodate the fact witnesses. But if they have some 10 flexibility, I'd like to finish him all at once. It doesn't 11 seem to me that he's likely to be done, at the earliest, 12 by -- I think realistically, with redirect, I suspect it's 13 probably not going to be until after lunch on Monday, if I 14 were to guess. Maybe Monday morning, but I think it's 15 probably -- Monday morning is probably I think an optimistic 16 estimate. 17 MR. SCHMIDTLEIN: Okay. I will check this evening, and 18 I'll be able to report back first thing in the morning. 19 THE COURT: Just, again, my concern is accommodating the 20 schedules of fact witnesses first, and then we can worry 21 about Dr. Israel's schedule second. 22 MR. SCHMIDTLEIN: Thank you. 23 THE COURT: That's all I had for the evening.

24 Anybody else want to raise anything?

MR. DINTZER: Not from the DOJ plaintiffs, Your Honor.

	8629
1	MR. CAVANAUGH: No, Your Honor.
2	MR. SCHMIDTLEIN: No, Your Honor.
3	THE COURT: So we'll see everybody tomorrow morning, and
4	we'll just get started at 9:30 per usual. Thanks, everyone.
5	Have a good night.
6	(Proceedings adjourned at 4:59 p.m.)
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1	CERTIFICATE
2	
3	I, Jeff M. Hook, Official Court Reporter,
4	certify that the foregoing is a true and correct transcript
5	of the record of proceedings in the above-entitled matter.
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8	November 2, 2023
9	November 2, 2023
10	DATE Jeff M. Hook
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BY MR. DINTZER:	8537/4 8545/15	8588/4	33 [1] 8503/7	9.50 [1] 802974
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BY MR. SOMMER:	8571/8 8576/7	8594/13	3:17 p.m [1]	8539/7 8548/2
[16] 8506/4	8588/9 8591/1	149 [1] 8599/7	8563/2	8550/7 8551/12
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8563/7 8563/25	8600/12 8602/15	18-years-olds [1]	8582/14	8571/19 8576/2
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MR. CAVANAUGH:	\$	1:32 [1] 8503/6	4:17 p.m [1]	8601/8 8601/10
[1] 8628/25	\$1.30 [4] 8579/10	2	8603/18	8602/4 8609/10
MR. DINTZER: [11]	8579/10 8579/11		4:25 [1] 8603/17	able [11] 8506/15
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8627/7 8627/9		2.5 percent [1]		8599/12 8628/18
8628/24	\$60 [1] 8551/4	8588/24	50 [1] 8595/4	above [4] 8514/11
MR. SCHMIDTLEIN:	\$60 billion [1]	2.5/90 [1] 8588/8		8554/8 8570/13
[6] 8620/19	8551/4	20 [2] 8588/7	8512/16	8630/5
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MR. SOMMER: [5]	1/80 billionth [1] 8620/12	•		8604/15
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THE COURT: [59]	8550/15 8551/17		60604 [1] 8503/20	
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