

EXHIBIT 5

Publicly Filed Version

1 ** C O N F I D E N T I A L **

2 ** ATTORNEYS' EYES ONLY **

3 UNITED STATES DISTRICT COURT
4 NORTHERN DISTRICT OF CALIFORNIA
5 SAN FRANCISCO DIVISION

6 Case No. 3:20-CV-04688-RS

7 -----x

8 ANIBAL RODRIGUEZ, et al. individually
and on behalf of all others similarly
situated,

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 Plaintiff,

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11

 - against -

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GOOGLE LLC,

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 Defendant.

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 June 26, 2023

16

 10:05 a.m.

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 Videotaped Deposition of JONATHAN
HOCHMAN, taken by Defendant, pursuant to
Notice, held at the offices of Willkie Farr
& Gallagher LLP, 787 Seventh Avenue, New
York, New York, before Todd DeSimone, a
Registered Professional Reporter and Notary
Public of the State of New York.

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20

JOHN BLACK (Via Zoom)

21

PAUL BAKER, Videographer

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1 THE VIDEOGRAPHER: Good morning.
2 We are going on the record at 10:05
3 a.m. eastern daylight time on Monday,
4 June 26th, 2023. Please note that the
5 microphones are sensitive and may pick
6 up whispering and private
7 conversations. Please turn off all
8 cell phones at this time.

9 This is media unit one of the
10 video-recorded deposition of Jonathan
11 Hochman in the matter of Anibal
12 Rodriguez, et al., versus Google LLC,
13 filed in the United States District
14 Court, Northern District of California.
15 This deposition is being held at
16 Willkie Farr & Gallagher LLP located at
17 787 Seventh Avenue, New York, New York.

18 My name is Paul Baker and I am
19 the videographer, the court reporter is
20 Todd DeSimone, and we are both from
21 Veritext.

22 Appearances have been noted on
23 the stenographic record. Would the
24 court reporter please swear in the
25 witness.

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* * *

J O N A T H A N H O C H M A N,
called as a witness, having been first
duly sworn, was examined and testified
as follows:

EXAMINATION BY MR. SANTACANA:

Q. Good morning, Mr. Hochman. Our
appearances are already on the record, so
we will just get started.

You have been deposed before?

A. Yes.

Q. How many times?

A. Over 50.

Q. Okay. And you have served as a
litigation expert before?

A. Yes.

Q. How many engagements roughly?

A. Hundreds.

Q. Hundreds. You are currently
retained by the plaintiffs in this action?

A. Yes, I believe so, the class.

Q. And how many hours have you
spent roughly on this engagement?

A. I'm not quite sure of my
personal hours, but I know that between

1 Julie Burns and I it's a total of about I
2 think 900 hours.

3 Q. Does she bill at your same
4 rate?

5 A. No.

6 Q. What's her rate?

7 A. I don't remember exactly what
8 it is for this case, but it's substantially
9 less than mine.

10 Q. Roughly half?

11 A. Roughly a third.

12 Q. Roughly a third, okay. So
13 blended, in total, do you have a sense of
14 how much you're looking at in terms of
15 revenue from the case at this point?

16 A. I'm not sure of the revenue.
17 I'm not quite sure.

18 Q. How would you break down the
19 900 hours between you and Julie?

20 A. I'm not sure. I think she has
21 probably put in more hours than I have, and
22 that's my sense of it.

23 Q. 60/40, 70/30?

24 A. I'm not sure.

25 Q. Roughly how many hours do you

1 think you've put in, order of magnitude?

2 A. Hundreds.

3 Q. Hundreds. Did you review John
4 Black's report?

5 A. Yes.

6 Q. Did you review the backup for
7 the report?

8 A. Yes.

9 Q. What's Julie's role in all
10 this?

11 A. Julie has been assisting me and
12 she's especially good at fact checking.
13 She is very detail-oriented and I have
14 asked her to check all the references, and
15 I think this report that I wrote, because
16 of her help, has fewer little errors in it
17 than the typical report.

18 I tried to get all the line
19 numbers right, all the page numbers right,
20 get every word right. She made a lot of
21 little corrections where things were maybe
22 not quite right, and she can also flag
23 something if she sees something that is
24 unclear, then I can go and pay attention to
25 it and make sure it is more clear.

1 Q. Well, my compliments to Julie,
2 I think she did a good job.

3 A. Oh, good.

4 Q. Did Julie do any of the
5 programming, coding, test app type work, or
6 was that all you?

7 A. That was me and other people.

8 Q. What other people?

9 A. The ones identified in the
10 report. I have listed the other
11 consultants who assisted me.

12 Q. Okay. Do they have separate --
13 a separate hours bucket than you and Julie?

14 A. So they're not billed through
15 my firm, so I don't have insight into that.

16 Q. They are billed directly to the
17 plaintiffs or the plaintiffs' lawyers?

18 A. I would assume so.

19 Q. Are those the Concur IP folks?

20 A. They are some of them.

21 Q. And is there another shop
22 involved?

23 A. Well, the report lists the
24 names of the various people and I'm not --
25 it is sort of -- I'm not sure who is

1 necessarily connected, how they are
2 billing.

3 Q. Okay. But you directed their
4 work?

5 A. Yes.

6 Q. And did you personally review
7 the code that they wrote?

8 A. Yes, I reviewed everything that
9 they did.

10 Q. Okay. Do you have a sense of
11 how many hours they put into this?

12 A. I'm sure it's hundreds to
13 thousands.

14 Q. How would you characterize
15 their role on the case other than what's
16 written in your report?

17 A. I mean, I think I've tried in
18 the report to give an explanation.

19 Q. Okay.

20 A. And I think that that's, you
21 know, a good explanation, what I wrote.

22 Q. Okay. So who is representing
23 you in this deposition?

24 A. Mark Mao. He is I guess the
25 plaintiff for the -- the plaintiffs'

1 counsel, and, well, it may be a legal
2 question, is he representing me or is he
3 just here, but he is defending my
4 deposition.

5 Q. Okay. Well, have you retained
6 him as your lawyer to respond to the
7 subpoena, for example?

8 A. I know that one of the firms
9 put together a response, I know that there
10 was a subpoena, and I know that there was a
11 response.

12 Q. Did you review the subpoena?

13 A. Yes.

14 Q. Did you review the response?

15 A. Yes.

16 Q. Did you approve it?

17 A. Yes.

18 Q. So have you retained any of
19 those lawyers to be your lawyer in response
20 to the subpoena?

21 A. That may be like a legal
22 question, but essentially they're
23 responding on my behalf.

24 Q. Let me ask it a different way.
25 Did you sign any retention

1 agreement or any engagement letter with any
2 lawyers in response -- in relation to that
3 subpoena?

4 A. I don't recall if there was
5 something at an earlier stage in this
6 process. I didn't sign anything within the
7 last week or two. I don't remember signing
8 anything in the last week or two. But it
9 may be covered by some prior agreement.

10 Q. And you didn't pay anybody to
11 respond to the subpoena for you or to
12 defend your deposition?

13 A. I mean, that's not how it
14 generally works, so no.

15 Q. Okay. Have you been retained
16 by the Boies Schiller firm before?

17 A. No, other than the Brown case.

18 Q. So there is Brown and there is
19 this. No other engagements with Boies
20 Schiller?

21 A. No.

22 Q. What about Susman Godfrey?

23 A. I worked on a prior case with
24 Susman Godfrey on a patent case for them.

25 Q. When?

1 A. Several years ago.

2 Q. Retained by any other lawyers
3 in this case for any other engagements?

4 A. No.

5 Q. Your report, I have a paper
6 copy of your report here, or at least the
7 written parts, the non-native parts of it,
8 and there is also one on there. I don't
9 think your report had a description of your
10 assignment in the case. On page 7 it says
11 Engagement. Paragraphs 9 through 12, would
12 you say that's a fair, let me hand this to
13 you, would you say that's a fair summary of
14 your assignment in the case?

15 A. Okay, so before you asked the
16 question you made an assertion, and I feel
17 like the assertion wasn't in accord with
18 what's in here.

19 Q. I'll withdraw it.

20 (Hochman Exhibit 1 marked for
21 identification.)

22 Q. Let me instead just say I'm
23 looking at paragraphs 9 through 12 of your
24 report, which is Exhibit 1, which we have
25 premarked. Is this a fair summary of your

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1 assignment in the case?

2 A. Yes, I think this is a fair
3 summary.

4 Q. Great, okay. And then looking
5 at your table of contents now, just for the
6 structure of your report, there is a
7 Section VII, Opinions, and that has major
8 headings under letters A through K. I
9 understand there are sub-opinions to each
10 one of those opinions, but is that a fair
11 summary of the opinions you've rendered in
12 the case?

13 A. I think so.

14 Q. And are there any opinions
15 you've rendered in this case or conclusions
16 you've come to that are not reflected --
17 I'm sorry, let's pause there. All right,
18 let me try again.

19 Have you rendered any opinions
20 or come to any expert conclusions in this
21 case other than those reflected in your
22 report?

23 A. I think all of them are
24 documented in the report.

25 Q. Did you, coming back to your

1 assignment there on paragraph 9, did you do
2 your best to complete that assignment
3 truthfully, honestly and according to a
4 sound methodology?

5 A. Yes.

6 Q. Is it your role in the case to
7 provide opinions that are favorable to
8 either party?

9 A. No.

10 Q. How would you describe your
11 role as an expert witness?

12 A. I'm a neutral, so my job is to
13 explain the facts as accurately as I can
14 and to provide opinions that are as
15 accurate as I can.

16 Q. And that's the case even if
17 those facts turn out to lead to a
18 conclusion less favorable to the people who
19 retained you, right?

20 A. That may happen sometimes.

21 Q. Did it happen in this case?

22 A. I don't recall it happening,
23 but if I did find something I would have
24 told the attorneys about it. I would have
25 said oh, there's a problem with your

1 argument here, you need to adjust it.

2 Q. Okay. But sitting here today,
3 you don't recall coming to any conclusions
4 that are less favorable to the people who
5 retained you; is that fair to say?

6 A. Well, I'm not necessarily
7 thinking about what's favorable or
8 unfavorable, I'm thinking about what's
9 accurate, and I don't necessarily even know
10 what's favorable or not because part of
11 that may turn on legal questions, which I'm
12 not opining about.

13 Q. Okay. So when you say there's
14 a problem with your argument, you may want
15 to adjust it, is a better way to say that
16 there is a problem with the facts as you
17 believe them to be, this is what the facts
18 really are?

19 A. If I were to say something like
20 that to a client, which does happen, you
21 know, regularly, it's usually that I've
22 seen some additional fact that they're
23 unaware of or they have misinterpreted
24 something. It is really fairly common when
25 a law firm comes in to me with a case that

1 they've not completely accurately assessed
2 it.

3 Q. Sure.

4 A. And sometimes there are
5 adjustments. I explain it, what I've seen,
6 and I investigate and I tell them, okay,
7 here's, you know, an issue with your theory
8 where it's not exactly right, you know, the
9 real situation is a little different.

10 Q. Okay.

11 A. And that's part I think of what
12 a good expert will do.

13 Q. If it turns out that you have
14 made mistakes in your report, are you open
15 to correcting those mistakes?

16 A. I'm all about the accuracy, so
17 if there are mistakes, I would, in general,
18 with all reports, endeavor to correct them.

19 Q. And would you agree with me
20 that your obligation to provide neutral
21 expertise here doesn't end with your
22 report, if you discover something after the
23 report is done that indicates you were
24 wrong about something, you are obligated to
25 admit that, right?

1 A. I would issue a correction or
2 supplementation if there is a problem, if a
3 problem is discovered, because, as you can
4 see, the report is voluminous, it is quite
5 huge, and I'm not so proud that I wouldn't
6 admit an error, especially with something
7 so large. There is -- there is -- well, it
8 is hard to be perfect as a human. There is
9 usually some kind of error rate with all --
10 with human-mediated process there is
11 usually an error rate.

12 Q. I think you said you did review
13 the Black report and the backups?

14 A. Yes.

15 Q. You did that review personally?

16 A. Yes.

17 Q. And what about Julie Burns, did
18 she do any fact checking of that report?

19 A. I had -- I did ask Julie to
20 read over that report and give me her
21 impressions of it.

22 Q. Sitting here today, is there
23 anything, based on anything you've learned
24 since you served your final report, is
25 there anything that you want to correct in

1 this report?

2 A. Not yet.

3 Q. Okay. I want to ask you some
4 questions about the limits of your opinions
5 in the case, if I can.

6 So are you offering any opinion
7 in this case as to what consumers believed
8 or expected?

9 A. I don't think so. That doesn't
10 sound like something I've opined about.
11 Maybe as we go through the report we will
12 find something I've said, but that doesn't
13 seem to be one of the main things I was
14 opining about, no.

15 Q. Are you an expert in consumer
16 expectations?

17 A. Well, I have expertise in
18 internet marketing, internet security, so I
19 know something about consumers and consumer
20 behavior online, and, well, I will give you
21 an example, if you have a setting in a
22 piece of software, I might sometimes
23 comment, you know, most people will use
24 software with the default settings, all
25 right, because that's kind of a well-known

1 fact, and if you're in this field you
2 should know that.

3 Q. Have you developed any
4 expertise about consumer behavior online
5 apart from what are otherwise well-known
6 facts about consumer behavior online?

7 A. I mean, when I say well-known
8 facts, these are well known to people who
9 are experts in this stuff, they are not
10 necessarily well known to the layperson.
11 But I have understandings about how
12 consumers, you know, interact with ads, how
13 they interact with web pages, how they
14 interact with apps, I have to have some
15 knowledge of that in order to do my job.

16 Q. Sure. Well, and I just want to
17 be clear, my question is not if you have
18 some knowledge about it. My question is do
19 you consider yourself to be an expert in
20 this case about consumer expectations?

21 A. Well, I think I answered it
22 before, and the way I answered it before, I
23 think that was a good answer. I would just
24 sort of repeat that, you know, that doesn't
25 seem to be one of my main opinions.

1 Q. Well, okay, I mean, with
2 respect, your answer was basically I don't
3 know, I would have to look at my report.

4 A. Well, no, that's not exactly
5 what I said. What I said was I don't think
6 that's one of the opinions I'm giving, not
7 one of the main opinions. There might be
8 something tangential somewhere which
9 touches upon that, so I don't want to be
10 categorical and say absolutely nothing at
11 all, but that's not the thrust of my
12 opinions.

13 Q. Fair enough. Would you
14 consider yourself to be a consumer privacy
15 expert?

16 A. I have expertise in the issue
17 of privacy. I have done academic work in
18 that area. As far as consumer privacy, I
19 don't think I'm here as the consumer
20 privacy expert.

21 Q. Okay. Are you offering any
22 opinion in this case as to whether Google
23 misled its users?

24 A. So I think in this case I've
25 talked about how the, technically, for

1 example, the WAA/sWAA switch, I have called
2 it a fake control, because it doesn't do --
3 technically doesn't do what it seems it
4 should do. So I have to -- there is
5 some -- I guess there is a little bit of
6 overlap into that, but I'm not giving you a
7 legal opinion about, you know, about that,
8 I'm simply opining about the technology,
9 how does the technology work.

10 Q. Is another way to say that that
11 you see your role here as comparing what
12 Google said it would do and at a technical
13 level what Google does or did?

14 A. It may even be simpler than
15 that. It just is I am going to explain
16 what this control does, what it does, and
17 if I comment on what impression this is
18 going to give people or what impression
19 even Google's own staff have about this or
20 their confusion about it, I think I have a
21 number of paragraphs that talk about how
22 even the Google insiders are confused about
23 how these controls work. It looks like
24 even Sundar Pichai is confused about how
25 this control works because he testified in

1 front of Congress and told them something
2 that is just wrong from a technical
3 perspective, you know, I am commenting on
4 the technology, but I may make some other
5 comments about people's impressions because
6 it helps to establish the relevance of the
7 technical analysis.

8 Q. What relevance do Sundar
9 Pichai's comments at Congress have to have
10 with the way the control works or doesn't
11 work?

12 A. Well, it's in my report. We
13 can -- we can go down, it's towards the end
14 of the report I think.

15 Q. I'm asking about your answer.
16 You said that it helps establish the
17 relevance of the technical analysis to make
18 comments about what Googlers think or what
19 Sundar Pichai said. I'm curious what the
20 connection is between, for example, the
21 CEO's testimony in Congress and how the
22 button actual works at a technical level.

23 A. Well, I think it's going to be
24 relevant to help resolve the case to
25 observe what the public statements by

1 Google are, that this is the way this thing
2 works, versus how it actually works, which
3 is what I'm providing, how does this thing
4 actually work.

5 Q. Okay. So that brings us back
6 to my original question, which is you
7 looked at both what Google said about how
8 it works and also how it works in your
9 report?

10 A. My report is primarily about
11 how it actually works. I have some
12 comments along the way noting things that
13 Google has said on its web pages, things
14 that Google -- how the user interface
15 looks, what Google's inside staff have said
16 about it, what Sundar Pichai said about it,
17 and I think all these facts are pertinent
18 and relevant and that the factfinder should
19 take them into consideration.

20 Q. In deciding what?

21 A. The ultimate issues in dispute.

22 Q. Why do you think the factfinder
23 should take them into consideration?

24 A. Because they seem relevant.

25 Q. Why do they seem relevant?

1 A. Because they seem to shed light
2 on the issues that are in dispute.

3 Q. What do you mean by that?

4 A. Well, I've read the complaint
5 and I've read the answer and I've read a
6 bunch of other documents in the case and I
7 have a general idea of what the dispute is
8 about.

9 Q. Okay. So then can you tell me
10 how it sheds light on the dispute?

11 A. I mean, to me it's sort of just
12 logic, it's someone should understand is
13 this control working as advertised, does
14 this control work the way it's supposed to.

15 Q. How did you come to a
16 conclusion about what the control is
17 supposed to do?

18 A. Well, I think that may be
19 something that, you know, the factfinder
20 needs to determine, because I think that
21 that might be in dispute. Google might
22 have one position, this is what the control
23 is supposed to do, and the plaintiffs might
24 have a different position there.

25 Q. So I think you said earlier a

1 few minutes ago that you came to the
2 conclusion that the WAA control is a fake
3 control because it doesn't do, quote, "what
4 it seems it should do." I assume by that
5 you meant what it seems to you it should
6 do?

7 A. Well, it's not just me.

8 Q. Sure. But -- well, what did
9 you mean when you said "what it seems it
10 should do"? That's based on your
11 understanding of it?

12 A. Well, it's based on my
13 understanding of it and it's also based on
14 the understanding of the various people
15 I've quoted and cited in the report who
16 have also made comments, and it is also
17 based on looking at the user interface and
18 seeing what's shown to the user.

19 Q. On you looking at the
20 interface?

21 A. I have looked at the interface
22 and other people who are quoted have also
23 looked at the interface and it's -- it
24 looks like it is a control that allows
25 users to have some privacy and to not have

1 their sensitive information, what is the
2 word I want here, to not have their
3 sensitive information harvested and saved.

4 Q. What does "harvested" mean in
5 that sentence?

6 A. It means -- another way to look
7 at it is the user is in some app and they
8 are doing some activity and they would like
9 that activity to remain private. They
10 don't want that activity recorded, copied
11 off somewhere else, or the expectation is
12 not to have that information copied off
13 somewhere else and stored somewhere else,
14 especially when that activity is being
15 stored with Google identifiers that link to
16 them.

17 Q. Okay. So back to your prior
18 answer, and, again, for now I'm just trying
19 to understand the limits of your opinion,
20 apart from what it seems to you the control
21 should do and the quotations you referenced
22 that are in your report, is there any other
23 basis for your conclusion about what the
24 WAA control should do?

25 A. I mean, I have my experience in

1 working with technology and working as a
2 security technologist for many years. I
3 have my academic study of the topic.

4 Q. So, sorry, when I say what it
5 seems to you, I'm including all of your
6 expertise, all of your experience,
7 everything. I'm just saying, again, I'm
8 just trying to understand what you are and
9 aren't opining on.

10 So you said that it seems the
11 WAA control should do something, and we
12 will get into what that something is. What
13 it seems the WAA control should do to you
14 and the people you quote in the report, I
15 understand that. Is there any other
16 opinion, basis, like a consumer survey,
17 other documents that are not cited in the
18 report, other experts you are relying on,
19 is there anything like that informing your
20 statement that the WAA control seems it
21 should do something in particular?

22 A. Okay. So, well, I'm going to
23 go through the list that you gave and I
24 don't mind if the question was compound,
25 but you have asked about a number of

1 different things and I will try to remember
2 them all, and remind me if I miss any.

3 Q. Well, the question is, is there
4 anything other than you and what's in your
5 report?

6 A. So I'm not relying on other
7 experts' opinions. For example, I'm not
8 relying on anything Bruce Schneier has said
9 because I know he has covered some of these
10 topics extensively.

11 Q. All right.

12 A. And I'm not being redundant
13 with his opinions. He's got his opinions
14 and my opinions are designed to be
15 technical and to not be redundant with his.

16 I am not relying on documents
17 that I haven't cited into the report other
18 than, you know, sort of education and
19 expertise and everything I have absorbed
20 from everything I have ever read, but I'm
21 not relying on specific citations that I
22 haven't disclosed here.

23 And there was I think a third
24 thing you mentioned, which I have now
25 forgotten.

1 Q. Surveys.

2 A. Surveys. I am not a survey
3 expert, so I have not done surveys and I
4 don't do surveys.

5 Q. And you don't cite any in your
6 report as a basis for your opinion on what
7 WAA should do, right?

8 A. I don't necessarily -- I don't
9 necessarily want to make a categorical
10 statement like that, but I don't recall
11 citing such a thing. Whatever is in the
12 report speaks for itself.

13 Q. Okay, good.

14 And I assume you're not
15 offering any opinion as to whether Google
16 has violated any law in particular?

17 A. No, I am not a lawyer.

18 Q. And you are not offering any
19 opinion as to whether Google has committed
20 any particular invasion of privacy or
21 violation of the California constitution?

22 A. I am not giving any sort of
23 legal opinion.

24 Q. And you're not offering any
25 opinion as to the damages that Google

1 should pay in this case?

2 A. I haven't put forward a damages
3 number. I believe that the damages experts
4 may be relying on some of the statements
5 that I've made in my report or in
6 conversation they had with me.

7 Q. Yeah, that reminds me, you had
8 some conversations with the damages expert,
9 Mr. Lasinsky, prior to him serving his
10 expert report in the case, right?

11 A. I believe so.

12 Q. How long were those
13 conversations?

14 A. It was a while ago, so I don't
15 remember the exact length, but it was long
16 enough to go over the issues and have a
17 sort of complete discussion of them and
18 make sure he understood.

19 Q. So can you give me a sense of
20 what "long enough" means? Five minutes?
21 Five hours? Five days?

22 A. Well, more than five minutes,
23 and less than five hours.

24 Q. Okay. In total?

25 A. I believe so.

1 Q. And have you had any
2 conversations with him since he served his
3 report?

4 A. I don't recall, because I don't
5 necessarily have it in mind when exactly he
6 served his report and when exactly I had
7 conversations with him.

8 Q. Have you had any conversations
9 with him since you served your report?

10 A. I'm not sure. I wouldn't say
11 for sure that I haven't, but I don't recall
12 having a conversation with him after
13 serving my report, but I'm not sure,
14 because I don't recall if he served his
15 report after my report. I don't remember.

16 Q. Do you remember the last
17 conversation you had with him?

18 A. I'm not sure I remember with
19 specificity the last conversation. I just
20 remember having spoken with him on a few
21 occasions.

22 Q. What did you talk about?

23 A. It would have been this case,
24 the things that I would have spoken about
25 with him recently.

1 Q. Did you relay anything to him
2 that is not reflected in your report about
3 the technology in this case?

4 A. I don't think so. I think that
5 what I explained to him was just sort of a
6 summary of what's already in the report.
7 But the report, as you can imagine, is very
8 detailed and goes into great depth, and for
9 a nontechnical person it's not certain that
10 they could understand the whole thing.

11 Q. Did he seem to understand it?

12 A. He seemed to understand what I
13 explained to him.

14 Q. Do you know if he has reviewed
15 your report?

16 A. I don't recall. He might have.
17 I don't recall.

18 Q. Did you express any opinion to
19 him about the damages Google should pay in
20 the case?

21 A. No.

22 Q. Let's talk about injunctive
23 relief. Did you -- well, first, let me ask
24 you, there is an opinion in your report, a
25 set of opinions, about how Google could

1 change its practices and other things
2 Google could do. It's the last major
3 opinion in the report.

4 A. Are you referring to K?

5 Q. Yes. My question is about the
6 limits of this opinion. Are you opining
7 that Google should do these things or are
8 you opining about what Google could do?

9 A. I'm opining about what is
10 technologically feasible.

11 Q. Okay. You're not opining as to
12 what you think Google should do?

13 A. That seems to be more of a
14 legal question, so no.

15 Q. Okay. And are you in this
16 opinion, were you responding to a prompt
17 about -- strike that.

18 You list three major things
19 Google could do. It could change how WAA
20 functions, it could purge certain things,
21 and it could delete certain things, is how
22 I would describe your opinion. So just
23 stick with me for a second. My question is
24 how did you come up with those items of
25 things Google could do? Were you asked can

1 Google do one of the following things, or
2 were you asked a more general question and
3 you came up with your own?

4 MR. MAO: Just objection to the
5 form of the question. The document
6 speaks for itself. Go ahead.

7 A. All right. So let me just take
8 a quick look through it, because the answer
9 might be in here in fact.

10 Q. Sure. It's at 168.

11 A. Yes, I'm there.

12 (Witness perusing document.)

13 Q. And just generally speaking,
14 Mr. Hochman, I will try not to waste your
15 time and ask you questions that are
16 answered by the report today.

17 A. Fair enough.

18 Q. I may not succeed, but I will
19 try.

20 A. And in response to that
21 courtesy, I will also try to give you the
22 information you are seeking even if you
23 don't ask the question exactly the right
24 way, because I prefer to take the high
25 road.

1 Q. Well, as you've said, you're
2 not a lawyer.

3 A. So I don't recall exactly how,
4 you know, there is, obviously in this case,
5 there is a discussion between me and my
6 clients. They asked me what I think, I
7 asked them what their questions are, and
8 I'm not sure exactly whether they asked me
9 a general question, whether they asked me
10 specifics on each of these points. I just
11 don't recall.

12 Q. Yeah. It's just as a reader of
13 your report, right, paragraph 9 says you
14 were retained to develop opinions
15 concerning the technology and practices at
16 issue, and you get to page 168 and that's
17 all you've talked about, and then just
18 right out of nowhere you say I think Google
19 could change the following things, and it
20 is just kind of jarring, like it is unclear
21 why you are even considering whether Google
22 could change those things.

23 Do you recall where that came
24 from?

25 A. I mean, I think what it arises

1 from is that I'm aware that the plaintiffs
2 are asking for injunctive relief and then
3 so it becomes well, what sort of injunction
4 should we ask for, like what can they do,
5 what's feasible or not. Because I would
6 imagine the plaintiffs don't want to ask
7 Google to do something that's impossible,
8 because that would be silly.

9 Q. Okay. So fair to say, then,
10 that this is not meant to be an exhaustive
11 list of what I will say -- what I will call
12 corrective measures that might exist in
13 this case or injunctive relief that would
14 satisfy the plaintiffs' claims, it's a
15 list, but it's not exhaustive?

16 A. The way I look at this section,
17 these are examples. These are examples of
18 things that Google could do.

19 Q. Okay.

20 A. That are feasible, that Google
21 could do what's in 409, Google could do
22 what's in 410.

23 Q. Okay.

24 A. So that's the purpose of that
25 section.

1 Q. Got it. All right, let's talk
2 about the phrase "Google account." So your
3 report defines this phrase at paragraph
4 111. If you could just flip to that for
5 me.

6 A. One minute. Give me a second
7 to read it just before you ask the question
8 because it will -- it will work better that
9 way. 111, are you sure that's the right
10 paragraph?

11 Q. No, I'm not. 136.

12 A. Okay.

13 Q. And in particular the footnote,
14 104.

15 A. Okay, just a second.
16 (Witness perusing document.)

17 A. Okay, yes, I see that.

18 Q. Okay. So just to put it in the
19 record, your footnote says that "Google
20 Account" means the trove of data that
21 Google collects and saves regarding a user,
22 including data that Google characterizes as
23 pseudonymous. Do you see that?

24 A. Yes.

25 Q. Okay. The first question is

1 just throughout your report wherever you
2 say "Google Account" with a capital A on
3 "Account," is it fair to assume that's the
4 definition you were using?

5 A. That's a great question,
6 because this term "Google Account" is sort
7 of like the word golf club, it could refer
8 to the building and the golf course, like
9 the Hartford Golf Club, but it could also
10 refer to the implement of destruction that
11 you use to tear up the grass when you flub
12 the ball.

13 Q. How many times have you used
14 that one?

15 A. Never. First use.

16 Q. It's pretty good.

17 A. Thank you. In internet
18 terminology, an account can sometimes mean
19 a log-in, right? So I have two Google
20 accounts, I have a personal log-in and I
21 have a Yale University log-in which is
22 powered by Google, all right? So I'm
23 talking about log-ins there.

24 An account, in internet
25 terminology, when you think of an account

1 on a platform, that is the -- includes the
2 data related to that user, that's their
3 account, or their account data is the whole
4 trove of information that relates to that
5 user.

6 So I tried to be controlled in
7 my language, but that one I'm pretty sure I
8 may have crossed the wires at some point in
9 the report. So we should probably look at
10 instances that concern you and clarify
11 them, if there is any instance that you
12 think I may have said Google account when I
13 really meant Google log-in, we should -- we
14 can clear that up.

15 Q. Okay. That's good to know.
16 Because I do -- I want to understand what
17 you mean whenever you mention Google
18 account in the report, which is mentioned a
19 lot, and sometimes it is capitalized and
20 sometimes it's not. Is it -- would you
21 say, generally speaking, the definition in
22 104 is the one you were working with but
23 sometimes the wires might have gotten
24 crossed and you used log-in instead?

25 A. Well, I'm not sure that the

1 wires ever got crossed. It could be the
2 case that it was all done perfectly, but it
3 is also -- I'm just aware of the potential
4 for confusion on that issue.

5 Q. Yes.

6 A. So I just want to be -- alert
7 you to that and make sure we are all clear.
8 Because I think it is fair to be -- and we
9 want to be clear. I don't want -- I don't
10 want there to be confusion.

11 Q. Yeah. And, well, it is an
12 important phrase because it appears in the
13 description of the WAA control, right?

14 A. Well, where it appears in the
15 description of the WAA control, that is
16 Google's use of the phrase. What they
17 think it means may be different than what I
18 think it means.

19 Q. Understood. I'm just saying
20 it's an important phrase in the case. So
21 just to ask it again, generally speaking,
22 when you used this term in your report, is
23 the definition in 104, should that be the
24 definition? I will cover maybe potential
25 ambiguities, but I'm trying to figure out

1 what your default is.

2 A. Okay. So I'm saying here I am
3 referring collectively to the trove of data
4 that Google collects and saves regarding a
5 user. So I'm aware that Google may save
6 data in different locations, depending on
7 where that WAA/sWAA switch is set. It is
8 still collecting the same data and still
9 saving it, but it may save it in different
10 places, okay? Logically, it's -- the user's
11 account, the accounting of the user's
12 activity includes all their activity that
13 relates to them.

14 Q. I understand the definition
15 that you have written here. What I am --
16 what I am asking about is when you use the
17 phrase "Google account" elsewhere in your
18 report, is the default assumption -- the
19 default assumption be that this is the
20 definition that you were using or did you
21 use different definitions in different
22 contexts intentionally? I should say did
23 you use different definitions in different
24 contexts intentionally?

25 A. Let's put it this way, I

1 intended to be consistent, but there may be
2 something where I'm saying Google, you
3 know, if your sWAA and WAA setting is off,
4 your history will not show up in your -- I
5 might have said won't show up in your
6 Google account, in other words, the page
7 that Google displays to the user, which I
8 think is how they described the Google
9 account.

10 So I think you have to -- it's
11 safest to look at the context, but you
12 understand what my idea is, and then you
13 should also look at the context and you've
14 got a couple of hints there.

15 Q. Agreed.

16 A. About what's going on.

17 Q. I agree to do that and I'm
18 not -- this is not an, oh, you used it here
19 and it means something else, that's not
20 what I'm trying to do, but I want to make
21 sure that I understand the schema in your
22 mind of "Google account" when you're
23 opining in this report and using that
24 phrase or, for example -- well, let's just
25 say when you're using the phrase for now.

1 So when you're using the
2 phrase, just to be clear, the definition in
3 104 is what you intended for the most part
4 to be using unless the context indicates
5 otherwise?

6 A. I think that's a pretty fair
7 summary of what I've just said.

8 Q. Great, okay. There may be a
9 few points where I want to clarify an
10 ambiguity in the report, but I will come
11 back to those later in the day.

12 So you are aware that your
13 definition in 104 of "Google Account"
14 differs from the definition that Google
15 uses in its privacy policy, right?

16 A. So I'm aware that Google has a
17 different idea of what that means. I've
18 actually looked pretty hard all over
19 Google's public-facing web pages to find an
20 exact definition of Google account, and I
21 don't believe there's a clear definition
22 anywhere that I've found. I've looked for
23 it.

24 Q. So the definitions that you've
25 found on Google's web pages you think may

1 be confusing?

2 A. Well, I would say that I've
3 looked for a precise definition and I
4 haven't, because I would like to cite it,
5 but I haven't -- it sort of is one of those
6 terms that's just used but it kind of --
7 it's not necessarily made clear.

8 Q. Is that different than what I
9 said? You find that Google's use of the
10 term "Google account" on its web pages may
11 be confusing?

12 MR. MAO: Objection to the form
13 of the question. Go ahead.

14 A. So I don't want to opine about
15 someone else's state of mind. What I'm
16 saying is that in looking for this, it's --
17 "Google account" is a term that doesn't
18 necessarily have a definition that's
19 publicly facing that answers -- or that is
20 responsive to the definition I'm providing
21 in footnote 104.

22 Q. So when Google uses the phrase
23 "Google account" on its web pages, is it
24 confusing to you what precisely it means?

25 A. In the context of the WAA and

1 sWAA control, the idea that Google is --
2 when WAA is set one way is collecting and
3 saving my data in my Google account for
4 presentation to me in what they call the
5 Google account or the pages that are made
6 available to the user, that's one
7 possibility, if the control is set that
8 way. If those controls are turned off,
9 Google is still collecting and saving that
10 data with Google identifiers that link to
11 me, but they are saving that data in some
12 other place where I can't see it. So
13 that's, in my opinion, counterintuitive.

14 Q. Understood, and I understand
15 that from your report. I actually meant a
16 slightly different question.

17 When Google uses the phrase
18 "Google account," not just in the WAA page,
19 it uses it in the privacy policy,
20 elsewhere, you said you reviewed web pages
21 that say that, right?

22 A. I look for the clearest
23 definition I could find of "Google account"
24 and I didn't find anything that was
25 completely satisfactory to me in explaining

1 that, defining that.

2 And also just this whole golf
3 club issue, I mean, there may be some cases
4 where Google is also using that term to
5 mean log-in. It is possible. And, I mean,
6 maybe I should pose this back to you, which
7 is if you think there is a good definition
8 of it somewhere, like please do show it to
9 me, let's discuss it, because I'm, as I
10 said, all about the accuracy. I would like
11 to be accurate and get to the bottom of
12 this.

13 Q. Yeah, and I will give you the
14 one from the privacy policy which John
15 Black quotes in his report. But a couple
16 more clarifying questions on sort of the
17 terminology you used in your report.

18 Sometimes you quote Google
19 employees in your report, and in those
20 quotations sometimes the phrase "account"
21 or "Google account" appear. When you
22 did -- when you read those mentions of the
23 phrase "Google account," did you understand
24 the definition those employees to be using
25 to be the same as yours or different or you

1 just weren't sure?

2 A. Okay, so I at least had in mind
3 that they might use the term differently
4 than I would, and I also had in mind that
5 that term could depend on the context, were
6 they referring to a log-in, are they
7 referring to a specific web page that
8 displays the user history, or were they
9 referring to the actual trove of data that
10 Google collects about each user.

11 Q. And is it fair to say that at
12 least sometimes Google employees in the
13 documents you reviewed were using the
14 phrase "Google account" and GAIA ID
15 interchangeably?

16 A. I mean, I considered that a
17 possibility. We would have to go look at
18 each one probably because it's, you know,
19 it is highly dependent on context.

20 Q. Okay. You reviewed Google's
21 interrogatory responses?

22 A. Yes.

23 Q. All of them or only certain
24 ones?

25 A. I asked for them and I listed

1 the ones that I have received. I mean,
2 there may be interrogatory responses that
3 are just not even relevant to what I'm
4 doing so I wouldn't want to be spammed with
5 a bunch of irrelevant data, but I would
6 have asked for and received everything that
7 was relevant.

8 MR. SANTACANA: Okay. Let's go
9 off for one second.

10 THE VIDEOGRAPHER: The time is
11 10:52 a.m. We are off the record.

12 (Recess taken.)

13 THE VIDEOGRAPHER: The time is
14 10:53 a.m. We are back on the record.

15 BY MR. SANTACANA:

16 Q. In the interrogatory responses
17 you reviewed sometimes Google used the
18 phrase "Google account," right?

19 A. Yes.

20 Q. In those instances did you
21 understand the phrase "Google account" to
22 be the same or different than your
23 definition in footnote 104?

24 A. Oh, I understood it to be used
25 the way Google uses it.

1 Q. And what is that -- what is the
2 way that Google uses it?

3 A. I believe that Google considers
4 the Google account to be the subset of the
5 trove of data related to the user that is
6 stored with their GAIA ID.

7 Q. Okay. And what is that belief
8 based on?

9 A. Everything I looked at in this
10 case.

11 Q. If you hadn't looked at
12 nonpublic information, would that have been
13 your belief? Well, let me strike that.

14 Before you started -- before
15 you were engaged in this case or in the
16 Brown case, before you were engaged by
17 anybody who was suing Google, did you have
18 an understanding what the phrase "Google
19 account" meant?

20 A. I mean, I think I had a general
21 understanding that it's oh, I can log in to
22 Google and, oh, my account has some
23 collection of data about me. But that's
24 just a general -- it's not something I
25 necessarily gave a lot of thought to and I

1 certainly didn't understand prior to
2 studying everything in this case how the
3 WAA and sWAA controls actually work. I had
4 no idea that they behaved the way they do.

5 Q. At some point you were retained
6 to work on these cases, these pair of cases
7 against Google and you hadn't yet seen any
8 nonpublic information, right? You reviewed
9 the complaint, probably reviewed some web
10 pages. At that point did you develop any
11 preliminary opinions or understandings of
12 what the phrase "Google account" meant?

13 A. I don't -- I think I was
14 open-minded at the beginning and I looked
15 at the information and tried to form my
16 opinions after having reviewed things.

17 Q. Okay. So when you were first
18 retained in this case, I assume you
19 reviewed pretty early on the description of
20 the WAA control, including the part which
21 uses the phrase "Google account"; fair to
22 say?

23 A. I don't know that I would put
24 it that way just because early on I was
25 focusing on the Brown case and I had a lot

1 to think about with that case, a lot to pay
2 attention to there, and I don't know that I
3 was thinking so much about this case at
4 that point.

5 Q. I think the WAA control comes
6 up in that case in some tangential way too,
7 right? Had you reviewed it in that case
8 before you were retained in this case?

9 A. I don't recall.

10 Q. Okay. So at some point you
11 reviewed the complaint in this case, right?

12 A. Yes.

13 Q. And that includes descriptions
14 about what Google tells users about what
15 WAA does, right?

16 A. Yes.

17 Q. At that point did you have any
18 sort of preconceived notions about what the
19 WAA control should and shouldn't do or
20 would and wouldn't do at a technological
21 level?

22 MR. MAO: Objection to the form
23 of the question. Go ahead.

24 A. I don't think so, no.

25 Q. You've used Google Analytics

1 before professionally, right?

2 A. Yes.

3 Q. And you have had Google
4 accounts for a while?

5 A. Yes.

6 Q. Had you ever used the WAA
7 button before?

8 A. I don't recall when I first
9 used it. I do have it today set to off and
10 I have sort of turned off a lot of the
11 privacy things with Google and others. But
12 there's -- I have a different reason for
13 that.

14 Q. When you joined the case, was
15 your WAA control on or off?

16 A. I don't remember.

17 Q. Did you have your Google
18 account in 2016?

19 A. Yes. We should be clear, I
20 have my personal Google account then.

21 Q. So I guess my question is at
22 some point you reviewed the complaint and
23 the allegations that the complaint makes?

24 A. Let me add one more thing. I
25 also believe I have -- I may have even more

1 than two Google accounts because I have a
2 few that are -- I have a startup that uses
3 G Suite.

4 Q. Okay.

5 A. So I don't know that I have an
6 exact count on how many different I have.

7 Q. That's okay. I don't need to
8 know about them all.

9 A. Okay.

10 Q. So at some point in this case
11 you had not yet reviewed any nonpublic
12 information, no deposition transcripts,
13 interrogatory responses, anything like
14 that, but you had read the complaint; is
15 that fair to say?

16 A. Yes.

17 Q. And at that point you saw that
18 the plaintiffs alleged that the WAA control
19 means a particular thing and that Google
20 does not live up to that description; is
21 that fair to say?

22 A. Well, I understand that that's
23 an allegation, but I don't give too much
24 credit to allegations. I don't really
25 credit them because it's just an

1 allegation.

2 Q. Fair enough. Neither do I.
3 But, nevertheless, the WAA
4 control has a description, right, that you
5 reviewed?

6 A. Yes.

7 Q. Did you have any idea at that
8 point what the WAA control should do
9 vis-à-vis pseudonymous data?

10 A. I hadn't thought about it, so
11 that's something -- these opinions were
12 formed upon careful study and thought and
13 consideration.

14 Q. Well, you had thought about
15 pseudonymous data before, right?

16 A. Yes, I have thought about
17 pseudonymous data.

18 Q. And you know that Google has
19 data that is tied to a pseudonymous
20 identifier and Google has data that is tied
21 to a GAIA identifier, you knew that before
22 you joined the case?

23 A. Okay, so I have to disagree
24 with how you've put the question together,
25 because GAIA is also a pseudonym and there

1 is no -- this idea of pseudonymous data and
2 GAIA data, it's a false dichotomy.

3 Q. Okay. Let's use the terms GAIA
4 and non-GAIA for now. We will come back to
5 pseudonymous.

6 So before you joined this case,
7 you knew that Google had data tied to GAIA
8 identifiers and you knew that Google had
9 identifiers tied to non-GAIA identifiers;
10 is that fair to say?

11 A. I'm not sure I thought about it
12 prior to this case. I'm not sure that I
13 had given it consideration.

14 Q. Well, you must have. I mean,
15 at that point you were pretty deep into the
16 Brown case.

17 A. Oh, well, I'm thinking -- we
18 are talking about different start points.
19 I'm talking about before I heard about
20 these cases, I hadn't thought about it.

21 Q. So I will ask it again. When
22 you joined this case, you already knew that
23 Google had data tied to GAIA identifiers
24 and data tied to non-GAIA identifiers, that
25 was a concept you already knew about,

1 right?

2 A. Okay, well, so, so the question
3 is wrong, because I joined both cases at
4 essentially the same time. I was retained
5 for both cases together.

6 Q. You were retained for both
7 cases together?

8 A. I believe so.

9 Q. Okay. When were you retained?

10 A. I don't have -- I don't
11 remember exact date.

12 Q. Is that in your report?

13 A. I don't believe I have the date
14 in here, I might, but I don't have it
15 there.

16 Q. Is that something you can
17 figure out during a break, the date of your
18 retention?

19 A. Possibly.

20 Q. Okay. So before you joined
21 either case, even then you were aware that
22 there's something called AdID and there is
23 something called IDFA, right?

24 A. Yes.

25 Q. And you were -- you understood

1 well how online marketing works?

2 A. I do have some understanding of
3 online marketing, mobile marketing, yes.

4 Q. You have been in that business
5 for 20 years, right?

6 A. Yes.

7 Q. So you had a pretty good
8 understanding of how online marketing
9 works?

10 A. Yes.

11 Q. How tracking pixels work,
12 right?

13 A. I have some understanding -- I
14 had some understanding of how tracking
15 pixels work, but what I could glean from
16 public view.

17 Q. Right. And you had an
18 understanding of how Google Analytics
19 works, from public view again?

20 A. Yes.

21 Q. How it works from say the
22 developer's perspective or the advertiser's
23 perspective?

24 A. Yes.

25 Q. And then at some point you read

1 the description of WAA, right?

2 A. At some point I read the
3 description of WAA, yes.

4 Q. When you read it, what did you
5 think would happen to data that Google was
6 sent tied to AdID and IDFA if you turned it
7 off, WAA off?

8 A. When I first looked at the
9 information about WAA and sWAA I don't
10 think I had an opinion or a belief about
11 what would happen, because I hadn't thought
12 about it yet. It's not -- it's just not
13 something that jumps to the front of my
14 mind.

15 Q. Well, sorry, you reviewed the
16 complaint in the case, so presumably at
17 that point the allegations are in the front
18 of your mind, right?

19 A. Yes. But bear in mind -- bear
20 in mind that I read that at some point just
21 to understand what it was about, do I have
22 the necessary expertise to get involved
23 here, do I have any conflicts, can I get
24 involved in this or not, that's what I'm
25 thinking about. I'm not thinking about the

1 ultimate issues in dispute in forming
2 opinions right from the get-go. That is
3 kind of the reverse of how I work.

4 Q. Okay. I mean, but you're not a
5 robot, you are a human being, you have been
6 using Google Analytics for a decade, you
7 have been in internet marketing for 20
8 years, and you read a complaint that says
9 here is this WAA button and when it turns
10 off it should do this, but Google has
11 Google Analytics, it still collects data
12 from Google Analytics even when WAA is off.
13 My question is just did that seem like out
14 of the ordinary to you? Did you think
15 Google was dumping all that data when WAA
16 was off?

17 A. I don't know. I mean, I think
18 I have said in my -- we just looked at the
19 section of the report on the injunctive
20 relief technical possibilities. I mean,
21 one of the things I highlighted in there
22 was that Google could note when WAA and
23 sWAA are set, and exactly that, send that
24 data down the memory hole, don't collect
25 it, don't save it. If the person is asking

1 for privacy, that's one way to handle it.

2 Q. Is that what you thought was
3 going on when you turned WAA off, once you
4 had familiarized yourself with the
5 allegations in the complaint?

6 A. I don't know that I had a
7 mental model of what was going on. I think
8 I was just looking at this and saying okay,
9 I got this case, this is going to be some
10 big case, and I need to -- we will need to
11 sort it out and we will need to study this
12 and figure out what is going on. But I
13 didn't necessarily form an opinion. It
14 didn't -- I didn't immediately see a
15 contradiction there.

16 Q. Contradiction in what?

17 A. In other words, the
18 contradiction that you are trying to point
19 out, which is I think what you are trying
20 to get at, and forgive me if I summarize
21 this wrong, but what I think you are trying
22 to get at is when you read this shouldn't
23 it have been obvious to you that the
24 control couldn't work the way you seem to
25 think it should work because of the way

1 Google Analytics works, and I didn't have
2 that contradiction, no.

3 Q. So I'm not trying to get at
4 anything, and this will definitely work
5 better if you don't try to get ahead of me.

6 A. Okay.

7 Q. And I promise that I will be
8 straightforward and direct with you. I'm
9 just trying to understand what you
10 thought -- what your understanding of the
11 control was, you know, what people think
12 the control does is kind of an important
13 issue in the case. And you have this
14 unique perspective because you used Google
15 Analytics for at least a decade and then
16 you read the complaint in this case, and it
17 sort of to me defies -- it sort of boggles
18 the mind to think you had no thoughts about
19 all that data you had been collecting all
20 those years, was it being deleted when
21 people had WAA off, was it being kept but
22 made anonymous. What did you think was
23 going on with all that data?

24 A. I hadn't considered the issue
25 before this case. I just had not

1 considered the issue because it hadn't come
2 up. I hadn't thought about it.

3 Q. Agreed.

4 A. I was essentially sort of
5 placated and happy with the status quo and
6 I didn't know -- I didn't know that this
7 was working the way it does.

8 Q. But then you read the
9 complaint?

10 A. Yes.

11 Q. And then you understood what
12 the plaintiffs were alleging, and my
13 question is just at that point what did you
14 think about all the data you had collected,
15 did you think it should have been deleted
16 in the past? Did you think Google must
17 have not deleted it? Did you think that's
18 not the way I would read this control?
19 What did you think?

20 A. So there is a few things in
21 there that are -- I don't know how much
22 you've used Google Analytics, but let me
23 tell you a little about it.

24 Q. Not as much as you.

25 A. Okay. When you go into Google

1 Analytics, Google doesn't show stuff
2 related to -- that's personally
3 identifiable, they don't show you, for
4 example, and the tools work differently at
5 different points in time, but in general
6 today I would say that Google is
7 endeavoring not to show the Google
8 Analytics customer data about specific
9 users. And the reason I know this has been
10 that way is that over time lots of my
11 clients have asked me hey, can you tell us
12 who is visiting our website, can you look
13 in Google Analytics and see, and I said no,
14 no, Google Analytics provides aggregate
15 data to me, it doesn't provide me with
16 individual stuff.

17 In fact, there was a time when
18 we used to get the search keywords that
19 people would use to come to a website. We
20 could look at organic traffic and see
21 traffic volume on different keywords, and
22 the people who did website optimization
23 liked having that information. At some
24 point Google took that away from us. They
25 came to say keyword not provided.

1 Q. Why?

2 A. We were told that it was
3 related to privacy, that we couldn't have
4 that information because it could be used
5 by us to essentially connect some sort of
6 keyword usage to individual, and there
7 might be -- maybe there are other ways to
8 get that, but that's been -- this has been
9 sort of an evolving thing over time.

10 Q. So I have used an analytics
11 console a little bit, really not very much
12 at all, but it does show device IDs in
13 there, right?

14 A. If you are using GA4F I think
15 it may show some of that information. I
16 think we have got some copies of reports.

17 Q. But not on the -- not for web
18 analytics, but does it show like cookie
19 IDs?

20 A. It is different at different
21 points in time. It's been evolving. It
22 has changed a lot. I have been using
23 Google Analytics since it was called
24 Urchin, I actually ended up once calling
25 for tech support and got to talk to one of

1 the founders of Urchin who like picked up
2 the phone and was doing tech support. So I
3 have used it all along through history, and
4 there has been a lot of change over time.

5 Q. Okay. Do you still use Google
6 Analytics on your website?

7 A. I do.

8 Q. Coming back to your definition
9 of Google account at 104, the trove of data
10 Google collects and saves regarding the
11 user, including data that Google
12 characterizes as pseudonymous, under that
13 definition, is all data sent to Google by
14 Google Analytics for Firebase pertaining to
15 a Google account?

16 MR. MAO: I'm sorry, can you
17 read the question back again?

18 Q. I can ask it again.

19 Under your definition, is all
20 of the data that is sent to Google by
21 Google Analytics for Firebase data that
22 pertains to a Google account?

23 A. I don't know that I've said
24 that. So I don't think I've rendered that
25 opinion in that way, and therefore I don't

1 know that I've thought it through
2 completely.

3 Q. Sure.

4 A. And I don't want to make any
5 sort of leap here. I don't want to give
6 some kind of different opinion than what
7 I've already given, which were all done
8 thoughtfully and carefully checked. I
9 don't want to just shoot from the hip.

10 Q. That's fair enough. You could
11 see why I'm asking. I am trying to
12 understand, again, the limits of the
13 definition. So your definition says
14 regarding a user. So another way to ask it
15 is all Google Analytics for Firebase event
16 data, data regarding a user?

17 A. I mean, that question could get
18 pretty hairy because it is conceivable that
19 there could be bots that are triggering
20 things to shoot data in, and Google has
21 systems to detect bot activity and filter
22 out, it is one of the settings, you could
23 say filter out bot activity.

24 Q. Well, let's assume a human was
25 using it.

1 A. If a human was using it when
2 the data was sent in, I believe that data
3 is related to that device that's doing the
4 transmission, and I think I've said as
5 much. Beyond that, I'm not sure -- I would
6 have to think more about the whole question
7 just to understand if there is some
8 exception, something I haven't considered
9 yet. I'm comfortable with the opinions
10 I've rendered. I don't feel the need to
11 give any new ones today.

12 Q. Okay. We must be pretty close,
13 I have just a couple more on this.

14 A. Sure.

15 MR. SANTACANA: Actually, why
16 don't we pause here.

17 THE VIDEOGRAPHER: The time is
18 11:12 a.m. We are off the record.

19 (Recess taken.)

20 THE VIDEOGRAPHER: The time is
21 11:34 a.m. We are back on the record.

22 BY MR. SANTACANA:

23 Q. Here is the privacy policy at
24 Google effective May 25, 2018.

25 A. Okay, thank you.

1 Q. And we will mark it on Exhibit
2 Share as Exhibit 2. We were -- we left off
3 talking about the definition of Google
4 account, so I wanted to pull your attention
5 to how it's discussed in here.

6 MR. MAO: Sorry, Eduardo, is
7 there a place you're on, a page?

8 MR. SANTACANA: I think I might
9 have given you the wrong document.
10 Yes, okay, we will get to that one.
11 That's the wrong document. Just a
12 second. Can we go off for a second.

13 THE VIDEOGRAPHER: The time is
14 11:36 a.m. We are off the record.

15 (Discussion off the record.)

16 (Hochman Exhibit 2 marked for
17 identification.)

18 THE VIDEOGRAPHER: The time is
19 11:42 a.m. We are back on the record.

20 BY MR. SANTACANA:

21 Q. So you've got the new Exhibit
22 2, which corresponds to the Black report's
23 Exhibit X6, excuse me, the Black report's
24 Appendix X6, which is a spreadsheet. If
25 you could just open up that spreadsheet on

1 your computer.

2 A. Yes, I have.

3 Q. So in here there's -- it is
4 just listing historical definitions from
5 various Google privacy policies, and for
6 the moment I just want to look at the
7 Google account definitions. There is other
8 ones in there we will get to later, or
9 maybe not at all.

10 For the Google account
11 definitions, which I've filtered for on
12 mine, you can see ones going from May 2018
13 to December 2022 on here. Do you see that?

14 A. Yes.

15 Q. Okay. So we were talking
16 earlier about how Google defines Google
17 account and you wanted to look at one such
18 definition that Google uses. This is one
19 such definition, it's in its privacy policy
20 and has been since May 2018. I think let's
21 start with the 2018 one.

22 MR. MAO: Objection. The
23 documents speak for themselves. I just
24 disagree -- there is a disagreement on
25 the form of the question.

1 Q. The definition is "You may
2 access some of our services by signing up
3 for a Google account and providing us with
4 some personal information, typically your
5 name, e-mail address and a password. This
6 account information is used to authenticate
7 you when you access Google's services and
8 protect your account from unauthorized
9 access by others. You can edit or delete
10 your account at any time through your
11 Google account settings."

12 Do you see that?

13 A. Yes.

14 Q. Okay. How do you perceive this
15 definition to differ from your definition
16 in footnote 104, if it does?

17 A. Sure. This, the way I read
18 this, looks a lot like signing up for
19 log-in. You know, you can get a Google
20 account which sounds like a log-in. You
21 have to provide some personal information
22 and you get this log-in that lets you
23 access some Google services and thereby
24 save some state.

25 Q. I see. Whereas your definition

1 in your report would be broader than that,
2 or would cover more data than that?

3 A. Well, this doesn't necessarily
4 speak to the scope of the data that Google
5 is collecting about me. It doesn't talk
6 about what all my private data is, what all
7 data Google has, so it's a little -- I
8 think it's just a little different.

9 Q. Can you tell me a little bit
10 more about what you mean by that answer?

11 A. This isn't really addressing
12 the question of the scope of the data that
13 Google is collecting on me and how that
14 data associated with me is treated, this
15 definition here. I mean, that -- those
16 issues may be addressed elsewhere, but this
17 is just talking about how to get a Google
18 account, how to get a log-in to access
19 Google services.

20 Q. So what I'm mindful of is the
21 use of the phrase "Google account" in the
22 description of WAA where it says "saved in
23 your Google account." So when you think of
24 that disclosure, I'm happy to bring it out
25 if you need it, and you read this

1 definition, in your mind does that combined
2 mean the same thing as your definition or
3 does it mean something different?

4 A. I mean, to my mind, this is
5 kind of squishy. This is just operational
6 information for a consumer that talks in
7 kind of broad terms about getting an
8 account, you give some personal
9 information, we are going to use that to
10 authenticate you when you access, and we
11 are going to use it to protect your account
12 from unauthorized access, and it says you
13 can edit or delete your account at any
14 time, right, through Google account
15 settings.

16 Q. That is what it says, and then
17 the phrase is used in the WAA disclosure.
18 Do you want me to pull that out?

19 A. Yeah, we should.

20 Q. Okay. So we will mark this 3.
21 (Hochman Exhibit 3 marked for
22 identification.)

23 Q. This is the Activity Controls
24 PDF, activity controls.pdf.

25 MR. SANTACANA: Noor, so when

1 you have a chance, just mark that 3 on
2 Exhibit Share.

3 MR. MAO: Sorry, Counsel, what
4 is it? Is there a Bates stamp for
5 this?

6 MR. SANTACANA: No, this is a
7 screen shot from what it looks like
8 right now.

9 MS. RAHMAN: The Activity
10 Controls PDF? It was a little muffled,
11 I couldn't hear.

12 MR. SANTACANA: The Activity
13 Controls PDF is Exhibit 3.

14 MS. RAHMAN: Okay, got it,
15 thank you.

16 MR. SANTACANA: And, Mark, what
17 was your question?

18 MR. MAO: I could just set this
19 aside?

20 MR. SANTACANA: Uh-huh.

21 Q. Okay, Mr. Hochman, so now you
22 have Exhibit 2 on the computer, you have
23 Exhibit 3 in front of you, right?

24 A. Yes.

25 Q. Exhibit 2 has some definitions

1 of the term "Google account" and Exhibit 3
2 uses the term "Google account" in the
3 following sentence: "The data saved in
4 your account helps give you more
5 personalized experiences across all of
6 Google's services. Choose which settings
7 will save data in your Google account."

8 You see that, right?

9 A. Yes.

10 Q. Okay. So my question is, given
11 the definition of "Google account" that's
12 in the May 2018 privacy policy, is the way
13 that Google account is used in this
14 sentence the same that you use it in your
15 report in footnote 104 or is it different?

16 MR. MAO: Objection, the
17 document speaks for itself. I think
18 you're asking our expert something
19 beyond what we designated him for. But
20 go ahead.

21 A. Sure. So this -- what I was
22 looking for, remember I told you I was
23 looking for kind of a precise definition?

24 Q. Yeah.

25 A. So as a security technologist,

1 what I'm interested in here is knowing what
2 is the scope of this Google account, in
3 other words, what data goes in the Google
4 account, what of my personal data goes in
5 the Google account and what, if any, of my
6 personal data is getting saved anywhere
7 else.

8 I don't think it is clarified
9 by this. It doesn't make it clear to me.
10 I certainly wouldn't, from reading this,
11 come to the conclusion that that sWAA
12 control only affects the location where all
13 my personal information is being saved. It
14 doesn't control the collection of that
15 data. That seems very counterintuitive,
16 when the behavior, the technical behavior
17 that I have observed, seems very
18 counterintuitive when stacked up against
19 this sort of friendly definition.

20 Q. And I understand that that is
21 your opinion, and I'm not trying to change
22 that. I just want to understand, again,
23 the scope of your definition in 104 as it
24 compares to the definition in the privacy
25 policy, and you said well, that doesn't

1 address data and where it is saved and how
2 it is used.

3 So I have given you a sentence
4 where it is addressed, which is the
5 disclosure of activity controls, and my
6 question for you is if you were to take the
7 privacy policy definition of "Google
8 account" and insert it in parentheses at
9 the end of the sentence at the top of
10 Exhibit 3, right, it says Google account,
11 parentheses, insert the definition, is that
12 consistent with your definition in footnote
13 104 or is it different in any way?

14 A. Okay. So that --

15 MR. MAO: Sorry, just objection
16 to the form of the question. The
17 documents speak for themselves.

18 A. Okay. So if you take this
19 Exhibit 3, which I should have numbered, if
20 we don't mind, if someone has got a pen,
21 could we just number it, so I don't get
22 confused?

23 So I've got Exhibit 3, and if I
24 take the definition here from the
25 spreadsheet cell D38, is that the one we

1 want, May 25th, 2018?

2 Q. Yes.

3 A. And, by the way, on Exhibit 3,
4 do we have a date on this? Like what's the
5 provenance of this one? What is the date
6 of this as of?

7 Q. Yesterday.

8 A. So it might not be the same as
9 it was on May 25th, 2018.

10 Q. Correct.

11 A. So we might be combining two
12 things to form a non sequitur. Okay, so
13 even if we did form that potential non
14 sequitur, that doesn't -- if I read this
15 and I put that definition in here, it
16 doesn't disabuse me of my notion that
17 Google is putting all the personal
18 information related to me into my account.
19 It doesn't tell me that Google is also
20 storing that information somewhere on the
21 side where I can't see it, control it, or
22 affect it.

23 Q. Okay. Speaking of non
24 sequitur, that answer is a non sequitur.

25 My question is, if you take the

1 May 2018 definition of "Google account" and
2 you insert it into this sentence at the top
3 of Exhibit 3, which uses the term "Google
4 account," is that definition as it is used
5 here, if you assume that's the definition
6 that it means, that's what it means, is
7 that the same or different than your
8 definition in footnote 104?

9 MR. MAO: Sorry, calls for
10 incomplete hypothetical. Go ahead.

11 A. This is -- this is kind of a
12 great example of double think, which is two
13 opposing ideas being put together in a way
14 that sort of prevents any kind of serious
15 critical evaluation, because on the one
16 hand this document is telling me I have
17 ability to have control, and this other
18 word here --

19 Q. Mr. Hochman, I'm happy for you
20 to provide an explanatory answer, but it's
21 going to be easier for me and the court
22 reporter and the jury to understand it if
23 you start by answering the question, which
24 is if you take the definition from May 2018
25 and you insert it into the top of Exhibit

1 3, in that sentence is the definition
2 meaning the same or different than the
3 definition you give in footnote 104 at a
4 technical level?

5 MR. MAO: Objection, incomplete
6 hypothetical, asked and answered.

7 A. So there is so much wrong with
8 the question that I'm not sure I can answer
9 it, because the problem is you're asking me
10 to take a definition from 2018 and insert
11 it into a document that's a version from
12 five years later.

13 Q. That's what I've asked you to
14 do.

15 A. And the definition is not a
16 technical definition, and you're asking me
17 to draw some technical conclusion from a
18 nontechnical definition, and so it sort of
19 is just -- the whole thing is kind of
20 beside the point.

21 Q. Well, actually, it's not beside
22 the point, because this is what Google told
23 its users, and the case is what the users
24 thought about it, right? They didn't have
25 the ability to read your report or your

1 definition of "Google account." This is
2 what they got to read. This is if you go
3 online today, this is what they can read.

4 So I'm just trying to -- I'm
5 just trying to understand if your
6 definition in footnote 104, which makes an
7 assertion about the difference between
8 WAA-on data and WAA-off data is consistent
9 with the definition given in the Google
10 privacy policy in May of 2018.

11 MR. MAO: Objection,
12 incomplete, actually false
13 hypothetical, but form of the question.
14 Go ahead.

15 A. So you're asking if two things
16 that are different are consistent, and they
17 are sort of -- these two things are kind of
18 talking past each other.

19 What I'm talking about is the
20 data, the scope of the data that Google is
21 collecting about me, where is all that
22 data, and what this is talking about is how
23 you go about getting a Google log-in so you
24 can access some Google services. So these
25 two things are kind of talking past each

1 other.

2 Q. Okay. The top of Exhibit 3
3 says "save data in your Google account." I
4 think that that is a phrase about the scope
5 of data that Google is collecting about me
6 and where it is. Do you agree?

7 A. One second. Let me read this.
8 (Witness perusing document.)

9 A. So this is in fact talking
10 about saving data in your account, which
11 is, as I pointed out, it's a bit of a non
12 sequitur, because this is talking about the
13 account as a log-in. No one has disclosed
14 to me what this account data structure
15 looks like. It is not disclosed to me what
16 the scope of that is, okay?

17 It's not explained that my
18 personal data can be stored in my account
19 but your personal data can also be stored
20 on the side, and these settings won't
21 affect our side storage of your personal
22 data, they are only going to affect the
23 storage of the data in the view that we
24 provide to you. That's not part of this
25 disclosure. So it's all kind of beside the

1 point for that reason.

2 Q. Take a look at paragraph 136 of
3 your report. Just read it through for me.
4 Let me know when you're done.

5 (Witness perusing document.)

6 A. Yes.

7 Q. You read it?

8 A. Yes.

9 Q. Okay. In the paragraph 136 of
10 your report you say "Not only is Google
11 saving WAA-off and sWAA-off data to class
12 members' Google accounts," footnote 104,
13 "Google also marks some of the data as
14 WAA-off or sWAA-off."

15 Do you see that sentence?

16 A. Yes.

17 Q. And the footnote, which then
18 leads to the definition we have been
19 discussing that you give in footnote 104 of
20 "Google account"?

21 A. Yes.

22 Q. And that definition is the
23 trove of data that Google collects and
24 saves, including data Google characterizes
25 as pseudonymous, right?

1 A. Yes.

2 Q. So you've made an assertion
3 about whether or not Google saves WAA and
4 sWAA-off data to Google accounts; is that
5 fair to say?

6 A. So I'm talking about my
7 understanding, okay, my intuition of what
8 this means. The best way I think I can put
9 this is that Exhibit 3, if you insert in
10 the definition from five years earlier,
11 doesn't disclaim my version. There is
12 nothing in there, it is silent on what the
13 scope is. It doesn't say there is a side
14 storage area where we store your personal
15 data and we don't show it to you when you
16 flip this fake switch.

17 Q. You're skipping ahead, which is
18 not recommended. So let's stick with the
19 question.

20 You've made an assertion in
21 your report, you don't need to look at the
22 exhibits for that, in your report you
23 assert whether or not Google saves sWAA-off
24 data to Google accounts, true or false?

25 A. I have made an assertion and I

1 have defined what I mean by Google account,
2 what my understanding is absent that clear
3 definition from Google, which I looked for
4 and did not find and which you still
5 haven't shown to me.

6 Q. Okay. So you make the
7 assertion that Google does save sWAA-off
8 data to Google accounts, that's one of the
9 opinions you give in this case?

10 A. Bear in mind, my definition of
11 Google accounts, I understand Google is
12 asserting that the Google account is this
13 arbitrarily limited data structure that
14 doesn't include some stuff that they save
15 about me, and that's a semantic game.

16 Q. Okay. Mr. Hochman, please
17 don't indict my entire profession. If we
18 didn't have semantic games, then I wouldn't
19 be able to pay my mortgage. Just answer
20 the question. We will get to that. We are
21 going to come back to the exhibit, I
22 promise. You are going to have plenty of
23 opportunities to impugn Google.

24 The question is, isn't it your
25 opinion in this case that Google saves

1 sWAA-off data to Google accounts as you
2 define it in footnote 104?

3 A. Well, I think my report says
4 that.

5 Q. Okay. So that is an opinion
6 you give?

7 A. Yes, but subject to of course
8 my definition, and I recognize -- I
9 recognize Google's definition is different
10 than mine.

11 Q. Okay.

12 A. And I'm not asserting that
13 statement under Google's definition, I'm
14 asserting it under my definition. I just
15 want to be clear, because I don't want you
16 to -- I don't want you to take away the
17 wrong understanding of this.

18 Q. I really appreciate the
19 clarity.

20 You said Google's definition is
21 different than yours. How is it different
22 than yours other than that it uses
23 different words?

24 MR. MAO: Again, I will just
25 lodge a standing objection to your use

1 of the word of "Google definition,"
2 the form of the question. I don't want
3 to raise it again, but I just disagree
4 with the framing. Go ahead.

5 MR. SANTACANA: Sorry, I just
6 want to understand the objection.

7 MR. MAO: Sure. You said this
8 is a Google definition. I don't
9 believe that's a definition and I think
10 he has made that very clear. That's my
11 standing objection. When I say form of
12 the question, that's what I mean.
13 That's it.

14 Q. Okay. So for this deposition
15 let's just all understand when I say
16 Google's definition what I'm referring to
17 is Exhibit 2, the list of phrases in column
18 D that correspond to Google account in
19 column A which come from different
20 historical privacy policies, okay? Just so
21 we're all on the same page about what I
22 mean. We can fight later about whether it
23 counts as a definition.

24 MR. MAO: Or the time period it
25 came from.

1 MR. SANTACANA: Yes. I'm sure
2 we can fight about lots of things.

3 MR. MAO: Sure.

4 Q. You said that Google's
5 definition, which we're talking about D38
6 in Exhibit 2 at the time, D38 differs from
7 your definition. Other than the words that
8 are used in the definitions, is there -- do
9 you have an understanding as to at a data
10 level how they differ?

11 A. Okay. So I've got to unpack
12 that, because there is a few different
13 points there. The definition, when I say
14 "Google definition," what I'm really
15 thinking about is Google's position in this
16 litigation. Google is taking a position
17 that the Google account only includes some
18 arbitrary data that's tagged with the GAIA
19 ID and it doesn't include the data that
20 they store with other equally identifying
21 what they call pseudonyms --

22 Q. I want you to leave out of your
23 mind Google's litigating positions in the
24 case. What I want you to focus on is D38
25 in Exhibit 2.

1 A. Okay. So I don't see a real
2 definition of the Google account data
3 structure in D38. I don't see a definition
4 of what data is included. There is not a
5 clear scope definition there. That is just
6 some operational information about how you
7 go sign up for a log-in.

8 Q. Okay. So I guess is it fair to
9 say your opinion is that if I were to
10 insert D38 in Exhibit 2, Google's
11 definition of "Google account" into the
12 disclosure in Exhibit 3 about activity
13 controls, that it would leave you unclear
14 as to the data structure?

15 MR. MAO: Objection,
16 mischaracterizes the testimony. But go
17 ahead, please.

18 A. No, what I would say is it
19 doesn't contradict my intuition which I
20 stated in 104 of what that data structure
21 includes.

22 Q. What do you mean by intuition?

23 A. Understanding, that if someone
24 says account on a system we are going to
25 store some data in your account, I'm

1 thinking aha, they've got a place to store
2 data about me. I'm not jumping immediately
3 to the conclusion that they have also got a
4 shadow account, which I think is a term
5 that has been used elsewhere.

6 I don't have, in my report, I
7 don't have any intuition that there is a
8 shadow account where they are collecting a
9 secret dossier about me which they don't
10 show me and don't tell me about. I have no
11 idea that that exists and that's actually
12 what is happening. That's what the report
13 documents is the creation of this shadow
14 account and how this is a fake control
15 because it is just a switch pointing out
16 where this firehose of personal data Google
17 is collecting about me, whether it is going
18 into someplace that they show it to me or
19 whether it is going into someplace where
20 they don't show it to me.

21 Q. So it's your -- that definition
22 in 104, footnote 104, that definition comes
23 from your intuition and experience as an
24 expert in this area?

25 A. I'm choosing the most natural

1 definition I can, because absent Google
2 telling me specifically what's in my Google
3 account and where else it is storing my
4 personal information, absent that specific
5 clarity, I'm going with what's the most
6 natural definition, which is that I've got,
7 simple, I've got an account and you're
8 dumping all the data about me into that
9 account where I can see it and control it.
10 That's the most natural, simple, it is like
11 Occam's razor, it is the simplest
12 explanation.

13 Q. So I want to understand, when
14 you say it is the most natural definition,
15 what you are -- first of all, are you
16 opining that it is the most natural
17 definition of Google account?

18 A. I'm telling you how I came to
19 that.

20 Q. Okay. Is it your opinion in
21 the case that footnote 104 is the most
22 natural definition of Google account?

23 A. I haven't given that opinion.

24 Q. And sitting here today, do you
25 intend to?

1 A. I mean, I've told you what it
2 means to me.

3 Q. Okay.

4 A. So that's in my testimony now.
5 So I've told you what it means to me, and
6 if someone wants to make use of that
7 testimony, they can. I haven't written in
8 my report -- my report isn't really
9 addressing consumer impressions. That's
10 not the focus of my report. I understand
11 that somebody else may be addressing that.

12 Q. So what it means to you, what
13 "Google account" means to you as reflected
14 in footnote 104 of your report, that is
15 based on your experience in the field as an
16 expert and nothing else, or is it also
17 based on documents or something else you
18 reviewed?

19 A. I mean, it's based on
20 everything I've reviewed and understood,
21 because I wrote this after reviewing all
22 these materials, and I came to understand
23 that Google saves personal information
24 about me in a shadow account, which I've
25 called the shadow account, the area where I

1 can't see it and I can't control it.

2 Q. I think I understand what
3 you're saying. Just a couple more
4 questions about this.

5 In your review of materials,
6 did you review any disclosures made by
7 Google about what it considers personal
8 information and what it considers
9 nonpersonal information?

10 A. I can't give you specific
11 documents here, but I reviewed an awful lot
12 of documents and I would imagine that that
13 has been addressed in some of those
14 documents.

15 Q. Did you take that into account
16 in crafting the definition in footnote 104
17 of "Google account"?

18 A. I mean, without looking at some
19 specific document, I would have to -- you
20 would have to show me a document for me to
21 say one way or the other.

22 Q. Well, the problem I have is
23 that you don't cite any documents in
24 footnote 104, so I'm asking you about the
25 basis for the definition. I understand

1 your intuition is one of them, your
2 experience, what is most natural to you is
3 one basis. I'm just trying to establish
4 what the other bases are. You said
5 everything I've read.

6 A. I would say the absence of -- I
7 went looking to see if there was a clear
8 public definition from Google that would
9 explain aha, this is what's -- so that
10 someone coming would understand what data
11 is collected about them, where that data is
12 going to be put.

13 The situation I found upon the
14 technical investigation was
15 counterintuitive, it was not what I
16 expected to find, and it is, frankly, kind
17 of Orwellian, it is just very strange that
18 you have a privacy switch that when you
19 flip it, it just means we don't tell you
20 that we're spying on you. It is almost
21 like the party slogan from 1984, you know,
22 ignorance is strength, that's like what
23 this is. That's what this control is. You
24 flip the switch, you can remain ignorant of
25 the fact that you're being spied on.

1 Q. Does your definition in
2 footnote 104 include both personal
3 information and nonpersonal information?

4 MR. MAO: Objection to the form
5 of the question. Go ahead, please.

6 A. I think that the information
7 that's being collected becomes personal
8 information when it is identified in a way,
9 for example, using a Google identifier that
10 connects it to a person.

11 Q. Okay. And so given your
12 definition there that you just gave, does
13 your definition of "Google account" in
14 footnote 104 include both personal
15 information or nonpersonal information?

16 MR. MAO: Objection, incomplete
17 hypothetical, form of the question. Go
18 ahead, please.

19 A. I mean, to my mind, when I say
20 Google collects and saves information, that
21 word is not there, but Google collects and
22 saves, in brackets, information, regarding
23 a user, that's personal information.
24 That's information about that user and
25 their activities.

1 Q. Okay. So the part of your
2 definition that says "regarding a user" is
3 the part that limits the definition to
4 information that's personal information?

5 MR. MAO: Objection, asked and
6 answered, misstates his testimony. But
7 go ahead.

8 A. Yeah, one way to look at it is
9 the personal information is information
10 that can be linked or that is linked to a
11 person.

12 Q. Which, is or can be?

13 A. Is.

14 MR. MAO: Objection, incomplete
15 hypothetical.

16 Q. If the information is not
17 linked but could be linked to a person,
18 does that information constitute
19 information pertaining to a Google account?

20 A. I want to be clear, I mentioned
21 subjunctive in there, and there shouldn't
22 be any subjunctive, it just is the
23 information is linked to a person or it's
24 not linked to a person. Those should be
25 the two choices, it is linked or is not

1 linked. There is no could, there is no
2 should, it is just it is or it isn't linked
3 to a person.

4 Q. What is an example of
5 information that is not linked to a person?

6 A. So I would consider, for
7 example, the fact that 47 people visited
8 your website today, that doesn't tell you
9 which 47 people.

10 Q. So aggregated information, if
11 aggregated properly, is not linked to a
12 person?

13 MR. MAO: Objection, incomplete
14 hypothetical, assumes facts not in
15 evidence, form of the question. Go
16 ahead, please.

17 A. So I'm giving you that as just
18 an example off the top of my head, because
19 it's actually something I'm thinking about
20 a lot in the context of medical research,
21 how to give information, useful statistics,
22 without revealing individual data.

23 Q. Right. You have a startup,
24 right, that is working on this?

25 A. I have an academic project and

1 there is also a startup, yes.

2 Q. So can you give an example of
3 analytics data that is not personal
4 information, whether it is Google or not,
5 just a generic example?

6 A. I mean, most of the data that I
7 see in Google Analytics as a user of Google
8 Analytics, in other words, as a website
9 operator, it doesn't look like personal
10 information, it is just aggregate data
11 about behavior. It is behavior by a group
12 of people of which I don't know who those
13 individuals are.

14 Q. As a website operator, when you
15 open the Analytics console, well, actually,
16 strike that.

17 As a website operator who uses
18 Google Analytics you could also use
19 BigQuery to export event-level data, right?

20 A. Yes, I believe so.

21 Q. If you were to use BigQuery to
22 export event-level data -- well, have you
23 ever used BigQuery to export data on your
24 website's users?

25 A. I have not used BigQuery

1 personally to do that.

2 Q. But your company has?

3 A. I am not sure. We -- a while
4 ago we were using Firebase for developing a
5 prototype. We have subsequently moved to
6 Cloudflare Workers.

7 Q. Firebase for an app?

8 A. Yes.

9 Q. When did you move to
10 Cloudflare?

11 A. Years ago.

12 Q. So you've seen what the
13 BigQuery exports look like, right? You
14 discuss them in your report?

15 A. Yes, I guess so, because
16 I've -- I mean, I don't remember it sitting
17 here now, we should probably look at one if
18 you want to talk about it.

19 Q. You recognize that it is
20 event-level data, the BigQuery export?

21 A. I believe so.

22 Q. And the event-level data can
23 contain device ID, right?

24 A. I mean, we should just take a
25 look at some, if there is an example of it,

1 we should take a look at that just to
2 confirm it. Maybe I documented it here
3 somewhere in the appendices. The report is
4 huge. I just don't remember.

5 Q. Well, just assume for me that
6 device ID is included in BigQuery exports.

7 A. Sure.

8 Q. And it's event-level data.

9 A. Yes.

10 Q. So you as a website operator
11 have had access to that if you wanted it,
12 right?

13 A. Okay.

14 Q. You would agree with that?

15 A. Yes, but I haven't done this
16 personally, yes, but a website operator
17 could in theory do this.

18 Q. Is that -- does that constitute
19 personal information pertaining to a Google
20 account?

21 MR. MAO: Objection, incomplete
22 hypothetical. Go ahead.

23 A. If it has a device identifier,
24 that's -- that is -- that is linked to the
25 person, because if you happen to go get the

1 person -- if you suspect someone, for
2 example, you have some data, you suspect
3 someone, you go grab their phone, you can
4 pull that identifier off the phone and now
5 that data is linked to them because there's
6 the data, there's the device ID, and
7 there's the device ID on their phone which
8 was in their pocket and you know that's
9 their data.

10 Q. That makes sense. But at the
11 time that you export the data, before
12 you've gotten the phone out of the person's
13 pocket, that data is not linked to a
14 person, right?

15 A. I disagree.

16 Q. Okay. Explain.

17 A. That data is linked to a
18 person. That ID is very specific and it
19 links to one person. So, for example --

20 Q. One device, to be fair?

21 A. Devices are one-to-one with
22 people. People are very possessive of
23 their devices. There is a very strong
24 signal, if you have a device. Like if I
25 get a clue, let's say I'm an intelligence

1 officer and I'm trying to track down a
2 dissident who I want to assassinate, this
3 has happened --

4 Q. Sure.

5 A. If you give me a name, and you
6 gave me the name Mark Mao, I may have
7 trouble finding the right Mark Mao because
8 there are multiple people named Mark Mao.
9 But if you give me a device identifier and
10 say this is the guy who has been spying
11 against us and we need to go get rid of
12 him, if I suspect this is the Mark Mao you
13 are talking about and I go grab him and
14 check his phone, I can confirm it.

15 Q. If you check his phone?

16 A. Because it links to him, that's
17 the link. The link is the ID in the phone.
18 Also --

19 Q. What if his phone is at the
20 bottom of the ocean?

21 A. Okay, now there is a problem
22 for Mark Mao, because that device ID is
23 located in lots of different datasets.

24 Q. Okay.

25 A. And if any of those --

1 Q. If you don't have access to any
2 other datasets, you just get the device ID.

3 A. But that's not the way the real
4 world works. There is data breaches all
5 over the place. All kind of datasets have
6 been compromised. They are all over the
7 place. You can go out and harvest lots of
8 datasets, and I'm sure intelligence
9 services are actively doing this, they are
10 gathering this stuff up and now they can
11 see, you know, the Washington Post has
12 maybe a little leak in the way they put
13 their app together, they made a mistake,
14 they've gone and logged an e-mail address.
15 We've seen this happen in the wild. If one
16 person anywhere who has got your device
17 identifier logs something like that, your
18 cover is blown, and that's the problem,
19 that's a huge problem, because the
20 probability of that happening becomes
21 nearly certain when the perfusion of data
22 is very large.

23 Q. So the privacy concern you're
24 articulating right now, as I understand it,
25 is a concern about, as you said it, the

1 cover being blown, the person being
2 unmasked due to the leakage of data or data
3 being stored somewhere where it shouldn't
4 be, it's a risk that you consider to be a
5 privacy risk?

6 A. So this is just one example,
7 and there are many scenarios, there are
8 many scenarios that are less dramatic than
9 that, okay? But the personal identifier or
10 the Google identifier, like a device ID,
11 like an app instance ID, these things
12 relate to a person, they are personal, and
13 they link to that person, and with the
14 necessary set of data, that person can be
15 found or a suspicion can be confirmed, and
16 that's just an example of what can and does
17 happen in the world.

18 Q. Now, the linkage that you're
19 concerned about depends on there being data
20 linked to that device ID, right? If you
21 bought the phone, opened it up, haven't
22 used it yet, it means nothing, device ID
23 means nothing at that point, right?

24 A. Okay. So I guess if you have a
25 pristine new device, the device ID is --

1 there is no information associated with it
2 at that moment.

3 Q. And then as you use it more
4 data is generated, goes into different
5 places in the world, and that's what's
6 creating this privacy risk?

7 A. That's not the only thing
8 creating the privacy risk. This is just
9 one potential -- one little pathway among
10 many.

11 Q. To what? Pathway to what?

12 A. Failure to preserve privacy.
13 So the user has set a switch which says I
14 want to be private, and they have some
15 expectation of privacy. They have been
16 primed for that. They have been told you
17 can be private, you can have private
18 activity.

19 They flip the switch, they want
20 privacy, and yet this trove of data is
21 being gathered, and whenever there is a
22 trove of data, it is usually only a matter
23 of time until it leaks. There are leaks.
24 There are data breaches. They have
25 happened. It doesn't matter how careful

1 you are. There are breaches. There are
2 leaks. There is insider threat. All kinds
3 of problems. And the person who asks for
4 privacy and expected privacy didn't bargain
5 for that.

6 Q. If Google purged right now its
7 records of all the data that you say in
8 your report Google could purge, SWAA-off
9 data, would that eliminate the privacy risk
10 you're discussing?

11 A. It's a great question. I don't
12 know if I have said that in the report and
13 I don't -- that's kind of a big opinion to
14 ask and I would want to think it over
15 carefully, okay, in order to answer it. I
16 just don't want to shoot from the hip a new
17 opinion like that.

18 Q. But it would ameliorate the
19 risk presumably, otherwise you wouldn't
20 have suggested it?

21 A. Well, I think it's -- let's
22 take a look exactly what I said. So just
23 to try to be clear. We're in Section K,
24 right?

25 Q. Section K.

1 A. And do you remember the page?

2 Q. 168 I think.

3 A. This is really at the end.

4 Okay. So I've said in K Google could purge
5 its system of WAA-off and sWAA-off data.

6 So I'm saying that -- and I guess there is
7 a presumption that somehow that would be
8 helpful. I haven't said that's a complete
9 solution, but I think you can read in
10 between the lines that it would be -- I'm
11 suggesting it because it would be helpful.

12 Q. But just in terms, focusing for
13 a moment on your concerns relating to data
14 breach, which is to say data sent to Google
15 that then gets out of Google into the wild.

16 A. Some threat actor comes in and
17 exfiltrates that data?

18 Q. Yeah. Are you opining in this
19 case, I don't see it in your report, but
20 just to be clear, you're not opining that
21 that has happened to anyone in particular,
22 right?

23 A. So I haven't issued that
24 opinion. I'm aware that other experts in
25 this case may say things to that effect.

1 Q. Okay. But that's not on your
2 plate, that may be on someone else's?

3 A. That's not on my plate.

4 Q. What about insider risk, it's
5 not somebody exfiltrating data from Google,
6 it is somebody at Google attempts to unmask
7 somebody by connecting their device ID to
8 their name or e-mail or whatever, in this
9 case are you -- have you rendered an
10 opinion in this report that that has
11 happened before to anyone in particular?

12 A. So I'm not -- again, just like
13 with the last question, it is symmetrical.
14 Somebody else might talk about it. I'm not
15 saying it has happened. I'm just aware of
16 it as a risk. I mean, I'm a security
17 technologist, so I'm aware of these various
18 kinds of risks. I've studied them. So I'm
19 pointing it out.

20 Q. Okay. That's helpful. Okay.

21 MR. MAO: At some point,
22 Eduardo, let's take another break. I
23 just need to get the blood circulating.
24 I have red-eye lag.

25 MR. SANTACANA: Yeah. Can I

1 just -- I just want to do one more
2 module.

3 MR. MAO: Do what you need. In
4 the next 10, 15 minutes or whatever.

5 Q. So let's talk more about K, so
6 you should probably flip to it.

7 A. Sure.

8 Q. These are your opinions
9 concerning what the changes, it is called
10 WAA Changes, Google could change WAA and
11 sWAA to ensure they function as described.
12 Google could also purge its systems of
13 WAA-off and sWAA-off data.

14 MR. MAO: For the transcript, I
15 believe Mr. Santacana is referring to
16 Exhibit 1, Section K.

17 MR. SANTACANA: Yes, page 168.

18 Q. And that's the summary of
19 your -- that's the heading of the opinion.
20 There is also an opinion, as I see it, at
21 paragraph 418 that's not summarized by that
22 heading which is that Google could delete
23 products, services or algorithms that it
24 built in whole or in part with WAA- or
25 sWAA-off data.

1 So in my mind, Section K here
2 is proposing that Google stop a certain
3 kind of collection, purge a certain kind of
4 data, and delete certain products, services
5 or algorithms. Is that a fair --

6 A. I have said that these things
7 are technologically possible.

8 Q. Oh, did I say -- yeah, that it
9 is technologically possible. So let's
10 start with Google could stop collecting,
11 okay? You say at 411 and 412, and take a
12 moment to review them -- actually, just
13 take a moment to review them.

14 (Witness perusing document.)

15 A. Yes, I have read this very
16 recently, so I'm up to speed on it.

17 Q. Great. In effect, I think what
18 you are arguing here is that Google should,
19 excuse me, that it is technologically
20 possible for Google to check for a user's
21 sWAA setting on device rather than at the
22 server level, and if sWAA is off, then it
23 will not transmit any user data via
24 analytics?

25 A. It is possible for Google to

1 detect the WAA/sWAA status as needed and
2 decide either not to transmit anything or
3 to somehow transmit only things that are --
4 I haven't thought through completely, but
5 perhaps Google could design some system to
6 transmit something that has no personal
7 identifier and no link to the person.

8 Q. So as a user of analytics, you
9 know that one of the values of analytics is
10 analysis relating to what the same user or
11 device does over time, right, even if it is
12 presented anonymously to the website
13 operator or the app developer?

14 A. Yes.

15 Q. If Google were to implement 411
16 and 412, paragraphs 411 and 412 of your
17 report, would that type of analysis that
18 Google provides to developers through
19 Google Analytics be possible?

20 A. It for sure would be possible
21 for the people who leave sWAA and WAA
22 turned on, enabled, for data collection,
23 which is, I think I document in the report,
24 it is over 90 percent for WAA and over 80
25 percent for sWAA.

1 I guess maybe Google has some
2 challenges. I'm not sitting here -- it's
3 not my job to engineer -- reengineer things
4 for Google. Google has to engineer it.
5 But they have the ability to stop
6 collecting data that ties to an individual
7 user if they want to, because they have,
8 they do it with certain products but not
9 with others.

10 Q. So my question is about the
11 nature of what you just said. Is it
12 possible in your mind to tie data together
13 longitudinally from the same device without
14 violating what you have described to be
15 something that constitutes personal
16 information or raising the privacy risks
17 that you discuss in your report?

18 A. I think there may be
19 potentially some solution might be
20 engineerable. I don't want to say it is
21 impossible to engineer, okay? I haven't
22 sat down and tried to engineer that and I
23 haven't expressed an opinion this is what
24 Google should do in order to continue
25 having this functionality that they want.

1 You know, that's really the
2 next step in the process, is if Google
3 decides -- let's say Google decides, after
4 hearing this, and I really hope they do
5 decide this, let's just say they decide you
6 know what, let's be white knights here,
7 let's purge this data, let's stop
8 collecting it, and now let's figure out how
9 do we continue, how can this sort of useful
10 analytics service continue to be provided
11 to vendors, that's the next step, and I
12 haven't gone there yet. I haven't opined
13 about that.

14 Q. Your startup is working on that
15 question, isn't it?

16 A. I was approached by a professor
17 at the Yale School of Medicine who was
18 affiliated with the American College of
19 Surgeons, and he runs -- he chairs the
20 Committee on Quality, which determines the
21 treatment algorithms for all cancer
22 patients in the United States. So if you
23 get cancer, you go to the doctor and the
24 doctor has an algorithm that they follow,
25 and this committee is the one who sets the

1 standard of care.

2 Q. I know what they are.

3 A. And they also are custodians of
4 the National Cancer Database and they have
5 the ability to influence what data is
6 collected through federal policy, and that
7 database research is very important, and
8 are having extreme problems because of
9 essentially HIPAA, they can't join the data
10 together the way they would like, so they
11 need what is called privacy preserving
12 record linking, a way that you can link
13 records and maintain privacy.

14 And it requires, under the
15 system I designed over the last number of
16 years, starting in 2018, it requires a
17 considerable amount of effort to do that.

18 Q. Is there a name for the system
19 you designed?

20 A. So it has alternate names
21 depending on the context. The project,
22 sometimes we call it Just Enough Trust,
23 Dr. Boffa calls it the Fischer-Hochman
24 solution, and there is a commercial entity
25 called UNS.

1 Q. If Google adopted the
2 Fischer-Hochman solution that you developed
3 for the National Cancer Database for Google
4 Analytics, would that satisfy the privacy
5 risks that you raise in your report?

6 A. A great question, but a couple
7 of things. One, this isn't a sales pitch.
8 I'm not trying to pressure Google. This is
9 totally separate. It's not being developed
10 to try to sell it to Google.

11 Q. Google is not going to pay you
12 money anyway, so I know it's not a sales
13 pitch.

14 A. I'm not trying to do that.
15 That's not my purpose. The research is
16 published. If Google for some reason wants
17 to read that research and try to get
18 something out of it, they are welcome to do
19 so. It's public.

20 Q. Yeah. I'm just trying to
21 understand the technology, that's all.

22 A. I don't know. I haven't done
23 that analysis. I don't know if it would
24 help Google or not. I'm not sure. That
25 would require some careful analysis and I

1 haven't gone there. That's not the --
2 that's not the initial use case that we are
3 thinking about.

4 Q. Okay. But the technology that
5 you have developed for this National Cancer
6 Database, presumably the purpose is to
7 comply with HIPAA?

8 A. It is a combination of people
9 have concerns about HIPAA, the hospitals
10 have archaic technology and the security is
11 really bad. Even Google has released a
12 study recently that said that most data
13 breaches start with healthcare data leaks.

14 So in some sense we're on the
15 same side of this problem, Google and me.
16 It is a big problem, because you're getting
17 this one-size-fits-all treatment when you
18 get cancer and what we really want is for
19 personalized medicine, we want people to
20 get a treatment that is best for them based
21 on their characteristics, and the only way
22 to do that is to have better data hygiene,
23 eliminating duplicate data shards, joining
24 together data shards about the same person,
25 and doing it in a way that that data is

1 retained and doesn't compromise privacy.

2 We have the government behind
3 us. So the government can rewrite the
4 rules to make it -- whatever rules need to
5 be rewritten, there is commitments that
6 they will be fixed up and rewritten.

7 The issue is not to trigger
8 political backlash, not to make people
9 think this is some kind of universal
10 tracking system that's going to be used to
11 take away their guns or be used to label
12 political dissidents as psychiatric
13 patients or whatever. There are historical
14 problems with medical data tracking.
15 That's why the United States doesn't have a
16 national healthcare number the way they do
17 in other countries. So there is political
18 concerns.

19 I probably told you more about
20 that topic than you wanted to hear, but
21 it's interesting.

22 Q. It is very interesting. But I
23 take it, then, you would agree that it is
24 possible to link data about people that is
25 collected over time without invading their

1 privacy?

2 A. I have designed a system that
3 does it, but the system involves the use of
4 some independent agents, one of which is
5 chosen by the person. That's why it is
6 called Just Enough Trust. You kind of pick
7 the person you want to trust and that data
8 fiduciary works for you. There is a
9 different data fiduciary working for the
10 service who is processing your data.

11 So in some sense maybe part of
12 the problem Google is having here, and I'm
13 just going to share this as a helpful
14 thought, Google has gotten itself involved
15 in both sides of this. Google is working
16 for the user and Google is working for the
17 website or the app vendor, and that sets up
18 a conflict, and that creates -- that
19 creates some trouble for them. It puts
20 them in a difficult position. And that if
21 they were to kind of choose and work for
22 one side exclusively or the other side
23 exclusively they might not run into this
24 problem. So maybe just take that as a
25 thought.

1 MR. MAO: Maybe during a break
2 you can pull up the publication that
3 you can evaluate for yourself.

4 MR. SANTACANA: Pull up the?

5 MR. MAO: Publication.

6 THE WITNESS: Which
7 publication?

8 MR. MAO: Oh, sorry, the
9 sources that you are talking about.

10 Q. Now, returning to this
11 technology, Google Analytics for Firebase,
12 if Google set up a separate data storage
13 mechanism that stores analytics data and
14 that's it, it just sits in that silo, it
15 can't be used for anything else, it can't
16 be used by Google, it is only used to
17 service analytics accounts like the account
18 that your website has or the account that
19 some app has, the New York Times app, in
20 your mind could it continue to service
21 those accounts, including for SWAA-off
22 users data?

23 MR. MAO: Objection, incomplete
24 hypothetical. Go ahead.

25 A. So you may be getting into some

1 areas that are studied in cryptography like
2 secure multiparty computing and homomorphic
3 encryption. I mean, there are strategies
4 for sort of being able to process data
5 without actually being able to read the
6 data. I'm not going to assert that any of
7 this is impossible. There may be some way
8 that Google can engineer a workable
9 solution. I don't know. I haven't done
10 that analysis yet. That is downstream.

11 Q. I think you may be overreading
12 my hypothetical. Let me try it a little
13 bit differently.

14 You are familiar with the
15 concept of data processor and data
16 controller?

17 A. Yes. I think that's something
18 that comes out of the EU; does it not?

19 Q. Yes. Data processor, let's
20 just say for purposes of today, is where
21 the data processor acts solely as a vendor
22 and does not use the data for its own aims,
23 it only uses it to do whatever it has been
24 asked to do by the person that has provided
25 it to them, okay?

1 A. Yes.

2 Q. If Google acts solely as a data
3 processor for Google Analytics data and
4 never as a data controller, in your mind
5 could it do that for sWAA-off users data?

6 MR. MAO: Objection, incomplete
7 hypothetical. Go ahead.

8 A. I'm not sure, because I haven't
9 done that analysis, and you may also be
10 getting into issues which also require
11 legal advice, because those are -- those
12 are legal definitions under like GDPR. So
13 I'm not --

14 Q. That's why I gave you a
15 definition. I'm trying to understand,
16 again, the limits of your opinion, right?
17 So you understand, you opine that Google
18 does a number of things with Analytics
19 data. One of the things it does is service
20 Analytics accounts, right?

21 A. Yes.

22 Q. Like your website or the New
23 York Times app?

24 A. Yes.

25 Q. Provide information to those

1 developers about how people are using the
2 app or the website?

3 A. Yes.

4 Q. Okay. You opine that Google
5 also uses the same Analytics data to do
6 other things, like advertising, right?

7 A. Yes.

8 Q. Okay. I'm trying to understand
9 where you see the problem. So is it a
10 problem if Google is only doing the
11 Analytics provision to the website or the
12 app, is that a problem for SWAA-off users
13 Analytics data?

14 A. I have a very clear answer to
15 that, where is the problem. The problem is
16 that when the user is given the impression
17 that their activity is private and then
18 their data is collected, that's where the
19 problem is. It is right at the collection
20 logging. That's where the problem occurs.
21 And all this downstream stuff, you are kind
22 of trying to ask me, is there a way to
23 throw out the bath water without throwing
24 out the baby, because, you know, I think we
25 both agree that Analytics is a useful

1 product to merchants and they want to have
2 access to it. You know, website operators
3 want to have analytics.

4 And I already commented that
5 Google has kind of put itself into a
6 difficult position by being on both sides
7 of it. They are telling the user, hey,
8 here is your chance for privacy and then
9 they are also telling the website operator
10 hey, here is this great analytics product
11 that you can use to track, and I think I
12 have sort of said their life might be
13 simpler if they would pick one or the other
14 and not try to do both at the same time.
15 That might be easier.

16 Q. But that's not what I'm asking
17 you, right? I understand that's your
18 advice. But my question is if Google
19 collects and saves sWAA-off GA4F data and
20 only uses it to service the Analytics
21 account that generated the data, so it came
22 from the New York Times, somebody used the
23 New York Times, the New York Times sends it
24 to Google, Google saves it and analyzes it
25 for the New York Times, that's it, that's

1 the whole lifecycle of the data, in your
2 mind for the sWAA-off users in that
3 lifecycle, is the description of the button
4 misleading then? Are they --

5 A. Whether the button is
6 misleading I guess is maybe an opinion that
7 someone else is going to delve into in
8 depth. I told you, I just mentioned that
9 in passing to establish the relevance of my
10 technical analysis.

11 I think it's -- what I found is
12 entirely consistent with that button being
13 misleading, and I've said that this is a
14 fake control, because it doesn't do what it
15 seems to say it's going to do, and I've
16 said that the problem is collecting and
17 saving the data. It's the collecting and
18 logging where the problem is.

19 Now, you are saying well, what
20 if Google was just acting as an agent for
21 somebody else in order to do this, would
22 that be allowable? That may really get
23 into more of a legal question. I'm not
24 sure, I haven't opined about that
25 hypothetical you're putting forward and I

1 don't think I'm going to shoot from the hip
2 and do it now.

3 Q. Okay. I think I understand
4 what you're saying.

5 So you're aware that there are
6 other analytics providers, right?

7 A. Yes.

8 Q. With respect to the opinions
9 you've rendered in this case, what in your
10 mind is the difference between an app
11 developer using Google Analytics for
12 Firebase as opposed to, for example,
13 AppsFlyer?

14 MR. MAO: So, Eduardo, you are
15 going on to a different module now.

16 THE WITNESS: I was just about
17 to say that, that this would be a great
18 time to take a break, if we are going
19 to go to a different module.

20 MR. SANTACANA: It's not, well,
21 at least not in my outline, it is not a
22 different module. But I will wrap it
23 up soon.

24 A. So, yes, an app developer could
25 use some other analytics package, sure.

1 Q. So what's the difference, why
2 does it matter that, to you, that it was
3 Google Analytics for Firebase rather than
4 AppsFlyer?

5 A. Well, one thing is that
6 AppsFlyer hasn't made any privacy
7 representations to the users.

8 Q. Is there any other difference?

9 A. Google Analytics for Firebase
10 integrates really well with Google's
11 advertising products and it powers some
12 additional features that I don't think you
13 could get with third-party analytics.

14 Q. Have you rendered that opinion
15 in this case?

16 A. Well, I just told you that
17 because you asked me, but --

18 Q. But it's not in your report,
19 right?

20 A. It's not in my report, but I
21 understand that Mr. Black put that as a
22 rebuttal to me that, you know, these
23 vendors could use this third-party tool,
24 and so I'm sort of criticizing Black by
25 saying yeah, but it's not equivalent, it's

1 not an equivalent substitute. It is
2 different. It is qualitatively different.

3 Q. You have not undertaken any
4 study of the competitors of Google
5 Analytics for Firebase and the extent to
6 which they offer similar or the same
7 features, right?

8 A. I haven't opined about that in
9 my report. I mean, I'm generally aware of
10 these other companies.

11 Q. But you have not undertaken to
12 study it in order to render an expert
13 opinion to the jury in this case?

14 A. My computer just logged me out.

15 Q. That's okay. You don't need it
16 to answer this question.

17 A. Sure. I haven't done that
18 study here, again, because Mr. Black has
19 rebutted me and I haven't had a chance to
20 respond to him.

21 Q. Sure. But you're just shooting
22 from the hip now?

23 MR. MAO: Objection,
24 mischaracterizes the procedural
25 allowances in a case in response to a

1 rebuttal. I mean, come on, let's not
2 do that. Go ahead.

3 A. I wouldn't -- I wouldn't say
4 that this is shooting from the hip. I'm
5 just telling you what I know about the
6 topic, okay? That I am a user of Google's
7 marketing technology and I see what Google
8 tells us about how to pitch this
9 technology, how to sell it to customers.
10 They encourage everyone very strongly use
11 use Google Analytics -- Google Analytics 4,
12 the current version, they want everyone to
13 upgrade. You get the best access to
14 features. You get the best integration. I
15 mean, that's clear and sort of
16 noncontroversial. I don't need to do a big
17 study to tell you that because that's
18 everywhere.

19 Q. Well, with all due respect,
20 this is a lawsuit, you are here as an
21 expert, this is clear and noncontroversial
22 is not an expert opinion. So I need to
23 understand the basis of what you're saying,
24 okay? You did not undertake a study of
25 Google Analytics' competitors in the

1 market, right?

2 A. I did not undertake a study of
3 the Google Analytics competitors.

4 Q. You did not apply any
5 methodology in this case as an expert that
6 you intend to present to a jury comparing
7 the features of Google Analytics and its
8 competitors, right?

9 A. You know, what I would say is
10 that I have experience with these products,
11 and I can tell you for sure that if someone
12 has to go set up a second product, a lot of
13 the smaller advertisers will look at this
14 and say, you know, too much work, too much
15 trouble, I can just use Google Analytics,
16 that is easier.

17 Q. Okay. Well, we will get to
18 that, but that's not my question.

19 You did not apply any
20 methodology in this case as an expert that
21 you intend to present to the jury comparing
22 the features of Google Analytics to the
23 features of its competitors?

24 A. I haven't set up a feature
25 comparison study.

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Q. Okay.

MR. SANTACANA: We can take
lunch.

THE VIDEOGRAPHER: The time is
12:48 p.m. We are off the record.

(Luncheon recess: 12:48 p.m.)

1 A F T E R N O O N S E S S I O N

2 1:34 p.m.

3 J O N A T H A N H O C H M A N, resumed.

4 THE VIDEOGRAPHER: The time is

5 1:34 p.m. We are back on the record.

6 CONTINUED EXAMINATION

7 BY MR. SANTACANA:

8 Q. So we left off talking about
9 your opinion about Google's changes it
10 could make to how WAA and sWAA function.

11 A. Yes.

12 Q. And I want to talk about your
13 opinions relating to what Google could
14 purge from its systems, okay?

15 A. Yes.

16 Q. So you reviewed some Baseview
17 data in this case?

18 A. Yes.

19 Q. And you propose, among other
20 things, that Google purge sWAA-off Baseview
21 data, right?

22 A. I believe so.

23 Q. In the Baseview data that you
24 reviewed, was there a sWAA bit in there
25 indicating whether the entries were

1 collected while sWAA was on or off?

2 A. I believe that -- I think I've
3 said something to the effect that there is
4 enough data in there in terms of
5 identifiers that it could be determined, it
6 could be calculated, if Google had held on
7 to a sufficient amount of data. I know
8 there was a dispute in this case where
9 Google wanted to delete some data in the
10 ordinary course and plaintiffs said no,
11 don't delete that, and then Google deleted
12 it. So that may come into play I suppose.

13 Q. Well, I'm not sure what you're
14 referring to, but I'm just asking what you
15 saw in the data that you had.

16 A. I mean, I have documented that
17 carefully in the report. I have written it
18 down. I don't want to speak from memory on
19 that because it is kind of a nitty-gritty
20 point. I don't want to -- I stated it -- I
21 wrote it as clearly as I could, so I don't
22 want to change what I wrote.

23 Q. Okay. So let's look at your
24 paragraph 416. It says "I have not
25 observed a WAA or sWAA bit in non-GAIA,

1 GA4F logs."

2 What does that phrase, can you
3 explain what that phrase means?

4 A. Yeah, so the non-GAIA logs are
5 those, probably the data that's stored in
6 Sawmill or data that's not stored in what
7 Google calls the Google account, and so the
8 WAA and SWAA bits, those bits are
9 everywhere in Google's data, because I
10 think Google commented that they had more
11 than a million hits when they searched for
12 those field names, but in the limited
13 amount of logs that were provided by
14 Google, you know, less than we asked for, I
15 didn't see those bits in that data. So
16 that's what that means.

17 Q. Okay. And Baseview, in this
18 scenario, Baseview is one of the non-GAIA
19 GA4F logs, at least the Baseview that you
20 reviewed?

21 A. My understanding -- I'm sorry.

22 Q. That's all right.

23 A. So my understanding, there is a
24 bit of a dichotomy between footprints,
25 which is the GAIA logs, GAIA key logs, and

1 the Baseview, which are non-GAIA.

2 Q. Okay. I think I understand
3 this phrase now.

4 So in 416 I think what you're
5 saying is there are SWAA bits in GAIA logs
6 at Google but you didn't find any SWAA bits
7 in non-GAIA logs, that's 416; is that fair
8 to say?

9 A. Yes, because the
10 user-controlled field I believe encodes
11 those bits.

12 Q. So then the last sentence of
13 416 says "Google could populate non-GAIA
14 logs with user control field for the
15 purpose of identifying SWAA-off traffic."

16 A. Let me just take a look at this
17 again.

18 Q. Sure.

19 A. Yes, and I think we probably
20 need to delve into Appendix 6, because that
21 is mentioned here. So there is more
22 explanations and data there.

23 Q. Appendix G?

24 A. Sorry, yes, G, not 6.

25 Q. Section 2.1.2?

1 A. Yes.

2 Q. Okay, all right. In 417 you
3 propose an alternative way to identify
4 sWAA-off traffic, or, excuse me, sWAA-off
5 data, which involves -- you say "Google
6 could search its systems for all
7 identifiers associated with that user,"
8 referring to users that we know had sWAA
9 off at any particular time during the class
10 period, right?

11 A. Yes.

12 Q. Did you find in your work on
13 this case -- well, strike that.

14 Are there particular systems
15 that you have in mind in this sentence,
16 "Google could search its systems for all
17 identifiers associated with that user"?

18 A. Yeah, I think I've documented a
19 few of them in this --

20 Q. Appendix G?

21 A. Not Appendix G. I think there
22 is section in the report where I go
23 through, I think it is Constellation, there
24 is another system, it is called Rambo, and
25 there are a few of those which are mapping

1 essentially between identifiers.

2 Q. I recall that section.

3 A. So I think if you were to look
4 in those mappings, Google stores mappings
5 and they have ways -- also if you just look
6 in your GAIA logs, you will find sometimes
7 some of these other identifiers might be --
8 might be in there, so there is linkages.

9 So I think it would be possible
10 to just search for the links that are
11 already there webbed throughout all the
12 data and find -- find all that WAA-off and
13 sWAA-off data, or at least most of it or as
14 much of it as is feasible to find.

15 Q. We will come back to that. I
16 think I understand what you're saying now.

17 At least with respect to the
18 data you reviewed in the case, were you
19 able to make -- create a mapping between
20 GAIA ID and what Google calls pseudonymous
21 identifiers like device ID?

22 A. I mean, we have to go into the
23 appendices where that work is documented.

24 Q. Which one?

25 A. Good question. Let me take a

1 look at the table of contents, because I
2 don't know myself. Okay, oops, this table
3 of contents -- let me go into -- let me
4 check in one other location here.

5 Q. I think you mean Appendix G,
6 tab 4, but I could be wrong.

7 A. Yeah, let's take a look at
8 that.

9 Q. It is pretty long, so maybe
10 I'll break down the question for a moment.

11 A. Sure.

12 Q. My first question is just did
13 you attempt in this case to join -- strike
14 that. Let me try again.

15 Did you attempt in this case to
16 find evidence that Google had joined in the
17 same log device ID and GAIA ID? Was that
18 one of the things you did?

19 A. I think that had we noticed
20 that, had I noticed that, I would have
21 documented it.

22 Q. Okay.

23 A. So I --

24 Q. I don't think you did.

25 A. Yeah, I don't think I

1 necessarily found an indication of joining.

2 So just to be clear, joining

3 and linking are two different things.

4 Joining means putting the two pieces

5 together in the same place. Linking means

6 that there is just a logical connection

7 between the two pieces of data, okay?

8 There is a common identifier or there is a

9 common fingerprint, okay? There might

10 be -- data might be stored in separate

11 places but there is a common -- there is a

12 link between them.

13 Q. Got it.

14 A. Okay? So I'm using the
15 standard of linking, not of joining.

16 Q. I understand. So I hadn't
17 heard that distinction before, but join we
18 will use to mean actually joined together
19 in the same place, whereas linking is about
20 the availability of a mapping that may or
21 may not have been used to join. Is that
22 fair to say?

23 A. We don't know whether -- we
24 don't know whether someone has joined it or
25 not, we just know that it is linked, there

1 is a link. Think of it as quantum
2 entanglement. You've got two particles,
3 they are entangled, they can go as far
4 apart as you want but they are still
5 linked.

6 Q. Right. But if you can only
7 observe one --

8 A. Whatever you observe in one you
9 are going to observe in the other.

10 Q. Well, actually if you observe
11 it, it will screw it up, is so --

12 A. Well, it collapses the quantum
13 state, so you get one or the other,
14 outputs, if it is zero or 1.

15 Q. So I want to be really clear
16 though -- well, okay, so if you had seen a
17 join you would have documented it. You
18 didn't document a join that Google had
19 performed. Did you attempt to perform any
20 joins of linked GAIA and non-GAIA data
21 together?

22 A. So I'm not actually needing to
23 join, I'm just looking for links, because
24 the idea is if there is a link somebody who
25 gets both pieces of data can know that that

1 data is associated with that user.

2 Q. Right. So like --

3 A. And also, by the way, you don't
4 necessarily need to even link -- you don't
5 need to join the data within Google's
6 system. If you get some data out of
7 Google's system that has an identifier and
8 then you go to some third-party system and
9 get some data, it can be linked there, or
10 you can get, off the person's phone, you
11 can get it.

12 So the problem, as I have been
13 saying from the start, occurs at the moment
14 that sensitive information is collected
15 when the user has indicated they don't want
16 that sensitive information collected,
17 because the actual collection hurts the
18 user.

19 Minimally it hurts the user by,
20 you know, chewing up their mobile device
21 battery and tying up their bandwidth and
22 deteriorating the performance of their
23 device. But, additionally, it hurts them
24 by putting them at risk of their data being
25 exposed when they have said I don't want

1 this data collected because I'm afraid for
2 it to be exposed, if someone collects it,
3 that is a problem. I can even give you
4 another analogy --

5 Q. Well, I think I understand what
6 you're saying, but we can come back to your
7 analogy later. Maybe you can slip it into
8 a different answer.

9 My next question is -- what I'm
10 trying to understand is just what you did
11 and didn't do, that's all, in this --
12 Appendix G is about your data testing and
13 your procedures and all that. In this case
14 you received what we've discussed are GAIA
15 logs and non-GAIA logs, right?

16 A. Yes.

17 Q. Did you undertake any attempts
18 to find a match between entries in one of
19 those and the other?

20 A. I mean, I think we've
21 documented some ways that this stuff can be
22 matched up, okay? You know, it doesn't
23 necessarily mean I found evidence that
24 Google joined them.

25 Q. Right. I'm not saying Google,

1 I'm saying you. Did you successfully match
2 any of them up?

3 A. I mean, we have to look through
4 all the reports to -- I don't remember
5 actually every detail of this.

6 Q. Well, I don't think you did
7 actually do that. But I'm trying to
8 understand, you know, I don't know what
9 went on behind the scenes. Did you try
10 to -- I'll tell you what I'm asking. In
11 Brown you testified that you tried to and
12 did join what Google calls pseudonymous
13 data and a person's identity, but you
14 didn't say that in your report here, and so
15 I don't know if that's because you tried
16 and it didn't happen or if it's because you
17 didn't try.

18 MR. MAO: Assumes facts not in
19 evidence. You are assuming that the
20 analogies are one-for-one in one case
21 versus the other.

22 MR. SANTACANA: I'm not
23 assuming anything.

24 Q. I'm just trying to understand
25 what you did and didn't do, and that's

1 context for my question.

2 A. Sure. So a couple of things.
3 One, I didn't prepare Brown, I haven't
4 reread my Brown report for this. And I
5 have also kind of avoided talking about
6 Brown in this case and you have sort of
7 opened the door up there.

8 I think that we, in this case,
9 I and my assistants, did the analysis on
10 what data we had. We may have had less
11 data here than we had in Brown. It is --
12 it is a different case, different
13 circumstances.

14 Q. So, but did you try to match
15 together entries in a GAIA log to entries
16 in a non-GAIA log to show that they
17 belonged to the same person or the same
18 device? Did you attempt to do that,
19 yourself or your team?

20 A. I mean, I think we were able to
21 do that with fingerprinting. I think we
22 did find some ability to match up like
23 using some timestamp combined with some
24 other data we were able to correlate things
25 I believe. I think there is a test in

1 there that talks about that. I'm aware
2 that the timestamps are fuzzed a little bit
3 but that fuzzing doesn't appear to have
4 been enough to stop us from doing that.

5 Q. Okay. So you're saying you
6 believe that you did use timestamps to
7 match together entries?

8 A. I'm just -- I haven't found it
9 in the report yet. I'm speaking from
10 memory. I believe that there was some
11 point at which we were able to match stuff
12 up just using fingerprinting at minimum,
13 and whether we were able to match up with
14 identifiers is something else. But it's
15 documented in here. If we did, we did. If
16 you're saying it's not there, then it's not
17 there. I can -- I can accept your
18 representation, although the document will
19 ultimately speak for itself.

20 Q. I don't think it's there, but I
21 also don't want to sit here for an hour
22 while you read it. So maybe during a break
23 you can try and find that spot.

24 A. I will -- during a break maybe
25 I will figure out if I can find that or

1 not.

2 Q. Okay. But you -- but suffice
3 to say then it sounds like you do recall
4 attempting to conduct such a match?

5 A. I think that for thoroughness I
6 have looked into that and it may be the
7 case that the way the data was presented to
8 us in the selection of data, which was
9 pretty limited, it didn't pan out.

10 Q. But if whatever you did find,
11 it would be documented here, right?

12 A. Yeah, whatever I did find is
13 documented, and I don't have anything to
14 change at this moment.

15 Q. Okay.

16 MR. MAO: I will --

17 MR. SANTACANA: It is not an
18 objection. You can complain during a
19 break. I already know what you are
20 going to say.

21 MR. MAO: The objection is to
22 the form of the question.

23 MR. SANTACANA: Okay, if you
24 say so.

25 Q. So part of your purging opinion

1 has to do with joining that user control
2 field from a GAIA log to a log that doesn't
3 contain GAIA?

4 MR. MAO: Objection to the form
5 of the question, mischaracterizes the
6 evidence. But go ahead.

7 A. Let's go take a look at that.
8 What paragraph are you looking at?

9 Q. I think it is 416. Yeah, so
10 416, "Google could populate non-GAIA GA4F
11 logs with this user controls field for the
12 purpose of identifying user
13 data/identifiers associated with SWAA-off
14 traffic."

15 Do you see that?

16 A. Yes.

17 Q. So my question about that is
18 did you attempt to develop a method to
19 figure out how to match up the user control
20 field from a GAIA log to entries in a
21 non-GAIA log?

22 A. So I believe that Appendix G,
23 which I haven't read through, will have
24 some information about that, if that -- if
25 that has -- if I did figure that out.

1 I would also just comment that
2 there are some identifiers in here that
3 Google constructs via cryptographic methods
4 for which Google has a key and we don't.
5 So Google may have some additional
6 capability using its keys to be able to
7 match things up better than I could.

8 Q. You said Google may have
9 additional capabilities using its keys.
10 Did you render the opinion in the case that
11 it can do that?

12 A. I think that all the details
13 are in Appendix G, which is cited here. So
14 I think I would have to read through that
15 carefully and I could probably sort it out.
16 I just don't have it at the top of my head.

17 Q. Okay.

18 MR. MAO: Just one point of
19 clarification. I do think the way you
20 used the word "joined" here is
21 different than Brown. In Brown the
22 definition of "join" was talking about
23 Google joining. You asking about
24 Jonathan to join is kind of a strange
25 thing. I'm just noting that as a

1 standing objection.

2 MR. SANTACANA: Okay. I'm
3 using Jonathan's definition of "join"
4 for today.

5 MR. MAO: Let's just let you
6 finish, because I'm pretty -- very,
7 very confident that's not how that was
8 used in Brown.

9 MR. SANTACANA: Okay. Well,
10 this is not Brown, but that's helpful
11 to know.

12 MR. MAO: Well, you are
13 analogizing the two. That's the only
14 reason why I was trying to make a point
15 of clarification.

16 MR. SANTACANA: I get it.

17 Q. Okay. Did you undertake in
18 this case to populate a non-GAIA GA4F log
19 with a user control field from a GAIA log
20 to identify user data associated with
21 sWAA-off traffic?

22 A. Unless I presented it in that
23 Appendix G, which I haven't read recently,
24 I didn't, okay? But if I did, it would be
25 documented.

1 Q. I didn't see it there. I mean,
2 this sentence says Google could do this,
3 but it's not citing anything. I mean, we
4 can look -- you do cite Section 2.1.2 to
5 discuss user controls. So we can take a
6 look at that. I will take a look during a
7 break, but I don't think it's in there.

8 A. Well, why don't you take a look
9 and then we'll take a look and then we will
10 see if we can get to the bottom of it.

11 Q. Great. Then I'll move on for
12 now.

13 You also reviewed ads data from
14 ads logs in the case, right?

15 A. Yes.

16 Q. Do those logs contain any sWAA
17 bit, the ones that you reviewed?

18 A. I don't recall. I mean, it's
19 sort of a very big set of data that was
20 reviewed and a lot of analysis, so I would
21 just cling to the report and what I've
22 documented in the report, because that has
23 all the answers.

24 Q. Okay. Were the ads logs that
25 you reviewed in your mind GAIA logs or

1 non-GAIA logs?

2 A. I think the ads logs seemed
3 like they are something separate from GAIA,
4 but, again, I think I've documented it
5 clearly in the report, so whatever I've
6 said holds.

7 Q. Okay. Now moving to paragraph
8 418, you say that "It is not possible at
9 this point to 'unbake the cake,'" so Google
10 would need to delete internal products,
11 services or algorithms it built in whole or
12 in part with sWAA-off data.

13 Are you rendering an opinion in
14 this case as to which products, services or
15 algorithms those are?

16 A. No, because you could see in
17 footnote 183 I have said that an
18 independent assessor could look into that.

19 Q. Okay. So that would be like a
20 future project?

21 A. Future work.

22 Q. Okay. And you do not identify
23 in this report a list or a partial list or
24 even examples of products, services or
25 algorithms that Google built in whole or in

1 part with sWAA-off data?

2 A. No.

3 MR. MAO: Just a standing
4 objection, that I don't want to -- I
5 don't want to get bogged down with the
6 discovery history in this case.

7 MR. SANTACANA: I appreciate
8 that.

9 MR. MAO: Yeah, just my
10 objection, a standing one, but I will
11 let you ask your questions.

12 A. Can I answer it now?

13 Q. I thought you did.

14 A. I didn't really answer.

15 Q. My transcript says you said
16 "no."

17 A. Yeah, I was going to say more.

18 Q. Well, that's okay. I got my
19 answer.

20 All right, let's talk about app
21 developers. So app developers are the ones
22 who install Google Analytics for Firebase
23 into their app, right?

24 A. Yes.

25 Q. Google doesn't install it?

1 A. That's an interesting question.
2 That's a really interesting philosophical
3 question, because one thing I covered in
4 the report was the migration from AdMob to
5 AdMob+ when Google sort of inserted the
6 Google Analytics for Firebase essentially
7 code and functionality into the advertising
8 SDK and deployed that essentially as an
9 update to the advertising SDK so that
10 everyone who had the advertising SDK
11 suddenly had the Google Analytics for
12 Firebase functionality in there. So that's
13 just a caveat I would put into that answer.

14 Q. Okay. We will get to AdMob in
15 a moment. I'm trying to keep the record
16 clean. My question was about Google
17 Analytics for Firebase, that's the GA4F
18 SDK.

19 A. That SDK is installed by the
20 developer. I just noted that Google did
21 slip essentially that code into another SDK
22 by way of an update.

23 Q. Yeah. We will get to that,
24 because I don't think that's what your
25 report says, but we will get to that. GA4F

1 is an optional feature of the Firebase SDK
2 which has other features in it too, right?

3 A. Let me take a look, because I
4 have actually documented this pretty
5 carefully in the report, a section that
6 talks about the SDKs.

7 Q. Yeah, I think that is 62.

8 A. Yeah, and I don't want to
9 change what I said there.

10 Q. Paragraph 62.

11 A. Okay. It's in the background
12 section I think.

13 Q. Yes, page 28.

14 A. All right, so I just would
15 point out in paragraph 63 for app
16 developers that use Firebase GA4F is
17 enabled by default. I also want to note
18 here it says that GA4F is tightly
19 integrated with ads, which is one of the
20 points I was making previously.

21 Q. Okay. But you're not asserting
22 in this case that developers are using
23 Google Analytics for Firebase by accident,
24 right? They are all intending to do it,
25 you have to take steps to make it work?

1 A. I think that I don't feel like
2 I need to fight you on this point.

3 Q. I don't think you do.

4 A. So I would just let my report
5 speak for itself. Whatever I've said
6 stands.

7 Q. Okay. Now let's talk about the
8 AdMob or GMA SDK for a moment. So
9 paragraph 71 says "In order to use AdMob,
10 app developers must embed the Google Mobile
11 Ads SDK in their apps."

12 That at least is accurate,
13 right, that SDK doesn't appear by accident,
14 an app developer has to incorporate it?

15 A. Yes.

16 Q. Now, 73 -- so I think you just
17 asserted that Google slipped AdMob+ into
18 AdMob with an update that meant that
19 developers were suddenly using it without
20 knowing it I think is what you were
21 implying, but I don't think that your
22 footnote 60 supports that. So just take a
23 look and let me know if you want to
24 recharacterize your testimony.

25 MR. MAO: I object to the

1 characterization.

2 A. No, I think I like the
3 testimony, but you should look at paragraph
4 74 which quotes and cites Google created
5 AdMob+ to ensure we are collecting
6 analytics data for all AdMob publishers.

7 Q. That's a quotation from some
8 Google document, right?

9 A. We should look at the document,
10 yeah.

11 Q. Okay. Well, what I'm looking
12 at is paragraph 73 which says [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] And then in the
16 footnote to that sentence it says -- it
17 cites a document and in parentheses quotes
18 the document saying that [REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED]

21 I think, I mean, this is just
22 kind of basic logic, but I assume that
23 means then that [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] so obviously the
25 developer has to take some step to do it,

1 right?

2 A. No, because you can see in
3 paragraph 74 and 75, well, in 75 I say
4 "Google neither used the term 'AdMob+'
5 externally nor marketed its new
6 capabilities as a separate product.
7 Instead, in the summer of 2019 Google
8 simply updated the existing Google Mobile
9 Ads SDK, so that analytics functionality
10 was automatically available," and that
11 "According, to documents Google produced in
12 this litigation Google aimed 'to achieve
13 100 percent of analytics data collection
14 for AdMob publishers.'"

15 So all that to me reads a
16 little bit like force-feeding.

17 Q. Okay. Well, I mean, we're here
18 for your expert testimony, so I just want
19 to make sure you're being as accurate as
20 you can be, okay? Are you opining in the
21 case that AdMob+ functionality was
22 force-fed to app developers?

23 A. I think someone could draw that
24 conclusion, but what I would testify about
25 in court is what it says here in the

1 report.

2 Q. Which is that Google aimed to
3 achieve 100 percent adoption, and that the
4 functionality was automatically available,
5 right?

6 A. Well, here's the thing, when
7 you have an SDK --

8 Q. I'm just saying you said that
9 in here, right?

10 A. But I want to clarify to you
11 that when there is an update to an SDK,
12 generally developers will install updates,
13 they will uptake the updates, because the
14 updates may be needed for security reasons.
15 You know, keeping your software up to date
16 and patched is generally an important thing
17 to do.

18 Q. Did you evaluate the patch in
19 question?

20 A. I did not evaluate the patch in
21 question. I've just noted that this was an
22 update that was made and this was part of
23 Google's statement that they want to
24 achieve 100 percent analytics data
25 collection for AdMob publishers, and this

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[REDACTED]

Q. Try and -- try and just stick to the question. Did you evaluate the update patch that you're talking about?

A. No.

Q. Did you evaluate the documentation that came with it?

A. I think I've cited some of it here.

Q. You cited the documentation to the update in question?

A. Well, that becomes a boundary issue of what do you mean by "documentation"? You have correspondence around it.

Q. I'm talking about correspondence with developers.

A. I've cited to a bunch of documents. So those are the ones I've cited and until we look at them I can't off the top of my head remember what's in each one of these Bates numbered documents.

MR. MAO: Yeah, belated objection, mischaracterizes the

1 document.

2 Q. Okay. So if you haven't cited
3 documentation that was provided to
4 developers in this report about the AdMob+
5 update, then you didn't review it; is that
6 fair to say?

7 A. I've cited everything that I've
8 reviewed regarding this issue.

9 Q. Okay. Now, back to GA4F,
10 Google Analytics for Firebase features of
11 the Firebase SDK can be customized by app
12 developers; is that fair to say?

13 A. What paragraph are you
14 referring to here, if any?

15 Q. Just generally.

16 A. I don't know if I have given
17 that opinion or not. If I said so, then I
18 said so, and if not, I want to check what
19 your source is.

20 Q. Okay. Well, you're aware that
21 there are custom events?

22 A. Yes.

23 Q. And those are customizable by
24 the developer?

25 A. Okay, now I understand what you

1 are talking about, yes.

2 Q. You yourself in this case made
3 some custom events for the test app that
4 you created, right?

5 A. Yes.

6 Q. And then there is also what's
7 called automatically collected events?

8 A. Yes.

9 Q. And those are customizable but
10 to a lesser degree I guess?

11 A. Okay. Yeah, I think that might
12 be a fair way to describe it.

13 Q. So part of the customization
14 that's possible with Google Analytics for
15 Firebase is choosing the types of
16 information to send to Google?

17 A. Yes.

18 Q. And part of that is choosing,
19 for example, which custom events to log in
20 your app, if any?

21 A. Yes.

22 Q. You or your team configured
23 your test app to log certain custom events,
24 right?

25 A. Yes.

1 Q. And those events would have a
2 name and also parameters associated with
3 them?

4 A. Yes.

5 Q. And the parameters can also be
6 customized?

7 A. You can choose what parameters
8 to send.

9 Q. And what they say?

10 A. Yes.

11 Q. Okay. And your team made the
12 choice to test out whether you could send
13 an e-mail address as a parameter of a
14 custom event for the test app you made for
15 this case?

16 A. Oh, yes, because we observed
17 that in the wild and we were looking to
18 recreate and so we could say this is the
19 process by how such a thing we have
20 observed in the wild has occurred.

21 Q. Got it.

22 A. It is scientific to try to
23 reproduce an observed phenomenon.

24 Q. And you were able to do it, you
25 were able to customize your test app to

1 send those e-mail addresses?

2 A. Yes, and I'm also aware that
3 there is various terms of service that seek
4 to guide developers about what kind of data
5 they should and shouldn't log. I'm aware
6 of that.

7 Q. Okay. We will come to that.

8 MR. MAO: Sorry to interrupt,
9 I'm just letting you know, can we take
10 a break at 11:30? About 23 minutes.

11 MR. SANTACANA: 2:30?

12 MR. MAO: Yeah, sorry, I just
13 have a quick call, personal call.

14 MR. SANTACANA: No problem.

15 Q. Okay. Had you not customized
16 your test app to send e-mail addresses,
17 those e-mail addresses would not have been
18 sent to Google, right?

19 A. Correct. That's not a default
20 behavior.

21 Q. Okay. Do any of the
22 automatically collected events for Google
23 Analytics for Firebase send e-mail
24 addresses?

25 A. Not that I'm aware of.

1 Q. Do any of them send any
2 personally identifiable information?

3 A. Yes, because they send
4 identifiers that can be linked to an
5 individual -- I'm sorry, I used that
6 subjunctive but I shouldn't have. They
7 send identifiers that are linked to an
8 individual.

9 Q. To an individual device?

10 A. Yeah, and the device is linked
11 to the individual.

12 Q. Okay. Setting aside device
13 identifiers and other similar unique
14 identifiers, is there any other personally
15 identifiable information that is sent with
16 the Google Analytics for Firebase
17 automatically collected events?

18 A. As far as I know, the
19 automatically collected events, as far as
20 it concerns the issues here, relate to the
21 personal identifiers that are sent, in
22 other words, identifiers that link to a
23 person. I'm not asserting that these
24 automatic events will automatically send an
25 e-mail address or a phone number or a

1 license plate number. I'm not asserting
2 that and I don't want to sort of overcharge
3 Google in this case.

4 Q. Okay. So Google didn't design
5 Google Analytics for Firebase to have
6 people send them names or e-mail addresses
7 through automatically collected events?

8 A. Yeah. What I will observe is
9 that we did observe it happen, and I
10 understand Dr. Black's rebuttal, which is
11 that that's not according to the terms of
12 service, that the developers shouldn't do
13 that, I understand that.

14 My retort to him is that in any
15 policy there is always some rate of
16 compliance and some rate of noncompliance.
17 With something that is very, very widely
18 used there will inevitably be some
19 noncompliance even by legitimate,
20 good-faith parties who we observed who did
21 this probably erroneously, accidentally,
22 unintentionally, it has happened.

23 And I think that the other
24 insight from this is that when it does
25 happen, of course automatically identifying

1 an e-mail address as a piece of data is a
2 very easy thing to do. There is like
3 functions -- canned functions that do that
4 for you, is this a valid e-mail address, is
5 this string a valid e-mail address. A
6 quick test, you can know.

7 I just would comment that
8 Google upon receiving the data doesn't seem
9 to run that test to say hey, is this an
10 e-mail address, is this a phone number, is
11 this something, you know, likely to be very
12 sensitive, and maybe we should redact this
13 and not log it. I just would note that
14 Google isn't doing that, and that might be
15 a good thing for them to do.

16 Q. That is understood. So just so
17 we're super clear, when you talk about rate
18 of compliance with the policy, you're not
19 opining in this case that Google, even
20 though it has that policy with developers
21 to not send names and e-mail addresses and
22 the like, that Google wants them to be sent
23 to Google anyway, that's not one of the
24 things you're opining on?

25 A. No, I'm not -- I'm not saying

1 that.

2 Q. Okay. And you're not opining
3 that Google is capitalizing on the
4 noncompliance of developers who do send
5 things like name and e-mail address?

6 MR. MAO: So, sorry, just --

7 MR. SANTACANA: Objection to
8 form works.

9 MR. MAO: Yeah, objection to
10 form.

11 Q. Go ahead.

12 A. Can you read back the question?
13 Sorry.

14 Q. I'll do it. You're not opining
15 that Google is capitalizing on the
16 noncompliance of developers who do send
17 things like name and e-mail address?

18 A. No.

19 Q. Okay.

20 A. Also, I would just also comment
21 that the policy is -- the policy documents
22 and the terms of service are kind of
23 lengthy and complex things and I'm not
24 trying to give you a legal opinion even to
25 say this is compliant or noncompliant, I'm

1 just sort of taking his word for it that
2 I'm assuming it's noncompliant.

3 Q. Understood.

4 A. I'm assuming what he says is
5 right, but maybe somebody is going to argue
6 that that is actually wrong.

7 Q. An app developer might show up
8 with a different view, understood. But in
9 this room we can agree it's not compliant
10 to send e-mail addresses that way?

11 A. I'm taking it as an assumption.

12 Q. Okay. So in that test app did
13 you also incorporate the GMA SDK?

14 A. I've documented whatever is
15 incorporated in there, because there are
16 two test apps and we should just look,
17 because that's an interesting question and
18 I don't remember it off the top of my head.

19 Q. Okay. We will look -- I will
20 look during a break and come back to GMA.
21 Okay.

22 When you were configuring your
23 test app and the Google Analytics account
24 that went with it, did you enable Google
25 Signals; do you know?

1 A. I don't recall, but it may be
2 documented.

3 Q. Okay. I don't think it is, but
4 I will check.

5 And then you're familiar with
6 the check box developers have access to to
7 enable or not enable data sharing, quote,
8 "data sharing" with Google?

9 A. You should just show it to me
10 so I'm sure we're talking about the same
11 box.

12 Q. Okay. I could do that.

13 All right. Now, you are -- you
14 said you are familiar that there are terms
15 of service. Did you review them for this
16 case?

17 A. I've looked at them.

18 Q. These are the terms of service
19 between Google and the users, the app
20 developers of Google Analytics for
21 Firebase?

22 A. Yes.

23 Q. Are you opining in this case
24 about the rate of compliance or
25 noncompliance with those terms of service?

1 A. No.

2 Q. Are you rendering any opinion
3 in the case about Google's efforts to
4 enforce or failure to enforce its terms of
5 service against app developers?

6 A. I mean, I just made an
7 observation that they take e-mail addresses
8 and don't seem to be scanning for them, so
9 that's kind of an interesting data point.
10 But, in general, I haven't issued opinions
11 about Google attempting to enforce terms of
12 service or not. Someone might draw a
13 conclusion from the fact I noted.

14 Q. You've said that Google doesn't
15 seem to be scanning for them. Is that just
16 because you found some in there so you
17 concluded they are not scanning for them?

18 A. Well, I found some in there and
19 I was able to insert some and they weren't
20 blocked.

21 Q. To your knowledge.

22 A. To my knowledge. And I guess
23 Google could of course, you know, they
24 could clarify that if they wanted to.

25 Q. Sure, okay. Apart from that,

1 are you rendering any opinion in the case
2 about Google's efforts to enforce or not
3 enforce its terms of service?

4 A. No, I'm trying to render
5 technical opinions, not something like
6 that.

7 Q. And you haven't done anything
8 to measure or quantify or test Google's
9 enforcement measures?

10 A. No, I haven't done a survey to
11 quantify that. All I would say is it's a
12 commonly known principle in security, in
13 computer security, that there's no such
14 thing as perfect security and there is no
15 such thing as perfect compliance. When you
16 try to get humans involved in a system,
17 they make mistakes, it is just inevitable.

18 Q. Sure.

19 A. So when I say there is a
20 noncompliance rate, there is going to be
21 some noncompliance, but I haven't sought to
22 quantify that.

23 Q. Okay. In those terms of
24 service, Google does require developers to
25 disclose the use of Google Analytics for

1 Firebase to their end users, right?

2 A. I will take your word for it.

3 Q. Okay.

4 MR. MAO: Just standing
5 objection here in this area that you're
6 asking him about disclosures of things
7 which he has not been designated for.
8 But go ahead.

9 MR. SANTACANA: Well, that may
10 help speed things up actually.

11 Q. Did you -- did you, just to
12 sort of close this out, did you review any
13 privacy policies from third-party app
14 developers to determine the degree to which
15 they mention or don't mention Google
16 Analytics?

17 A. That's outside the scope of my
18 report.

19 MR. MAO: Eduardo, I'm not
20 saying that, you know, as part of your
21 questions to understand how they did
22 the setup and the testing that you're
23 not entitled to it.

24 MR. SANTACANA: Right.

25 MR. MAO: But I view that as

1 being part of the mechanics in his
2 personal capacity as opposed to a
3 disclosed expert for the subject area.

4 MR. SANTACANA: Right. No, I'm
5 just closing him out. If you are not
6 going to present him on it, that's
7 great.

8 THE WITNESS: No.

9 Q. Okay. I think you do have an
10 opinion that Google does not provide users
11 with control over Google's collection and
12 saving of sWAA-off data, right?

13 A. Yes, I think I've said that.

14 Q. And I think that's on page 115
15 of your report.

16 A. Yes.

17 Q. It's a couple of -- three
18 paragraphs here. You say in 251 "There is
19 no way to prevent Google from saving WAA
20 and sWAA-off data once it is logged."
21 Sorry, wrong paragraph. Let's go to the
22 top. 249 you say "It is my opinion that
23 Google, throughout the class period, has
24 uniformly not provided users with any
25 control that stops Google from collecting

1 and saving the WAA-off and sWAA-off data at
2 issue in this case."

3 A. Yes.

4 Q. Setting aside whether Google
5 has presented a control in my account for
6 that, to the extent users review a privacy
7 policy from a developer that discloses the
8 use of Google Analytics, isn't one way for
9 them to avoid the collection to not use the
10 app?

11 A. I think that that is a very
12 heavy lift for the user to understand,
13 using Google Analytics -- we are using
14 Google Analytics for Firebase and the user
15 would now need to understand that that SDK
16 is ignoring their WAA-off and sWAA-off
17 settings. The simplest explanation there
18 is for the user to just imagine, that's
19 okay, you can use that because I have set
20 WAA and sWAA-off, and I'm not being
21 tracked.

22 Q. So in your view a user who
23 reviewed a privacy policy that disclosed
24 the use of Google Analytics for Firebase
25 would conclude that the sWAA button

1 overrides that?

2 MR. MAO: Objection, vague.

3 But go ahead.

4 A. So, one, I'm not here I don't
5 think to testify about user perceptions. I
6 mean, I mentioned it in passing a few
7 places. We have covered this.

8 Q. I didn't think so, but you did
9 just kind of say something about it, so I
10 just want to understand.

11 A. Yeah, so, no, what this is
12 saying is from a technical perspective
13 there is no button there that will stop
14 that data collection.

15 Q. Okay. That's the extent of the
16 opinion?

17 A. That's the extent of the
18 opinion.

19 Q. Okay. Let's talk about --

20 A. I've just lost my connection,
21 which is going to hinder people on Zoom
22 from watching.

23 MR. SANTACANA: Let's go off
24 for a second.

25 THE VIDEOGRAPHER: The time is

1 2:22 p.m. We are off the record.

2 (Recess taken.)

3 THE VIDEOGRAPHER: The time is

4 2:41 p.m. We are back on the record.

5 A. If I can say something, because
6 you asked me during a break to look into
7 it.

8 Q. Yes, please.

9 A. So I did look at that and kind
10 of refreshed my own memory, but we didn't
11 really seek to join, in other words,
12 discover links between the identifiers that
13 are collected and logged and GAIA, because
14 there is no need to. Okay? What we did to
15 find the users' data was to just harvest
16 the identifiers off their device and
17 request that data, and that's -- that's the
18 linkage that's of interest.

19 Q. Right, understood, or the test
20 device you were using.

21 A. Right. So I hope that
22 clarifies what I said previously in that
23 line of questions.

24 Q. Yeah, that sounds consistent to
25 me with what you said. I just want to make

1 sure I understand. So you requested -- you
2 used the device identifiers that you took
3 off of either plaintiffs' devices or test
4 devices to request data from Google?

5 A. Yes.

6 Q. And the identifier in question
7 was a device ID?

8 A. Some sort of device ID, yes, or
9 an app instance ID, something you could
10 find on the device.

11 Q. Yeah, I think app instance ID
12 never resulted in anything, we just used
13 device ID.

14 So then you got your data.
15 Those were all non-GAIA logs, but you also
16 got GAIA logs which were used -- which you
17 got because e-mail addresses were queried,
18 right?

19 A. Okay.

20 Q. So I guess my question is you
21 had those GAIA logs, you had those non-GAIA
22 logs, so just to be perfectly clear, you
23 didn't attempt to like find a line in the
24 GAIA log that matched a line in the
25 non-GAIA log and put them together?

1 A. I do remember at some point
2 finding some correspondence just by using
3 fingerprinting techniques. So I don't know
4 if that made it into the report or not.
5 But let's just say that the report -- the
6 report explains everything very completely.

7 Q. Okay. Sorry, correspondence,
8 you mean in a technical sense?

9 A. I did find at some point, and I
10 remember finding a technical correspondence
11 by using some fingerprinting technique. I
12 was able to match a couple of different log
13 sets of data up using fingerprinting.

14 Q. And using fingerprinting, that
15 means trying to match one field in one log
16 to the same field in another log?

17 A. Like some data -- some data in
18 one log with data. Because the actual data
19 provides a lot of matches sometimes.

20 Q. And did you document those
21 matches in the report?

22 A. I just remember doing it, and I
23 don't remember whether we put it in the
24 report or not. Maybe it got left on the
25 cutting room floor, I don't know.

1 Q. I don't think it is there, but
2 that's what I would like to talk about if
3 you do find it.

4 A. Okay.

5 MR. MAO: So just real quick,
6 this will be quick, so my understanding
7 in Brown was that when -- they were
8 talking about -- let me just say my
9 objection. When they are talking about
10 joining, they are talking about joining
11 to GAIA. So however you are comparing
12 it to, just please make it clear on the
13 record or else I'm going to make sure
14 that we rehab it and it unnecessarily
15 stretches this out, okay? Thank you.

16 MR. SANTACANA: Could we go off
17 for a second?

18 MR. MAO: Yeah.

19 THE VIDEOGRAPHER: The time is
20 2:44 p.m. We are off the record.

21 (Recess taken.)

22 THE VIDEOGRAPHER: The time is
23 2:46 p.m. We are back on the record.

24 BY MR. SANTACANA:

25 Q. I want to jump back for a

1 moment, Mr. Hochman, to when we were
2 discussing your three changes that Google
3 could make; stop collecting, purge, and
4 delete, okay, as I call them, and I want to
5 focus on the stop collecting one. So I
6 think the way you phrased it at paragraph
7 409, let me know when you're there.

8 A. Yes.

9 Q. So paragraph 409, the first
10 sentence is "It is my opinion that Google
11 could change WAA and sWAA so they match
12 their function as described in Google's
13 disclosures. Put differently, Google could
14 change WAA and sWAA so that WAA and sWAA
15 actually do the work that Google says they
16 do."

17 And my question is, keeping in
18 mind that you're not opining on sort of
19 what the words are supposed to mean or all
20 of that, I'm not asking you about that,
21 isn't it also fair to say that another
22 change that Google could make would be to
23 describe WAA and sWAA differently to match
24 the function that you observed in the case,
25 and that would also sort of do away with

1 the problem?

2 A. I don't think that this is
3 really a solution, because the users --
4 users want to have privacy, and I think
5 Google has undertaken some commitments to
6 allow users to have some control over their
7 privacy and that would sort of defeat, you
8 know, the bigger purpose of all of this,
9 which is to give people some option.

10 Because, you know, that's
11 really sort of the point of these controls
12 is to give someone -- if you change the
13 description and say these are fake
14 controls, that doesn't really solve the
15 problem of them being fake controls.

16 Q. Well, if the description of WAA
17 said we're still going to have Google
18 Analytics even when you turn WAA off, but
19 when WAA is off we won't tie analytics data
20 to your GAIA, which is the unique
21 identifier associated with your Google
22 account, that would be accurate?

23 A. No, that wouldn't be accurate.

24 Q. Okay. Why not?

25 A. Because you are saying it

1 wouldn't tie to your GAIA, and the problem
2 is that this stuff tends to tie together
3 because there is data collected in both
4 scenarios which correlates strongly and it
5 ties, it links.

6 Q. Okay. So what if instead it
7 said we won't join your analytics data to
8 your GAIA using the definition of "join" we
9 have been using today?

10 A. I don't really think that's a
11 solution either, because essentially what
12 you're proposing to do is to tell people,
13 hey, we are going to give you this control
14 which actually does nothing to improve your
15 privacy.

16 Q. Well, again, I'm just -- I'm
17 just trying to understand, the control does
18 something, right? It does impact the way
19 Google stores the data, right?

20 A. Google still stores the same
21 data, it just stores it in a different
22 place.

23 Q. And with different things
24 associated with it?

25 A. I'm not sure about that. I

1 think the way I would describe it is they
2 are storing the same data but just in a
3 different place and that data is still
4 linked to you. It has personal
5 identifiers. It has your device IDs in it.
6 It is essentially like a license plate on
7 your device. Like a license plate on your
8 car and device ID on your phone are kind of
9 analogous.

10 Q. That is fine. So let's use --
11 well, I don't know how they are analogous.
12 But because the license plate is tied to
13 your name at the DMV's database, right, on
14 a mapping table, right?

15 A. Well, I don't want to -- I
16 mean, we may be getting into too much
17 detail there, but the idea is that it is --

18 Q. It is your analogy.

19 A. The license plate is a unique
20 identifier for a car. Do you follow me
21 there? It is a unique identifier for your
22 car.

23 Q. Okay.

24 A. Your VIN number is a unique
25 identifier for your car.

1 Q. Okay.

2 A. So they are unique identifiers
3 for your car. And your phone has unique
4 identifiers, okay? So the problem is that
5 those unique identifiers are persistent,
6 they are stable over time, they point to a
7 single person, they are personal
8 identifiers, and that becomes a problem.
9 Using those identifiers and spreading them
10 all over the place in logs is a problem
11 because all that data is linked back to the
12 user.

13 Q. So I understand that you
14 consider that to be a privacy problem. My
15 question is about this part of your report
16 where you say "Google could change WAA and
17 sWAA so that WAA and sWAA do the work
18 Google says they do," I'm just pointing
19 out, or they could change how they describe
20 WAA and sWAA to match up with the work they
21 are doing?

22 A. So I considered that
23 possibility and did not write about that.
24 I did not say that because I don't think
25 that solves the problem.

1 Q. Okay. I understand. Now,
2 turning back to app developers, did you
3 incorporate any other analytics products in
4 the test apps for this case other than
5 Google Analytics for Firebase?

6 A. Not that I'm aware of.

7 Q. App developers can incorporate
8 multiple analytics SDKs from multiple
9 providers in the same app, right?

10 A. In theory, they could.

11 Q. Why do you say "in theory"?

12 A. I mean, I just haven't -- I
13 haven't expressed an opinion about that.

14 Q. Okay.

15 A. And I haven't -- I mean, what
16 you're saying, I don't know of a reason why
17 they couldn't. Let's leave it at that.

18 Q. And you're not expressing any
19 opinion as to how often developers
20 incorporate multiple analytics SDKs into
21 the same app?

22 A. No.

23 Q. And you are not expressing any
24 opinion in the case about how hard it would
25 be to have multiple analytics SDKs in the

1 same app at the same time?

2 A. No. I mean, the only thought I
3 have on that is it starts to gum things up.
4 You know, it is going to chew up more
5 battery and tie up more bandwidth.

6 Q. Okay. I meant how hard it
7 would be for the developer to have multiple
8 analytics SDKs in the same app.

9 A. It doesn't strike me as
10 something that would be particularly hard
11 from a programming standpoint, but from a
12 software engineering standpoint it is
13 probably desirable to keep it light, you
14 know, not to gum it up with too much
15 different technology.

16 Q. Okay, I see, I understand that,
17 okay.

18 So we were talking a moment ago
19 about persistent identifiers, right, and
20 that the persistence is the problem. Go
21 ahead.

22 A. No, I should let you finish the
23 question.

24 Q. The same device IDs that are
25 persistent unique identifiers for a device

1 that Google gets from Google Analytics are
2 also sent to other places on websites and
3 apps if they use other analytics providers,
4 right?

5 A. I don't have any disagreement
6 with that.

7 Q. So the same event data from
8 let's say -- let's just use the event first
9 open as an event example, right, first open
10 standard event you would have in any
11 analytics SDK, right?

12 A. Yes.

13 Q. So first open gets triggered,
14 and the app developer has AppsFlyer and
15 Google Analytics and Facebook SDK all
16 integrated into the same app. All three of
17 those are going to get the device ID and
18 the fact that the event occurred, right?

19 A. Presumably.

20 Q. So let's say the sWAA button
21 works the way that you want it to work,
22 which is that if the person has sWAA off,
23 Google will -- well, let me first ask, is
24 this the way you think it should work, if
25 the person has sWAA off Google will reject

1 the device ID tied first open event?

2 A. I mean, I think that a better
3 way would be, let's just keep it simple, if
4 WAA or sWAA are set, then the SDK will
5 learn about that and remember that and
6 whenever the app runs, the SDK just won't
7 transmit data back to Google.

8 Q. At all, right, okay. Not even
9 -- so it's not rejecting it, it is just not
10 transmitting it in the first place?

11 A. I mean, maybe it sends
12 something, you know, could it send
13 something? Yeah, there might be something
14 it can send as long as it doesn't include
15 anything that ties to the user.

16 Q. Okay. So the user in this
17 hypothetical is a sWAA-off user, they have
18 Google Analytics, Facebook and AppsFlyer
19 all integrated into the app, so the Google
20 Analytics SDK in your world will not
21 transmit at all for that user, right?

22 A. Let's say that that was the
23 case, yes.

24 Q. Okay. And then -- but
25 AppsFlyer will, right? AppsFlyer doesn't

1 have a sWAA button?

2 A. Assume it doesn't.

3 Q. I don't think it does.

4 Facebook doesn't have a sWAA button as far
5 as I know.

6 A. I'm not sure about that. I
7 haven't looked into it.

8 Q. Okay. Let's actually stick
9 with AppsFlyer. Like you said, they're not
10 on the both sides of the thing. So the
11 device ID in first open gets sent to
12 AppsFlyer but doesn't get sent to Google
13 because that user has sWAA turned off,
14 right?

15 A. Okay.

16 Q. Why would a developer like you
17 use the Google Analytics for Firebase SDK
18 at all if the sWAA-off data is not going to
19 get sent, but they could use AppsFlyer and
20 get all of it?

21 A. I don't know. That's an
22 interesting question, and I haven't opined
23 about that and I haven't done, you know,
24 that analysis. This is sort of a further
25 down the road question, isn't it?

1 Q. I suppose. I'm thinking about
2 the privacy risk of the device ID being out
3 there, right? Isn't it basically the same
4 risk if that user's app won't send to
5 Google but it will continue to send to
6 AppsFlyer, same persistent -- same license
7 plate as you say, isn't it the same
8 problem?

9 A. I'm not sure, because, I mean,
10 just thinking it over, one of the things I
11 think I noted right in the preface sort of
12 of the report, the introduction, I talked
13 about the very large amount of activity
14 that Google collects.

15 Google has a really big, you
16 know, sort of wrap-around view of a lot of
17 stuff. AppsFlyer may have a more narrow
18 view and that data may not be saved by
19 AppsFlyer, it might just be sent to the
20 individual app owner. So now you've got
21 this kind of very fragmented world where
22 there is data spread out in a bunch of
23 little silos, it is not all in one juicy
24 target.

25 Q. Okay.

1 A. So that could qualitatively be
2 different.

3 Q. So because they are in
4 different silos, the fragmenting of the
5 data across different silos makes the
6 privacy risk lower than in Google's
7 scenario where it's all under the same
8 roof?

9 A. I don't know that even I would
10 go so far to say lower. I would say it may
11 create a different risk profile. It may
12 create a different set of risks and
13 probabilities.

14 Q. Would it be less concerning to
15 you?

16 A. I don't know. Because I'm not
17 here to evaluate AppsFlyer, so I haven't
18 thought that all through and all I can say
19 is that it's a different scenario.

20 Q. Well, what if Google spun out
21 Google Analytics for Firebase, right, it
22 bought Firebase, what if it spun it out
23 into its own separate entity?

24 A. I don't know. Someone would
25 have to do an analysis of that. I mean,

1 maybe that solves your problem, maybe it
2 doesn't. I don't know. I mean, could that
3 be a viable solution? Maybe. I think you
4 would have to investigate it.

5 Q. Okay. Let's talk about
6 personalization. So speaking of semantics,
7 there is some back and forth with you,
8 between you and Black about this word
9 "personalization," so I want to ground it
10 in your report. So I'm going to have you
11 compare two paragraphs for me. First,
12 paragraph 278, really the first four lines
13 of that, and then 277.

14 A. Okay.

15 Q. So just review those for a
16 moment.

17 A. Yeah, I was already back at
18 277.

19 (Witness perusing document.)

20 MR. MAO: Let's go off the
21 record.

22 THE VIDEOGRAPHER: The time is
23 3:01 p.m. We are off the record.

24 (Discussion off the record.)

25 THE VIDEOGRAPHER: The time is

1 3:08 p.m. We are back on the record.

2 BY MR. SANTACANA:

3 Q. Okay. So you have had a chance
4 to look at 277 and 278?

5 A. Yeah, and I looked at the
6 paragraph before them also which had some
7 enlightening stuff in it, 276.

8 Q. Okay, yeah. So we'll get to
9 276. Thank you for pointing that out. I
10 actually want to start at 278 and work
11 backwards.

12 So in 278 you say "Ad
13 personalization is impacted by two
14 additional user controls: GAP and NAC.
15 Because Google does not use data collected
16 by GA4F from WAA and SWAA-off users to
17 serve personalized ads, such WAA and
18 SWAA-off data is not used for ads
19 personalization regardless of whether GAP
20 and NAC are turned on or off."

21 So just hold that in your mind
22 for a moment.

23 A. Okay.

24 Q. And then in 277 you talk about
25 the distinction between personalization and

1 targeting, right?

2 A. Yeah, based on the evidence in
3 276. I don't think you can read 277
4 without reading 276.

5 Q. Well, let me just ask you this:
6 Is your statement in 278 about ad
7 personalization incorporating the
8 distinction that you draw in 277 between
9 personalization and targeting?

10 A. The answer is yes, and I would
11 just adjust the question slightly, or the
12 assumption in the question slightly, which
13 is that I'm pointing out that Google is
14 making a distinction between
15 personalization and targeting, and I'm sort
16 of adopting that in my further analysis,
17 and the basis for that opinion is what I've
18 outlined in 276, which actually follows
19 from 275.

20 Q. Right, yeah, and we'll get to
21 276, which I think has certain errors baked
22 into it. But I want to stick with 277 for
23 a moment to make sure we're using the
24 right -- the same terminology, you and I.

25 So "Google seems to consider

1 advertising as targeted but
2 non-personalized when it is based on
3 information associated with a user's
4 non-GAIA IDs as opposed to the GAIA ID,"
5 and then you give some examples of what
6 that might be. Then you say -- or before
7 that you say "Google defines
8 'personalization' as altering a user's
9 experience based on information associated
10 with their user ID."

11 Just one clarifying point, do
12 you understand the phrase "user ID" in that
13 sentence to mean GAIA ID in the next
14 sentence, do you understand them to be
15 interchangeable or different?

16 A. I believe -- I believe that,
17 yeah, user ID is referring to the GAIA ID,
18 although to be 100 percent sure I would
19 have to take a look at that document just
20 to be sure.

21 Q. Isn't one of the elements of
22 personalization in this distinction that's
23 being drawn here that personalization
24 requires the leveraging of historical
25 information about -- or associated with the

1 user ID and then for targeting it relies on
2 information that is nonhistorical?

3 A. I mean, I think that's one way
4 to look at it. Historical is certainly a
5 category of information that's in the --
6 associated with the GAIA ID, but there
7 might be some other settings there or
8 something, you know, that maybe is not
9 necessarily historical, but just a
10 configuration.

11 Q. Got it. Persistent settings?

12 A. Something like that, yeah.
13 Maybe you wouldn't view it as historical,
14 you would just view it as a setup.

15 Q. The reason I'm asking is you
16 give three examples of what targeting
17 includes. You say "such as language, type
18 of device, and content of the app being
19 viewed."

20 So those three examples are all
21 pieces of information about the --

22 A. Let me help you, current
23 context.

24 Q. Yes, current context of the
25 advertisement that's being served?

1 A. Yes.

2 Q. And then in your definition of
3 personalization, when you say "information
4 associated with their user ID," there I
5 think you are referring to, and I can pull
6 up the document, but I think you are
7 referring to information that is in what
8 you called earlier a dossier about the
9 user, right?

10 A. Yes, and in this case it would
11 be the dossier of data collected in what
12 Google calls the user's account, in other
13 words, the area that's associated -- the
14 data structure that's associated with a
15 GAIA ID, or the data stored that is
16 associated with the GAIA ID.

17 Q. Got it, okay. So with that
18 clarification in mind, you're not -- you're
19 not disputing in this case that Google will
20 not personalize ads, as we have just
21 defined it in this back and forth, with
22 sWAA-off Google analytics for Firebase
23 data?

24 A. That's correct. I only said
25 that Google, just because they are not

1 personalizing, they still might target, but
2 targeting is different than personalizing.

3 Q. And one difference is you could
4 do targeting without keeping a dossier?

5 A. In theory, yes.

6 Q. You could even do it without
7 saving the information at all presumably?

8 A. I mean, I could think of ways
9 to do it without even transmitting that
10 information. If you just had that
11 information at the device, I could imagine
12 a way to architect it that you might, for
13 example, say give me a set of ads with some
14 specs and I'll hold the specs here and I'll
15 match the ads you send me with the specs
16 and I will display the one that matches up
17 the best. I mean, whether --

18 Q. That sounds really slow.

19 A. Well, yeah, that might be
20 troublesome, but maybe not. You know, the
21 app during idle time could download all
22 kinds of ads and just, you know,
23 selectively display them. I mean, there
24 are different ways to design a system and
25 there might be some ways to do this. I

1 think this is all beyond the scope of the
2 report and it is more of a curiosity than
3 anything we really need to focus on.

4 Q. Yeah, I am curious about it
5 though. Is, in your mind, is the targeting
6 referred to in 277 at odds with the
7 representations made in the WAA control?

8 A. I don't -- well, I think that
9 the issue is that the WAA control, if the
10 representation is interpreted, let's just
11 say that the Court is going to figure out
12 what that is promising, let's say the Court
13 finds or the factfinder finds that the WAA
14 control is promising the user not to send
15 the data and not to store the data. If
16 that were the case, targeting is impossible
17 under the current architecture of the
18 system without sending the data. The
19 system would have to be some completely
20 different system to maybe do that.

21 I'm thinking about some of the
22 patents that I have reviewed in other
23 matters, public patent documents from the
24 early internet where they actually did have
25 ad systems where, you know, the server

1 would load up a whole bunch of ads to the
2 computer and then the computer would just
3 pick which one to show, so, I mean, people
4 have tried to design ad systems that way.

5 Q. I think I know what you're
6 saying. So --

7 A. There is always -- there is
8 always a dichotomy between the server and
9 the client and you can sort of shift the
10 workload between them, and obviously there
11 is a better way to do it.

12 Q. Yeah. But does it -- would it
13 make a difference to you if the data were
14 used in short-term memory and discarded,
15 the data used for targeting, so it's not
16 saved?

17 MR. MAO: Objection, vague and
18 compound. Go ahead.

19 A. What difference would it be, if
20 the data was sent to the ad server and was
21 transient and it wasn't stored, I mean,
22 that might be -- that might improve some of
23 the privacy and security properties, but it
24 doesn't necessarily comply with the user's
25 expectations on that control, because I

1 have already told you that not sending the
2 data at all may be what the user is
3 expecting.

4 If that's what they are
5 expecting, they are also, you know, the
6 users can have different concerns. Some
7 users -- well, let me -- let me walk it
8 back.

9 I don't know what the users are
10 thinking. I haven't studied or surveyed
11 that, okay? I really shouldn't even
12 speculate about it. The user -- if the
13 user's expectation is nothing is to be sent
14 and nothing is to be saved, then obviously
15 sending doesn't really work, okay? But if
16 somehow someone finds a different way, you
17 know, is it better to save only for a short
18 time versus saving for a longer time versus
19 saving permanently? You know, the longer
20 you save the data, potentially the greater
21 the risk. But I don't think that's
22 determinative in this case at all.

23 Q. Did you say I don't think
24 that's determinative?

25 A. Determinative. Because I don't

1 think this is a case about how long Google
2 is saving the data.

3 My understanding is what is in
4 dispute is that WAA and sWAA is a switch
5 that is for privacy, you can do your
6 activity in private. A good example would
7 be if I go into a hotel room, I expect
8 privacy. I don't expect a peeping Tom with
9 a secret camera to record my activity in
10 that hotel room. And if the peeping Tom
11 says hey, don't worry about it, I recorded
12 this but I deleted it 15 minutes later,
13 that's still not okay. If he says I
14 recorded it and I put the tape in a safe
15 and I'm never showing it to anyone and I'm
16 not looking at it myself, don't worry, it's
17 fine, that's still not okay. It's the
18 actual peeping on me that's the problem.

19 Q. I see. There is that concept
20 of spying again. Are you in your mind
21 analogizing the sWAA and WAA buttons to
22 what Google represents to be incognito mode
23 in Chrome browsers or what Safari calls
24 private browsing mode, is that analogous in
25 your mind?

1 A. I'm not thinking of it in that
2 way. I'm thinking of it as I want privacy,
3 don't watch me.

4 Q. Well, there are different
5 degrees of privacy, and the degree that you
6 just analogized was locking the door in a
7 hotel room and knowing nothing about what
8 goes inside -- on inside the box, right,
9 the room?

10 A. Well, that's one way I look at
11 it.

12 Q. And that made me think of
13 incognito mode. Like is that why you're
14 making that analogy is because those are --

15 A. I'm not trying to connect this
16 to incognito mode.

17 Q. Okay. Leave incognito out of
18 it. I'm not trying to bring Brown into
19 this.

20 You are familiar with Safari
21 private browsing mode?

22 A. Yes.

23 Q. So like is your conception of
24 the WAA and sWAA switch that it is similar
25 to in the browsing context activating

1 private browsing mode in Safari, or that's
2 what --

3 A. That's not the way I have been
4 thinking about it. I have been trying to
5 think about this just on its own,
6 standalone. This is a switch, allows my
7 web and app activity to remain private, it
8 is a privacy control. I'm thinking about
9 it in a very simple way.

10 Q. Maybe too simple. The switch
11 has a description. It doesn't say this is
12 a privacy switch. There is actually like
13 15 privacy switches that do different
14 things, right?

15 A. I mean, we can go back and look
16 at the page and look at what it all says,
17 but I'm not analogizing it to some browser.
18 I'm just telling you that that's not how I
19 thought about it.

20 Q. There is -- there is a switch
21 on Android devices and a switch on iOS
22 devices that's a device-level switch that
23 blocks the device ID from being used by any
24 apps. You are familiar with those?

25 A. I believe so. What's the name

1 of that switch?

2 Q. On Android I think they used to
3 call it OOOAP, opt out of ads, or
4 something, and --

5 A. Triple O something.

6 Q. Yeah. And on iOS it is now
7 called app tracking transparency, and
8 before that it had a different name.

9 A. Was it called LAT?

10 Q. Yes. So you are familiar with
11 those switches?

12 A. I have to admit it now, because
13 I just gave you the name of one, yes.

14 Q. You would admit it truthfully
15 regardless, right?

16 A. Of course.

17 Q. So what in your mind is the
18 distinction between the SWAA switch as you
19 believe it functions or should function and
20 the device ID disabling switch on mobile
21 devices?

22 A. Well, okay, so I can, even off
23 the top of my head, give you a distinction
24 between these two things. Because the
25 device ID switch, which limits the access

1 to that identifier, is just one thing, but
2 the SDK, Firebase SDK, has access to a
3 variety of different pieces of identifying
4 information on the device, so that it's a
5 question of a narrow control or a broad
6 control.

7 Q. Okay. Do you opine in your
8 report that Google uses data from a user's
9 past app activity to personalize
10 advertising even when the user has sWAA
11 turned off?

12 A. I believe Google has
13 represented that when sWAA and WAA are
14 turned off, the past app activity is not
15 used to personalize ads, and I accept that.
16 I am not disputing that.

17 Q. Okay. So back to targeting,
18 would it be fair to then call targeting as
19 you are talking about it here contextual
20 targeting?

21 A. So I like the more general just
22 targeting because it might admit some other
23 things, because someone might quibble about
24 what is contextual and what is not. So
25 targeting is general. It might devolve

1 into being contextual, but maybe there is
2 something else that we haven't thought of.

3 Q. Okay. But as far as you know,
4 you're familiar that Google uses the term
5 "contextual targeting" in their
6 developer-facing pages?

7 A. Yeah, I'm aware of contextual
8 targeting from the ad platform side and
9 often that was referring to like based on
10 what words are in a content page on the
11 display network and what words the user --
12 the advertiser has specified in an ad
13 campaign, and they might say oh, okay, you
14 want to target people searching for white
15 sneakers and here is an article about white
16 sneakers, even though it is not a search,
17 it is just a context page, maybe we will
18 show your ad here because we think it is
19 especially relevant in this context.

20 Q. Right.

21 A. So that is kind of maybe a
22 little bit more specific than showing an ad
23 based on someone's language or their
24 general course location.

25 Q. Right. And from an internet

1 marketing standpoint, in order to
2 effectuate contextual targeting in a
3 responsible way, Google has to say
4 something about its serving of ads, some
5 type of information?

6 A. I would even go further than
7 that. I would say that in order to serve
8 ads, Google needs to retain some data in
9 order to comply with industry standards. I
10 think Google is a member of the Media
11 Rating Council and they are certified for
12 generalized and valid traffic detection and
13 sophisticated and valid traffic detection,
14 and that's ad fraud detection.

15 Q. Okay.

16 A. So when you want to charge
17 someone for ads, you actually have to
18 retain some data in order to prove good
19 delivery of the ads. You can't just say
20 hey, I have shown your ad a million times,
21 give me the money. You actually have to
22 have some proof from a vendor who is MRC --
23 ideally MRC certified who can provide some
24 reliable statistics.

25 This MRC was set up in the

1 1960s by the Congress because there at the
2 time had been a lot of lying about
3 advertising on like television, radio,
4 newspapers, like lying about the reach of
5 the advertising. So Congress sort of
6 decided to put an end to that and said
7 let's certify the distribution of these
8 ads. So that has moved into the online
9 era, and Google and Google Analytics are a
10 couple of the certified vendors.

11 Q. Okay.

12 A. That is more than what you
13 wanted to know about that, but it might be
14 helpful.

15 Q. In the context of this case,
16 when we are talking about -- what's the
17 term you would use, bookkeeping,
18 recordkeeping, Ratings Council compliance?

19 A. I would just say you want to
20 retain evidence of good delivery. Because
21 one of the things as an advertiser that I
22 like Google for is that they try to
23 maintain a clean network. They try to
24 protect me as an advertiser from ad fraud.
25 They tell us that they conduct proactive

1 investigations. They have automatic
2 systems that detect fraudulent activity and
3 try to protect the advertiser from that.

4 Q. Isn't one of the ways they
5 effectuate that by analyzing device ID and
6 IP address?

7 A. Look, I can help you a little
8 bit there. I've done a bunch of ad fraud
9 cases, and one of the things to do is to
10 look at the device ID and some of this
11 collected data. So it is a known method
12 for detecting ad fraud.

13 Q. Would Google have to drop that
14 detection method for sWAA-off users to
15 resolve the problems you've identified in
16 your report?

17 A. I don't know. Would there be
18 some way to work it out that these things
19 could coexist? I'm not sure. Again, I
20 would point back to my original
21 observation, which is Google has put itself
22 into a very difficult position by promising
23 the user, hey, we are going to be your
24 advocate for privacy and the vendors they
25 work with. They've got some overlapping

1 and conflicting obligations, and that
2 creates a problem for them and maybe they
3 ought to focus on one business or the other
4 in order to do the best possible job for
5 each constituency.

6 Q. Okay. Well, but for now let's
7 assume that they are not going to drop
8 users or drop advertisers in the immediate
9 future. The fraud detection mechanism that
10 you were just talking about it sounds like
11 relies on certain persistent or
12 non-temporary, non-transient identifiers,
13 right?

14 A. This ends up being a deep
15 rabbit hole that we are going into here
16 about like how would Google do this. I
17 mean, maybe there is some way that they can
18 work it out. You know, maybe they can talk
19 to the advertisers and, you know, talk to
20 the industry standards and say hey, you
21 know, in order to respect privacy, we can't
22 collect this data for certain segment of
23 people who turn this off, but we know these
24 are real people because they've got Google
25 accounts. You know, you have to have a

1 Google account in order to have a WAA and
2 sWAA set. So there is already some level
3 of authentication there.

4 Like if Google authenticates
5 these people that these are real people who
6 have real Google accounts, you know, maybe
7 that is a substitute for the telemetry,
8 perhaps, I don't know. That's a really
9 detailed thing that someone is going to
10 have to work out afterwards.

11 Q. But if Google doesn't save
12 anything from the transaction, then that
13 would -- then it can't prove that it told
14 the truth that it was a Google account and
15 therefore a real person?

16 A. Again, I don't know. Like
17 could they work out some better
18 arrangement? They might be able to work
19 out a better arrangement. But looking back
20 retrospectively, you know, it was
21 essentially if you didn't collect this
22 data, you would have a lot of problems
23 charging for those ads.

24 Q. And I think you say in your
25 report that if sWAA functioned the way that

1 you read it to function or should function,
2 Google wouldn't be able to serve ads at
3 all, right?

4 A. Again, which part of the report
5 are we looking at?

6 Q. I'll come back to it. It is in
7 here somewhere.

8 Does contextual targeting in
9 your mind deviate from the representations
10 made on the WAA page or is it just the
11 saving of the records that the targeting
12 occurred?

13 A. My gripe is with the
14 collection -- the transmission and saving
15 of the information while the user has
16 indicated that this is sensitive
17 information and they want to keep it
18 private. It is the sending and saving,
19 that's the issue.

20 Q. Okay, understood. Let's look
21 at 144, paragraph 144 of your report. Just
22 review it for a moment.

23 (Witness perusing document.)

24 A. Yes.

25 Q. So you say in this paragraph

1 that Google can pull the wool over its
2 users' eyes by refraining from using
3 sWAA-off data to personalize the user
4 experience which would cause the user to
5 catch on, but nevertheless storing it.

6 A. Yes.

7 Q. Just a couple of follow-ups
8 about that.

9 First, you were not intending
10 to opine as to Google's intent in this
11 case?

12 A. No.

13 Q. Okay. Because the phrase "pull
14 the wool over its users' eyes" is pretty
15 colorful. I'm just making sure that is not
16 an opinion about Google's intent.

17 A. I do like to be colorful
18 sometimes because these reports could be
19 dry, and I like them to be interesting to
20 read. But it is a description of the
21 effect. It's not a description of Google's
22 intent, okay? I'm sure that that's just --
23 maybe it's overly colorful, but it's clear
24 now.

25 Q. Okay. And you're not opining,

1 I think we covered this already, I
2 apologize if we did, but you're not opining
3 that Google is nevertheless secretly using
4 sWAA-off data to personalize the user's
5 experience anyway?

6 A. I don't think I've said that.

7 Q. Okay. Let's talk about PII. I
8 think I gave you the privacy policy from
9 May 2018 earlier.

10 A. I have it.

11 Q. You can mark that number 4.
12 (Hochman Exhibit 4 marked for
13 identification.)

14 A. And you said this is from
15 May --

16 Q. It says right there on the top,
17 May 25, 2018.

18 A. Okay.

19 Q. So you are aware that the
20 privacy policy has definitions in it for
21 key terms, what Google calls key terms?

22 A. Yes, I see that.

23 Q. Let me first ask you actually,
24 maybe to make this easier, your report
25 actually doesn't use the phrase "personal

1 information" or "personally identifiable
2 information" or "PII," at least not in your
3 own words. There is a couple of quotes
4 from somewhere else. Was it your intention
5 in this report to express an opinion about
6 which pieces of the data at issue in the
7 case are or are not PII?

8 A. No, that sounds like a legal
9 conclusion.

10 Q. Okay. So you have no opinion
11 as to whether -- you're not trying to
12 express an expert opinion as to whether the
13 data at issue in the case comprises in
14 whole or in part personally identifiable
15 information?

16 MR. MAO: Objection,
17 misrepresents his testimony. Go ahead.

18 A. I mean, I've said at some
19 points that various identifiers link to a
20 person. So someone could draw a conclusion
21 or form a legal conclusion based on the
22 technical opinion, but I'm not here to give
23 a legal opinion.

24 Q. Okay. By the way, you talk
25 about IP addresses a couple of times in

1 here. I just want to make sure we're all
2 on the same page. Did you find any IP
3 addresses in the logs you were provided?

4 A. I don't recall.

5 Q. Okay. Do you have a basis to
6 dispute that Google -- that Google
7 Analytics does not store IP addresses in
8 logs?

9 A. Well, in the logs that aren't
10 shown to the Google Analytics website
11 operator, in other words, the website
12 operator who installs Google Analytics or
13 the app publisher who deploys Google
14 Analytics for Firebase, I, in having
15 reviewed those reports, I know that
16 generally you're not seeing IP addresses.
17 There is some privacy concerns around them.
18 So I haven't asserted that.

19 What's in the logs, I mean, I
20 have documented what's in the logs. From
21 what I've seen, I don't recall in this case
22 whether we have got IPs. It's documented,
23 whatever I've said, it stands.

24 Q. Fair enough.

25 MR. MAO: Just to make sure,

1 what was the answer, the last part, the
2 last sentence? I just want to make
3 sure it actually made it into the
4 record.

5 MR. SANTACANA: "It's
6 documented, whatever I've said, it
7 stands."

8 MR. MAO: Thanks.

9 Q. Now, you're aware that
10 Dr. Black did some work to try and quantify
11 different types of pieces of information in
12 the logs that you analyzed, right?

13 A. I'm aware of that, and I of
14 course have retorts to him.

15 Q. And you what?

16 A. I have retorts.

17 Q. You have retorts? Okay. Well,
18 have you conducted any studies or
19 experiments or attempted to recreate the
20 statistics that he created to determine
21 whether they were accurate?

22 A. Oh, I'm not disputing
23 necessarily how he counted.

24 Q. Okay.

25 A. But I think my issue would be

1 that the sample data we got was not large
2 and apparently not representative, so it
3 sort of is not really amenable to that kind
4 of statistical analysis. You can't -- you
5 need to have a statistically valid sample
6 and a representative sample in order to do
7 statistical analysis. So I wouldn't draw
8 the conclusions that he's trying to draw by
9 doing an analysis on that small sample set.

10 Q. Fair enough. My question was
11 actually about -- or where I was headed was
12 you note in I think Appendix G that there's
13 some age and gender information in some of
14 these data entries, in some of the logs
15 from Google Analytics that you reviewed.
16 Do you recall that?

17 A. Yes.

18 Q. Can you say whether that
19 demographic information came from Google or
20 from the app developer?

21 A. A great question, and all I
22 have observed is that data was there in the
23 logs.

24 Q. Okay. But you're not sure
25 whether it's because Google supplied it to

1 the developer based on some other
2 information Google had or whether the
3 developer supplied it to Google based on
4 some other information the developer had?

5 A. Yeah, in general I have
6 additional questions about these logs that
7 I would love to be able to ask someone
8 knowledgeable about them, and I just
9 haven't had the opportunity to get all the
10 discovery that I would like to have. But
11 that is what it is.

12 Q. Okay. The web and app activity
13 control I think you say should only cover
14 app activity data, right?

15 A. I think I've talked about web
16 view data also.

17 Q. Web views inside of apps?

18 A. Correct.

19 Q. I'll include that in app
20 activity. But really all I'm asking is --

21 A. I think you should also include
22 the ad activity within the app.

23 Q. Okay. So the app activity in
24 your mind includes any advertising activity
25 within that app?

1 A. They are all just activities.
2 It is a remote transaction occurring
3 between the app and the server, and data is
4 going back and forth.

5 Q. Right, okay. So we will come
6 back to ads.

7 We talked about the first open
8 analytics event earlier.

9 A. Yes.

10 Q. So when Google logs a device ID
11 in the first open event, did you see any of
12 those in the logs?

13 A. Yeah, probably we did, because
14 we would have had first open events. I'm
15 just sort of inferring it. Whatever we
16 found, we've documented.

17 Q. Okay. Did you see any evidence
18 that Google leveraged those events, just to
19 use them as an example, from sWAA-off users
20 to perform advertising?

21 A. I think my inference is that
22 those events would be -- it would be very
23 important to count those as conversions.
24 If someone had been running an app
25 promotion campaign, they want to get people

1 to install apps, so as soon as someone does
2 that first open, the software development
3 kit, which seems to behave the same --
4 transmit the same information with sWAA and
5 WAA on or off, the only difference I've
6 documented is where that information seems
7 to be stored according to Google's
8 explanation.

9 The conversion tracking is very
10 important there, because that's the
11 justification for the advertiser, it is the
12 justification to charge the advertiser
13 money for advertising is that hey, this
14 advertising works.

15 Q. Apart from the recordkeeping
16 associated with charging the advertiser
17 that you're talking about, did you see any
18 evidence of Google using sWAA-off
19 conversion events for any other purpose?

20 A. I mean, I think that using the
21 sWAA-off conversion events to track
22 conversions is the big use of them. I
23 didn't necessarily --

24 Q. Understood.

25 A. -- look for them to be used for

1 anything else. Just knowing they are used
2 to track conversions is the significant
3 thing.

4 Q. Okay, understood. But apart
5 from the recordkeeping associated with
6 charging the advertiser, did you see
7 evidence of Google using sWAA-off
8 conversion events to personalize
9 advertising?

10 A. Okay, so I have a couple of
11 different questions, a couple of different
12 answers to that question.

13 One answer, the simple answer,
14 the first-order answer is that I didn't see
15 that being used to further personalize ads,
16 although I do know from having been an
17 advertiser that Google seems to keep
18 statistics on users about their propensity
19 to convert and that there are some what
20 Google reps have told me are safe settings
21 in the ad platform that you can use to try
22 to essentially allow Google to boost your
23 bids in the auction when they observe a
24 user who is more likely to convert, and
25 that these options have been available at

1 least in the past and maybe still.

2 So there is potentially some
3 second-order effect beyond just the
4 immediate conversion. I mean, if you know
5 that somebody is converting, that
6 information is valuable in more ways -- in
7 more ways than just the immediate
8 conversion and immediate ad revenue that's
9 justified by that conversion.

10 Q. So you skipped ahead, that's
11 where I was going next. Did you see
12 evidence in the case that Google uses
13 sWAA-off conversion measurements to inform
14 what you were just talking about, which is
15 user propensity to convert?

16 A. Well, I think there is some
17 indirect evidence in that I've cited a
18 variety of Google documents that talk about
19 how data is used to improve their products,
20 you know, data that is collected, including
21 sWAA and WAA-off data can be used to
22 improve Google products, it can be used for
23 machine learning. So that's sort of an
24 indirect use.

25 But I didn't investigate

1 those -- I didn't observe those algorithms
2 within the system. Like you had asked me
3 well, what algorithm should Google delete
4 or what product should Google delete, and I
5 said, you know, we need a surveyor to come
6 and figure that out.

7 So there is a scope of my
8 investigation. I looked at certain parts
9 of the system and I have seen indications
10 that this data is flowing out to other
11 parts of the system and being used there.
12 I haven't inspected all those other parts
13 of the sort of vast Google technology
14 infrastructure.

15 Q. This feature of -- this feature
16 relating to user propensity to convert is a
17 Google Analytics feature, right?

18 A. The one I'm thinking of is in
19 Google Ads.

20 Q. In Google Ads, okay. Maybe the
21 word "predictive" is associated with it?

22 A. The word "enhanced" was
23 associated with it a while back. It was
24 sort of like you could enhance bid
25 enhancement, like if you see someone who is

1 kind of a likely converter, then it will
2 enhance your bid, and I was advised by a
3 Google ad rep that that is a safe option,
4 that you enable that and it will improve
5 your ROI.

6 Q. What does the word, I'm just
7 curious, what does the word "safe" in that
8 mean?

9 A. I think what it means is that
10 it is sort of conservative in that it is
11 making a good prediction. When it enhances
12 your bid, you are not just paying more, you
13 are paying more with good reason.

14 Q. Because it costs more?

15 A. Yeah.

16 Q. Okay. So I think fair to say
17 in order to do that predictive work about a
18 particular user converting, there would
19 need to be some dossier about that user's
20 historical conversions, right?

21 A. I guess there would need to be
22 some data or some model somehow, and I
23 could imagine that this might be
24 implemented in different ways, and I'm not
25 exactly sure how Google has implemented

1 that internally.

2 Q. Okay. And so fair to say
3 whether Google keeps such a model for
4 sWAA-off, that includes sWAA-off data, is
5 outside the scope of what you've examined
6 here?

7 A. I believe that it's uncertain
8 whether Google has that model or not. And,
9 again, in the corrective measures section
10 of the report, K, I talked about having
11 somebody assess or figure out, so that
12 would probably come out in the assessment.

13 Q. Okay. Did you see any evidence
14 in the case or express any opinion as to
15 whether Google has made any attempt to
16 decipher the meaning of app developer's
17 custom analytics events?

18 A. I don't recall that.

19 Q. Are you -- are you, sitting
20 here, aware of any evidence to that effect
21 that Google is trying to figure out what
22 those custom events mean?

23 MR. MAO: Objection, vague.

24 But go ahead, sorry.

25 A. Well, I can tell you what I

1 know about automatic interpretation of
2 computer code is a tricky problem. It's a
3 rough problem to get someone's program and
4 to evaluate what it is doing, you know, say
5 is this program safe or not, is this
6 program bugged or not, is this program
7 correct or not. All those things are
8 actually proven to be unsolvable,
9 theoretically unsolvable. So that's --

10 Q. Until AI takes care of it all.

11 A. No, AI can't take care of it
12 either. It is actually unsolvable on a
13 theoretical basis, deeper than that. It is
14 not just hard, it is actually at least
15 contradictions, illogical contradictions,
16 so these are unsolvable problems.

17 In computing there are some
18 problems that are unsolvable. Like have
19 your heard of the halting problem? That's
20 an unsolvable problem. Given an arbitrary
21 program, determine whether this program
22 when it runs will stop or run forever,
23 unsolvable problem. You can't solve it.

24 Q. Interesting. Now you have
25 piqued my interest, but we are on the

1 clock.

2 So in-app purchase event is
3 another sort of standard conversion event
4 in analytics and in ads, right, in-app
5 purchase?

6 A. Yes.

7 Q. So I guess first focusing only
8 on in-app purchase events that are
9 triggered by sWAA-off users, did you see
10 any evidence that Google is compiling the
11 in-app purchase events of sWAA-off users to
12 enhance the advertising that's delivered to
13 that user, i.e., personalizing the ads for
14 that user?

15 A. I don't recall documenting that
16 in my report. I mean, if it's in there,
17 it's in there; if it's not, it's not.

18 Q. No, I don't think it's in
19 there.

20 Okay. And then even for
21 sWAA-on users, did you come across any
22 evidence that Google is deciphering and
23 making personalization decisions based on
24 what the user purchased as opposed to just
25 the fact that a purchase occurred?

1 A. I haven't been evaluating
2 personalization based on WAA-on data.
3 That's outside the scope.

4 Q. Okay. I think you give an
5 example which Google gives on its website
6 about the favorite food custom event
7 parameter. Do you know what I'm talking
8 about?

9 A. Yeah, I remember mentioning
10 that in the report. Maybe we will go look
11 at the spot if you have a follow-up
12 question.

13 Q. Well, it's honestly maybe
14 redundant of a question I just asked, but
15 it sounds like you're saying to Google at
16 least at a programmatic level it's not
17 going to know what that means if it is a
18 custom event parameter about a person's
19 favorite food?

20 MR. MAO: Objection,
21 argumentative. But go ahead.

22 Q. I'm not meaning to argue with
23 you.

24 A. I didn't take it that way. I'm
25 not sure. I mean, I don't know if Google

1 is trying to decode what these things mean
2 or not, but I haven't opined that they are.

3 Q. What about to the extent that
4 like URLs or page view names are being
5 transmitted to Google, URLs with stuff
6 stuffed into them, right?

7 A. Yes.

8 Q. Parameters, or page view names
9 in an app that have names like AI Article.

10 A. Okay.

11 Q. Did you come across any
12 evidence that Google is attempting to
13 decipher the parameters and URLs or the
14 page view names or screen view names to
15 determine something about that user?

16 MR. MAO: I will just lodge a
17 standing objection here and then I will
18 stand down.

19 This is argumentative because
20 you are tempting me to go into the
21 procedural history in this case and I'm
22 trying not to do so. So I will just
23 leave that. I mean, the discovery
24 procedural history. Go ahead. I will
25 leave that standing objection.

1 A. Okay. So I don't think I've
2 opined about that, although I do recall
3 there may be perhaps another expert will
4 talk about how in privacy analysis if you
5 see the URLs that someone is looking at,
6 that can tell you an awful lot about that
7 person's interests, proclivities, sexual
8 orientation, etc., and --

9 Q. If a human sees it?

10 A. Yes. It can be sensitive
11 information.

12 Q. Yeah. My question is about
13 Google's operation at a programmatic level
14 or systematic level. You know, I
15 understand that if I handed you all the
16 URLs and a person could read them, then you
17 may come to certain conclusions. But I'm
18 asking about how the system is designed
19 sort of across everybody.

20 A. So one thing I would just
21 advise you is that Google crawls the web,
22 so Google knows a lot of URLs and
23 classifies all these web pages. Google
24 understands --

25 Q. Yeah, I'm familiar with that.

1 A. Not to talk about state of
2 mind, but they are machine learning and
3 indexing the web. They are crawling the
4 web, acquiring pages, saving copies of them
5 and then they index them, catalog them,
6 like a librarian would, in an automatic
7 way.

8 So if Google sees a URL, it
9 would be kind of child's play for them to
10 go into their index and extract, you know,
11 okay, what is that URL about, what are the
12 topics of interest, and then to use that
13 information to maybe, you know, generate
14 some inferences about what that person is
15 interested in.

16 So I'm not saying that they are
17 looking at the URL and analyzing the text
18 of the URL to extract information, but you
19 could use the URL, a URL is actually a
20 unique identifier for a piece of web
21 content. So if you have a URL you can go
22 look up in your files, hey, what's this web
23 content all about, and you can extract a
24 lot of structured information.

25 Q. So it sounds like you could

1 think of a way that it could be done, for
2 purposes of the opinions that you are
3 rendering in the case, you aren't rendering
4 an opinion that Google is doing that with
5 sWAA-off URLs or screen view names or
6 things like that?

7 MR. MAO: Same objection on the
8 procedural history of this case. But
9 go ahead.

10 A. I mean, it strikes me now that
11 you raised it, I haven't thought about
12 this, but now that you have raised it,
13 if --

14 Q. Well, let me stop you there.
15 You haven't thought about it before right
16 now?

17 A. Well, but what I -- what I can
18 say is if you have a URL, you could take
19 that URL and combine it with some other
20 information you have, Google could, its web
21 index, and it could generate a very nice
22 prediction of what topics that person might
23 be interested in if it wanted to serve an
24 ad to that person, without having to
25 reference that person's history in any way.

1 Q. Yeah, I believe that. My
2 question is have you opined that Google is
3 doing that with SWAA-off data?

4 A. I don't know for sure if they
5 are doing that or not, but sort of as an
6 inference it would be kind of surprising to
7 me if they wouldn't take advantage of that
8 because it is sort of so easy and obvious.

9 Q. Okay. I think you note in your
10 report that these logs that you examined
11 contain geolocation data?

12 A. Yes.

13 Q. You don't disagree that the
14 geolocation data is to some degree
15 coarsened from the precise location of the
16 device when it was collected, right?

17 A. I do believe that it is
18 coarsened to something like minimum of one
19 square kilometer or minimum of 1,000
20 people.

21 Q. Okay. Let's talk about --
22 well, where are we in time?

23 A. Why don't we take a quick
24 break.

25 Q. Okay. Let's take a break.

1 THE VIDEOGRAPHER: The time is
2 3:58 p.m. We are off the record.

3 (Recess taken.)

4 THE VIDEOGRAPHER: The time is
5 4:20 p.m. We are back on the record.

6 BY MR. SANTACANA:

7 Q. Okay. I think you mentioned
8 earlier that the Washington Post app had
9 been sending e-mail addresses to Google,
10 right?

11 A. What I remember is it was one
12 of their reputable newspaper apps, maybe it
13 wasn't the Washington Post, maybe it was
14 the New York Times.

15 Q. It was.

16 A. Was it?

17 Q. Yes.

18 A. Oh, I got it right.

19 Q. So, and I think you said that
20 you assume that's essentially against the
21 terms of service for using Google
22 Analytics?

23 A. Well, I know that Black
24 highlighted it, and I will just take his
25 word for it on that issue for the sake of

1 discussion.

2 Q. Dr. Black does some
3 calculations in his report about which apps
4 included something that might be an e-mail
5 address and which did not. Do you have any
6 calculations in rebuttal to that? Did you
7 perform any calculations? Or did you just
8 sort of take that as is?

9 A. I don't accept his analysis. I
10 just am not addressing it.

11 Q. Okay, sure. So you're not --
12 you're not going to dispute the math I
13 guess?

14 A. I'm not going to dispute the
15 math. I think I said earlier that the logs
16 that I was given through discovery were
17 sort of sparse and maybe not a
18 representative sample, maybe not a
19 statistically significant sample. So, you
20 know, subject to those concerns, I'm not
21 disputing his math.

22 Q. Okay. So let's talk about
23 joinability. What in your mind does
24 joinability risk refer to?

25 A. So I understand joinability

1 risk as sort of a terminology that Google
2 seems to be using, so I can say that I
3 understand what they mean by that.

4 Q. Please.

5 A. The joinability risk is that
6 somebody, in trying to run a report or
7 generate some data, pulls together data, it
8 uses one of these Google identifiers as a
9 key, as a join key, and joins together two
10 tables using one of these keys as a field,
11 and thereby reidentifies a bunch of data
12 relative to a GAIA ID.

13 Q. Using that understanding of
14 joinability risk, did you identify any
15 instances in which that risk was realized?

16 A. So I considered that way of
17 assessing the privacy situation to be not
18 the methodology of choice because the
19 problem with privacy is that there are
20 persistent identifiers that are personal
21 identifiers.

22 These Google identifiers are in
23 fact personal to individual people and that
24 the real risk is that that data with that
25 identifier leaks, is exfiltrated, is

1 accidentally supplied to a vendor, however
2 that might happen, and that that directly
3 is identifying to a person. Even if you
4 don't have the person's name, that data
5 specifies an individual device, which
6 someone who has that trove of data can
7 extract the data from that of an individual
8 person.

9 Q. So completely understood. Just
10 the question is, though, you just outlined
11 the risks, right, the concerns, did you
12 find in the evidence an instance of such a
13 risk to date having been realized with
14 respect to sWAA-off Google data?

15 MR. MAO: I have an objection
16 on this area of questioning on the
17 procedural discovery -- the discovery
18 procedural history in this case. Go
19 ahead.

20 A. I did not have access to data
21 showing evidence of Google's data breaches,
22 whatever may have happened. So I guess my
23 answer is I will be more succinct: No.

24 Q. Okay. Take a look at paragraph
25 137. Just read that to yourself for a

1 moment.

2 (Witness perusing document.)

3 A. Yes.

4 Q. So the first sentence says
5 "Within Google's non-GAIA logs, Google
6 intermixes both WAA-on and SWAA-on data
7 with WAA-off and SWAA-off data."

8 Do you see that?

9 A. Yes.

10 Q. And then later in the same
11 paragraph you say that Google does not --
12 it does not appear that Google treats the
13 WAA-off and SWAA-off data in Google's
14 non-GAIA logs any differently than it
15 treats the WAA-on and SWAA-on data in those
16 logs?

17 A. Yes.

18 Q. Okay. So when you say that
19 Google doesn't treat the on and off data
20 any differently, is that -- actually, never
21 mind. Strike that. I now understand.

22 A. Glad to have been of service.

23 Q. All right. Now take a look at,
24 I'm whipping you back and forth, look at
25 paragraph 303.

1 A. I don't mind that, because I'm
2 a nonlinear thinker.

3 Q. Perfect. You have an objective
4 see brain.

5 A. Okay, I'm there.

6 Q. So in paragraph 303 you address
7 a Google engineer's comments about
8 joinability risk. Do you see that?

9 A. Yes.

10 Q. And that engineer provided in
11 the document that you are quoting examples
12 of joinability risk. Do you see that?

13 A. Yes.

14 Q. This is the document that was
15 authored by Xinyu Ye. Do you recall that?

16 A. I don't recall that name, but
17 let's just see. There is a document Bates
18 number here, so we could look at it.

19 Q. Before we do, let me just ask
20 you, Dr. Black addresses that document in
21 his report, and what he says is that Steve
22 Ganem testified about this document and
23 said that the joinability risk that was
24 being identified was hypothetical and that
25 the identifier in question is not stored

1 unless assigned end user has consented to
2 sWAA. Do you have any basis to dispute
3 that?

4 A. Okay. So one issue there,
5 there is a couple of issues there, one
6 issue is when you say some sort of computer
7 security risk is hypothetical, this field
8 is a little different than some other
9 fields in that analysis of hypothetical
10 risks is very important in computer
11 security, especially because computers
12 operate at high speed, over high volumes of
13 data. Even something that's a, you know,
14 one in very small number risk turns out to
15 be quite serious over a large body of
16 transactions, in fact it statistically will
17 come up.

18 Q. I don't mean to interrupt, but
19 I think you -- I wasn't clear enough in my
20 question. That's not what I meant.

21 A. Okay.

22 Q. So what I meant by hypothetical
23 is that the engineer in question was
24 commenting as to the risks that would arise
25 if a particular course of action were

1 taken, but that particular course of action
2 was never taken by Google.

3 A. Okay.

4 Q. Maybe perhaps because of those
5 joinability risks. So my -- that's my
6 understanding of the record on this. Do
7 you have any greater understanding other
8 than what you said in your report?

9 A. What I have in my report is
10 what my understanding is, and we can go
11 look at the detail of the documents and try
12 to reconcile what Mr. Ganem and what
13 Mr. Black are saying and what I'm saying,
14 if you wish to, or we can just leave them,
15 you know, stand as they are.

16 Q. Let's come back to it.

17 Sitting here now, though, you
18 do not know whether the joinability risks
19 discussed in paragraph 303 related to an
20 existing course of conduct or a proposed
21 course of conduct, right?

22 MR. MAO: Objection, assumes
23 facts not in evidence.

24 A. Okay. So, look, in 303 the
25 most important thing is the first sentence.

1 "Internal documents are consistent with
2 Mr. Miraglia's testimony revealing that
3 Google employees acknowledge that so-called
4 pseudonymous data is linked to users." So
5 that's the point I have been making all
6 along, all right?

7 And then there is a document
8 here which I really can't give you further
9 comments unless I were to actually sit and
10 reread that document to refresh my memory
11 about what it says, because I just -- I
12 haven't memorized all these documents.
13 There is far too many of them.

14 Q. Okay. All right, let's look at
15 202. At 202 you say that "Google's
16 production of data from a collection log of
17 Google Analytics for Firebase shows that
18 Google saves GA4F data in non-GAIA logs
19 using substantially the same structure and
20 content as the data it saves in non-GAIA
21 logs." I think maybe that is a typo.

22 But, anyway, "Because Google
23 stores a copy of consented data in both
24 GAIA and non-GAIA logs, the timestamps,
25 identifiers and data stored in both types

1 of logs make GAIA and non-GAIA data and ID
2 joining straightforward."

3 Are you with me?

4 A. Yes.

5 Q. Not to belabor the point, but
6 just to be perfectly clear, though you
7 opine that doing the -- performing that
8 joining would be straightforward, you are
9 not opining that Google does in fact
10 perform that join?

11 A. No. So my assumption is that
12 Google is trying to not join data. When
13 they have a policy and they say we don't
14 join this data, my assumption is that they
15 aren't joining that data. Unfortunately,
16 the problem is a threat actor who gets hold
17 of this data from Google is not bound by
18 Google's good intentions and policies. So
19 that's my concern.

20 Q. Okay. My other question about
21 that sentence was just about the
22 straightforward joining part. Your report
23 does not document that you were able to
24 perform such a join, right? Have you had a
25 chance to take another look?

1 A. I haven't found it, but I
2 remember seeing an example where for sure
3 we found I think it was even a timestamp
4 and maybe it was an IP address. It was a
5 timestamp plus something else, and I was
6 able to see how records joined across these
7 logs.

8 Q. It's not documented here in the
9 report, right?

10 A. It might be somewhere. I just
11 -- the report is huge and the appendices
12 are huge. It is more than I can remember
13 the location of everything. So it's --

14 Q. Did you take time during a
15 break to look for it?

16 A. I didn't have enough time to
17 find it yet, but maybe it will turn up
18 later.

19 Q. Okay. And just to be clear,
20 that join that you performed, did you say
21 you thought it was with timestamp?

22 A. I think timestamp was one of
23 the elements, and I think there was
24 something else if my memory is correct.

25 Q. You were operating with a GAIA

1 log and a device ID log that you knew came
2 from the same device and user, right?

3 A. The datasets were not gigantic.

4 Q. Well, and they were limited in
5 scope to only the test devices, right?

6 A. They were limited to whatever
7 was produced to us. Yeah, I assume that
8 that's the test devices or the user
9 devices, yes.

10 Q. So you have no way of telling
11 if you were looking at the entirety of all
12 of Google's analytics data if you could
13 perform such a deterministic join between
14 those timestamps? I mean, for all you
15 know, there could be a hundred million
16 entries at the same timestamp.

17 A. Well, so I'm going to correct
18 what you said a little bit.

19 Q. Sure.

20 A. It is actually a probabilistic
21 match, okay? So fingerprinting is a
22 probabilistic endeavor.

23 Q. Okay.

24 A. And so if I were to have a huge
25 set of data, the computational complexity

1 of doing that essentially is that you take
2 all the data, you calculate some
3 fingerprint from the data, you have a
4 fingerprint function, you have some inputs
5 and you calculate a fingerprint function,
6 however that is, and then you look for
7 matching fingerprints.

8 This can be done with pretty
9 good efficiency. It's not computationally
10 a difficult task. And fingerprinting is
11 actually done and clustering is done in
12 order to gather up data like this and do
13 probabilistic matching. It is a common
14 practice and it is feasible, okay? So I'm
15 not opining out of thin air. I'm using my
16 experience in knowing what people actually
17 do in these sort of large-scale internet
18 identity systems.

19 Q. People other than Google?

20 A. People, in general, state of
21 the art, state of the art is that it is
22 feasible to do this. You can do
23 probabilistic matching with a good, I have
24 read academic papers, you can do
25 probabilistic matching with a good degree

1 of success. There is no technical
2 impediment to doing it. You may have some
3 failure rate. You may not match all of
4 them. But you match a high percentage of
5 them.

6 Q. I see, okay. That's helpful.
7 Take a look at 248.

8 MR. MAO: By the way, Eduardo,
9 let's take a break when we are done
10 with this mod.

11 MR. SANTACANA: Didn't we just
12 take one?

13 MR. MAO: I need to use the
14 restroom.

15 MR. SANTACANA: Okay.

16 A. By the way, your last question
17 just shook loose something in my mind. If
18 I remember, you were asking me if I had
19 seen any IP addresses in the logs. I do
20 remember seeing, I think that there is
21 maybe some IP addresses that were encoded.
22 They don't necessarily look like IP
23 addresses, but I seem to recall encoded IP
24 addresses, or IP addresses, but now I have
25 a memory of that.

1 Q. I didn't see that in your
2 report. So could you put that on your list
3 of things to look for?

4 A. Sure.

5 Q. That would be really helpful.

6 All right. So paragraph 248,
7 you -- well, you just answered my question
8 actually. Never mind.

9 Well, one question on this. On
10 this [REDACTED] [REDACTED] [REDACTED] that you talk about in
11 248, so Dr. Black looked at the [REDACTED]
12 [REDACTED] [REDACTED] of entries from the same
13 devices and found that they did not match
14 and must have been [REDACTED] [REDACTED]
15 [REDACTED] [REDACTED] Do you have any basis to
16 dispute that?

17 A. I understand that there is
18 some -- and even in 248 it says that.
19 There is some [REDACTED] [REDACTED] [REDACTED] [REDACTED]
20 is going on it would appear. Also 248 does
21 that have disclosure of the IP address and
22 user agent found in both GAIA and non-GAIA
23 logs. I think you saw that, but I will
24 just state it for the record that that
25 answers prior questions about that.

1 MR. MAO: Sorry, Eduardo, you
2 said that 248 says that some things
3 match and some things don't match? I'm
4 not seeing that.

5 MR. SANTACANA: No, I was
6 saying that Dr. Black's report says he
7 wasn't able to [REDACTED] [REDACTED] [REDACTED] [REDACTED]
8 from GAIA logs to non-GAIA logs because
9 they must [REDACTED] [REDACTED] [REDACTED] [REDACTED]
10 [REDACTED] [REDACTED]

11 A. And I have actually said that
12 they are [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
13 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

14 So he and I therefore agree on that point.

15 Q. Okay. Let's look at 310,
16 paragraph 310.

17 By the way, did you personally
18 draft this report?

19 A. Yes.

20 Q. So paragraph 310 says that
21 Google in effect associates WAA-off and
22 sWAA-off data with GAIA by measuring
23 conversions using DSID. Is that a fair
24 summary of this paragraph?

25 A. Let me just read it one second.

1 Q. Sure.

2 (Witness perusing document.)

3 A. So for context, let's look at
4 309, just the first sentence there.

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED] So that's not under

9 dispute. That's been admitted. And let me
10 just read 310 now.

11 (Witness perusing document.)

12 MR. SANTACANA: I just
13 remembered you wanted a break, I'm
14 sorry.

15 A. So 310 is pointing out that
16 there is a direct link between SWAA-off and
17 GAIA through this DSID, which is an
18 encrypted, the encrypted GAIA ID.

19 Q. So I want to be very clear
20 about that. DSID is an encrypted GAIA ID,
21 understood. Without the decryption key you
22 could not determine whose GAIA the DSID
23 refers to, right?

24 A. So the encryption key
25 presumably is strong enough, I'm assuming

1 it is strong enough, I'm assuming that
2 somebody doesn't figure out a way to break
3 the crypto system, so someone would have to
4 get possession of the key in order to do
5 it.

6 So that, in theory, okay, it
7 speaks to the risk, right? So if someone
8 exfiltrates that piece of data, if they
9 don't get the encryption key also the
10 exfiltrator may have trouble with that
11 piece of data. They may use other pieces
12 of data to link things up.

13 If, in a different scenario, if
14 some government agency comes to Google and
15 says give us data matching certain
16 specifications, it is conceivable that
17 Google could be ordered to use their
18 decryption key to connect that and hand
19 over the data. So that's also a risk. And
20 of course, I mean, I like law enforcement,
21 I support law enforcement, but they
22 sometimes make mistakes, and, you know,
23 that's a risk that a user is exposed to,
24 that they could be maybe falsely accused of
25 something based on some data that's

1 obtained from Google.

2 Q. And you don't dispute that the
3 encryption key that generates DSID is
4 temporary and trashed periodically, right?

5 A. If the key is rotated, I would
6 anticipate that it might be rotated
7 periodically. You know, there's a lot of
8 detail here, such as how long is -- how
9 long is the data retained, how often is the
10 key rotated, you know, all these things can
11 affect the analysis of the magnitude of
12 that risk, but they don't -- they don't
13 affect the sort of basic gripe I have,
14 which is that data is being collected and
15 saved contrary to users' wishes.

16 MR. SANTACANA: Okay. Let's go
17 off.

18 THE VIDEOGRAPHER: The time is
19 4:45 p.m. We are off the record.

20 (Recess taken.)

21 THE VIDEOGRAPHER: The time is
22 5:00 p.m. We are back on the record.

23 BY MR. SANTACANA:

24 Q. All right. Switching gears
25 here for a little bit, there is -- there is

1 a few places in your report where you use
2 the word "uniform." Do you know what I'm
3 talking about?

4 A. Yes.

5 Q. Was part of your assignment in
6 the case to measure uniformity?

7 A. Of the class members or of
8 something else?

9 Q. Of anything.

10 A. I don't recall that.

11 Q. Okay. And of class members?

12 A. I mean, I'm just aware that the
13 class may be an issue. In any class
14 action, the definition of the class, are
15 the class members uniform, is sometimes a
16 legal issue.

17 Q. Were you asked to opine on
18 uniformity for that purpose?

19 A. I don't think I was
20 specifically asked to opine on uniformity.

21 Q. Are you -- would you say you're
22 offering an opinion with respect to
23 uniformity in the class or of the class?

24 A. That sounds like a legal
25 opinion. I just have -- I'm just opining

1 about the technology. So if you want, we
2 can go look at the specific instances and I
3 can tell you more about them, because I'm
4 not sure what you're referring to because I
5 don't remember where I've used that word,
6 if anywhere.

7 Q. That's fair. Let me ask you
8 this: Did you use any particular
9 methodology or calculation to test
10 uniformity in the data that you received
11 and analyzed?

12 A. I think that I did look at some
13 of the data and saw that it wasn't
14 particularly representative. There was
15 some -- it was sort of skewed.

16 Q. What do you mean?

17 A. I think it's documented in one
18 of the appendices, but I seem to recall
19 there was some data that just didn't look
20 like it was a natural distribution.

21 Q. A natural distribution of what?

22 A. Values. Of course it wouldn't
23 be, because we are talking about test data
24 which is data generated by our apps and our
25 devices and our people, so we're not

1 looking at a uniform distribution there.

2 Q. Okay. So nevertheless --

3 A. Sorry, we're not looking at a
4 representative distribution. I've got that
5 word on my mind now because you mentioned
6 it.

7 Q. Did you apply any methodology
8 to determine the degree of uniformity in
9 the data you were analyzing, was that one
10 of the experiments that you did, or
11 calculations?

12 A. I mean, so I'm not sure, I
13 would have to look at which experiment, we
14 would have to be more specific, because my
15 memory is not -- I don't have a compartment
16 in my mind of these are the uniformity
17 experiments. That's not how I organized
18 the data in my own mind.

19 Q. Right. And I don't think you
20 call anything a uniformity experiment.

21 You also did not calculate any
22 numbers that were meant to represent
23 uniformity in the data that you saw, right?
24 That's not --

25 MR. MAO: Objection,

1 argumentative. I'm sorry.

2 Q. You are not trying to represent
3 uniformity with math in this case?

4 A. I don't recall that anywhere.
5 I mean, if it's there, it's there, but I
6 don't recall it.

7 Q. You did not offer any opinion
8 in here about the language of the
9 disclosures that third-party apps used with
10 their end users, fair to say?

11 A. No, I wasn't evaluating the
12 third-party disclosures.

13 Q. Nor their sufficiency or
14 frequency or wording, none of that?

15 A. That sounds like all things
16 that are outside the scope of my report.

17 Q. Okay.

18 A. Which is already big enough
19 given the size of the report.

20 Q. Dr. Black calculated that of
21 the 16,163 events triggered in the
22 datasets, 16,009 of them had no e-mail
23 address in them. Do you have any other
24 calculation that would deviate from that?

25 MR. MAO: Objection, vague.

1 A. That is sort of an absurd
2 statistic, because it's looking at a small
3 sample set of test data and he is somehow
4 trying to extrapolate what the rate of
5 e-mail addresses is, which is just -- okay,
6 that's just absurd.

7 Q. I'm not making a statement of
8 rate. I'm just saying did you -- I'm
9 literally just saying did he count it
10 correctly, incorrectly, or you have no
11 opinion?

12 A. I have not verified his number,
13 but I also have no reason to doubt his
14 number, and I also don't think his number
15 is meaningful in any way or useful in any
16 way.

17 Q. Okay. A conversion event, the
18 way it is recorded, do you recall seeing
19 those in the data, in Google's conversion
20 log?

21 A. Good question. As I sit here
22 now, I don't recall it off the top of my
23 head. The appendices are kind of long and
24 very, very detailed and dense, and I would
25 just have to look at them and refresh my

1 memory on that point.

2 MR. MAO: At some point you are
3 going to have to let him do that and
4 then we can get on the record all the
5 ones that we have held as a flag. So
6 it doesn't have to be now, just at some
7 point.

8 MR. SANTACANA: Okay.

9 MR. MAO: We probably should
10 have done that during lunch.

11 Q. So let's talk about HitBundles
12 for a moment. [REDACTED]

[REDACTED]

[REDACTED]?

15 A. Why don't we go to the
16 paragraph that you're talking about.

17 Q. That one is 116.

18 A. Okay.

19 Q. Do you have it?

20 A. Yes.

21 Q. So you opine that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

1 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
2 [REDACTED] [REDACTED]

3 A. Well, I think that that's the
4 sort of logical conclusion based on what
5 I've cited here are Google's 4th
6 Supplemental Responses to Interrogatories
7 1, 3 and 4.

8 Q. [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
9 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
10 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
11 [REDACTED] [REDACTED] [REDACTED] [REDACTED]

12 A. So this is actually an instance
13 of the [REDACTED] [REDACTED] [REDACTED].

14 Q. Okay.

15 A. In other words, there is [REDACTED]
16 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
17 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
18 [REDACTED]

19 Q. Right. As a result of that,
20 for some unidentifiable portion of the
21 analytics data that has been sent to
22 Google, [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
23 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
24 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]; is that your
25 opinion?

1 A. I don't know that I have used
2 those words, [REDACTED] [REDACTED] [REDACTED] [REDACTED]
3 [REDACTED] in this paragraph. Do you see
4 them somewhere else? Because I don't
5 remember using those words.

6 Q. No, those are my words.

7 A. Those are your words, okay.
8 Let me read what I've written.

9 Q. Sure.

10 (Witness perusing document.)

11 A. I mean, this is again sort of a
12 deduction based on Google's answers to
13 these questions.

14 Q. Right. And I'm just -- so my
15 question is just for some unidentifiable
16 portion of analytics data that's been sent
17 to Google, [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
18 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
19 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] ?

20 A. I'm not sure I want to go that
21 far.

22 Q. Okay.

23 A. Because, you know, I think
24 just -- I only want to go as far as what I
25 said here.

1 Q. Okay. That's fine.

2 A. I will tell you why I say that.

3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]

8 Q. Retrospectively?

9 A. I would imagine that they've
10 had that capability. I have no way to
11 verify whether they have done that or not.

12 Q. Okay. Back to conversion
13 events for a moment. The conversion events
14 that would be stored by Google from a
15 particular device will vary depending on
16 that user's engagement with apps; is that
17 fair to say?

18 A. Each app may have a different
19 conversion action, or in-apps can have more
20 than one conversion action.

21 Q. And they may have custom ones
22 too?

23 A. Yes.

24 Q. So the degree of information
25 about conversions that is sent to Google by

1 Google Analytics for Firebase varies from
2 user to user depending on the apps they
3 choose to use?

4 A. I don't know that I would put
5 it that way, because I think you have --
6 you have a population of users, and the
7 users, there will be some sort of
8 statistical distribution in terms of the
9 number of conversions recorded per user. I
10 mean, I wouldn't expect every user to have
11 the same number of conversions as every
12 other. That would be unrealistic.

13 Q. Right. Some may only have one
14 type, some may have different types, some
15 may have a lot, some may have a little,
16 right?

17 A. There is some -- I mean,
18 users -- there will be some statistical --
19 there will be a mean, there will be some
20 standard deviation in terms of the number
21 you get per user.

22 Q. Sorry, I'm not understanding
23 your question. I was just trying to
24 establish that some users are going to have
25 more conversion events than others and

1 different conversion events too, right?

2 A. Yes, there will be some
3 variation.

4 Q. And, as I recall, you are not
5 opining in this case that Google uses
6 sWAA-off conversions that it logs for any
7 purpose other than the recordkeeping
8 associated with evidence of good delivery
9 of ads?

10 A. And it is also a way to charge
11 advertisers. You show them conversions,
12 and that enables you to collect money from
13 your advertiser.

14 Q. But apart from that, you're not
15 opining that there is some other thing
16 Google is using those for?

17 A. Well, I think we covered this
18 before and I think I said that the
19 information about conversions can also be
20 used, sort of second-order way can be used
21 to help train algorithms to help make
22 predictions, to help improve Google
23 products. So there is some additional uses
24 for that beyond immediately monetizing
25 getting revenue from advertisers.

1 Q. Does that -- does that include
2 sWAA-off data?

3 A. I mean, because as far as I can
4 tell, the conversions that are tracked with
5 sWAA-off are treated just like any other
6 conversion, they are -- they would -- I
7 would expect that they would be fed into
8 all these machine learning algorithms sort
9 of the same way.

10 Q. And what if a user has sWAA off
11 but the app developer has not enabled data
12 sharing with Google, what impact does that
13 have?

14 MR. MAO: Objection, vague,
15 argumentative, and assumes facts not in
16 evidence.

17 A. Okay, so --

18 MR. MAO: Part of that is also
19 just wrong. But go ahead.

20 A. So I don't remember the answer
21 to that question, and I might have
22 documented it somewhere, but I just don't
23 remember it off the top of my head.

24 Q. I don't see a reference to it
25 in your report.

1 MR. MAO: Wait, sorry, on
2 publisher conversions or advertiser
3 conversions? Which one are you talking
4 about in his report?

5 MR. SANTACANA: I'm talking
6 about data sharing, the data sharing
7 side.

8 MR. MAO: Of the public
9 conversion side?

10 A. So my understanding of your
11 question is that you asked me if the app
12 publisher declines data sharing with
13 Google, how does that affect this, and the
14 answer is I don't recall.

15 Q. Okay. Are you opining in this
16 case that Google uses a record of a
17 device's conversions that were sWAA-off
18 conversions to choose which ad to show to
19 that device?

20 MR. MAO: I'm sorry, can you
21 read the question back again?

22 (The record was read.)

23 A. I don't think I've rendered
24 that, but I'm not going to take a position
25 on that question.

1 Q. Why?

2 A. Unless I figured it out already
3 and documented it somewhere, I don't
4 remember it being something I figured out.
5 But maybe I did figure it out and forgot
6 about it. But I don't remember it, and I'm
7 not going to be able to answer it now.

8 Q. Okay. That's fine. I don't
9 think you did opine on that. I'm just
10 clarifying.

11 Now, on the number of times
12 that any particular user has been subjected
13 to the privacy risks that you identify in
14 your report when they have sWAA turned off,
15 that is something that will vary depending
16 on a number of factors, let's start there,
17 is that fair to say?

18 A. I think that some users are on
19 their phones and apps more than others.

20 Q. Will it also vary -- well, let
21 me just say, will the severity of the
22 privacy risk in question also vary from
23 user to user?

24 A. I don't know, because the users
25 that we are interested in are people that

1 have Google accounts that flip those
2 switches to the off position, and one of
3 them or both of them, either the first one
4 only or the first and second one, right,
5 because you can't flip sWAA-off unless --
6 you can't flip -- one you can't do without
7 the other, okay? So, I mean, those people
8 designated I want this to be private and it
9 is not really up to me or anyone else to
10 second-guess them.

11 Q. Sorry, my question was just you
12 identify privacy risks you have today, you
13 do in your report. Does the severity of
14 the privacy risks for those sWAA-off users
15 vary from user to user?

16 A. I don't know a way to quantify
17 that and differentially explain for this
18 user it is much more risky than for that
19 user. Because each user has their own --
20 they are people, they are individuals,
21 right? And they all have made a decision,
22 and I'm not going to say that your opinion
23 is worth more than his opinion. We both
24 made a decision to have this thing shut off
25 and you deserve equal respect for that

1 decision.

2 Q. Completely understood. But if
3 you say -- well, forget the analogy. You
4 have said today that, for example, one
5 factor that goes into severity is how much
6 data is collected about a particular --
7 tied to a particular identifier, more data,
8 more risk; less data, less risk. Another
9 factor might be how fragmented the data is.
10 Another factor might be how detailed the
11 data is.

12 My question is, aren't all
13 those factors going to factor in to how
14 severe the risks are for any particular
15 user in this class?

16 MR. MAO: Objection, misstates
17 his testimony. Go ahead.

18 A. I don't think you can make a
19 function where you take these numbers as
20 inputs and say -- and calculate, say, for
21 this person it is really severe, for that
22 person it is not severe at all. Because
23 even one little leak can have drastic
24 consequences, and it is sort of no way
25 of -- there is no way for me to know that,

1 you know, who is going to be hurt by some
2 privacy leak. I don't feel like I could
3 calculate that and I don't think anyone
4 else could calculate that. I think each
5 person who sets that switch should have
6 their wishes respected, and I don't know
7 the way to distinguish this one is worth
8 more than that one.

9 Q. So you don't -- you don't think
10 that you could calculate based on how much
11 data there is and what kinds of data they
12 are, how risky it is to a particular member
13 of the class?

14 MR. MAO: Are you asking him on
15 a technical basis within the scope
16 of --

17 MR. SANTACANA: I've asked my
18 question.

19 MR. MAO: Okay. Then my
20 objection is you are asking him
21 questions which may be outside the
22 scope of his designation. But you can
23 go ahead.

24 MR. SANTACANA: There is no
25 designation. He is under subpoena.

1 MR. MAO: I disagree.

2 MR. SANTACANA: Okay. There is
3 no such thing as a designation.

4 THE WITNESS: This goes over my
5 head.

6 MR. MAO: What do you mean,
7 what he has been designated as an
8 expert for? Yes, there is.

9 MR. SANTACANA: What is his
10 designation?

11 MR. MAO: He is our technical
12 expert, so you are asking something
13 that might be reserved for another
14 expert.

15 MR. SANTACANA: Is there a
16 document that designates him?

17 MR. MAO: Yeah, the scope of
18 his work, his opinions. You are asking
19 him something outside the scope of his
20 opinions.

21 MR. SANTACANA: Sorry, have you
22 served some document that designates
23 him for some topics and not others?

24 MR. MAO: It is there on his
25 document, isn't it?

1 MR. SANTACANA: This is a
2 disclosure of expert opinions.

3 MR. MAO: Yeah.

4 MR. SANTACANA: This is not a
5 designation of topics. So I'm just
6 trying to understand what you're
7 saying.

8 MR. MAO: He is not going
9 outside the scope of his opinions. You
10 are the one that was trying to say that
11 he was limited to what he had testified
12 to and opined on. Are you asking him
13 to opine on other subjects? That's not
14 what we retained him for.

15 MR. SANTACANA: I'm asking him
16 my question.

17 MR. MAO: You know what, I'm
18 not sure this is fruitful. Just go
19 ahead.

20 A. Sure. Could you reask the
21 question?

22 Q. You don't think you could
23 calculate based on how much data there is
24 and what kinds of data they are how risky
25 these practices are to a particular class

1 member?

2 A. I don't have a methodology for
3 doing that.

4 Q. Okay. Well, and I think what
5 you are saying is they should be treated
6 the same, because no one member's WAA-off
7 decision is worth more than another class
8 member's?

9 A. Well, I mean, that's my view of
10 it based on my sort of technical opinion
11 that this is a switch that somebody set and
12 Google has gone and violated their wishes
13 and collected data that shouldn't be
14 collected and saved data that shouldn't be
15 saved.

16 Q. You have opined before that
17 user data has a market value, right?

18 A. I have.

19 Q. Have you done that in the
20 context of litigation only or also
21 publicly?

22 A. I've said it publicly, I've
23 said it in litigation, data is a commodity
24 that has value.

25 Q. The market value of the data in

1 question here, the SWAA-off data, would it
2 be the same as to every class member or
3 would it have to vary from class member to
4 class member?

5 A. I can tell you that the way
6 that such data is typically traded, you buy
7 a population and you pay an average price
8 per, and some, you know, you are just
9 paying per unit, and some may have more,
10 some may have less data.

11 Q. Some may have more data, some
12 may have less data, but you just sort of
13 pay per population?

14 A. I mean, I think that's the way
15 it is commonly traded.

16 Q. Okay, yeah. So this is a class
17 action, so that's not an option.

18 My question I guess is what are
19 the factors that would go into the fair
20 market value of the user data in question
21 if you were to pay each class member an
22 amount that is tied to the fair market
23 value of their specific user data?

24 MR. MAO: Just objection,
25 outside the scope of the expert

1 opinion.

2 A. I'm not prepared to answer that
3 question. I have no basis to answer that
4 question.

5 Q. Well, I'm not -- I'm just
6 asking you, you have opined about fair
7 market value before, you have talked about
8 it publicly, you believe that data has
9 value, right?

10 A. Yes.

11 Q. More data has more value than
12 less data, right, bigger population is
13 worth more than a smaller one?

14 A. Yes.

15 Q. Detailed population is worth
16 more than a less detailed one?

17 A. Potentially.

18 Q. Population with Social Security
19 numbers is worth more than population that
20 just has device identifiers?

21 A. Maybe, it depends. I mean,
22 again, this is getting into a lot of
23 details which I haven't done that analysis
24 here, so I'm not ready to give you any
25 opinion about the relative value of

1 different pieces of data.

2 Q. Sure.

3 A. Data brokering, I would have to
4 research it and work on it before I could
5 say anything more.

6 Q. Well, you have identified today
7 that there is a privacy risk that you are
8 worried about and the privacy risk is that
9 data will be exfiltrated from Google,
10 right?

11 A. That's one risk.

12 Q. That's one risk. Why would
13 somebody exfiltrate this data from Google?

14 MR. MAO: Objection, calls for
15 speculation.

16 Q. How do you even know it is a
17 risk to begin with?

18 A. Okay. So I have -- I'm aware
19 that data has value not only in legitimate
20 commerce, it also has value to criminals.
21 People doing online crime and scams will
22 try to acquire data. And where there is a
23 willing buyer with money, then there may be
24 someone who is going to make a play to get
25 a hold of some dataset that is unique that

1 they can sell for a good amount of money.

2 Q. So back to the topic at hand,
3 which is the privacy risks that you've
4 identified, right, you've talked about
5 those risks extensively today, my question
6 is, doesn't the severity of the risk vary
7 depending on the nature of the data from
8 class member to class member, how much it
9 is, how detailed it is, what kind of data
10 it is?

11 A. I don't know how to ascertain
12 that.

13 Q. Okay. Your report, look at
14 paragraph 206 for a second, I'm focused
15 really on this part where you say Google
16 admitted in its response to RFA 25 that [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] Do you see

21 that?

22 A. Yes.

23 Q. You quote that admission a few
24 times in your report. My question is do
25 you know [REDACTED] [REDACTED] [REDACTED] [REDACTED] ?

1 A. I don't remember.

2 Q. Do you identify [REDACTED] [REDACTED] [REDACTED] [REDACTED]
3 in the report?

4 A. Well, I point to admission
5 number 25.

6 Q. Okay. So if it's not there,
7 then you don't know?

8 A. I don't remember, and that's
9 where I would go to look, and that's what I
10 can tell you.

11 Q. Fair enough. All right. Now
12 let's look at 163. So in this report --
13 actually, I will just show you. First,
14 actually, just flip to 101.

15 MR. MAO: I'm sorry, his
16 report, 101?

17 MR. SANTACANA: His report,
18 paragraph 101.

19 MR. MAO: Got it, thank you.

20 Q. So at paragraph 101 there is a
21 phrase "Google collects the user's GAIA ID
22 regardless of their WAA or sWAA status."

23 Let me know when you see it.

24 A. Yes.

25 Q. I think you clarify at the end

1 of that paragraph Google logs and uses DSID
2 even when the user has WAA or SWAA off. I
3 just want to be clear, you are not opining
4 that Google is collecting the user's GAIA
5 ID in analytics HitBundles, what it is
6 collecting is DSID, which is an encrypted
7 form of GAIA ID, right?

8 A. I'm not asserting -- I don't
9 think that this asserts that the GAIA ID is
10 collected in the clear. It seems to be
11 collected in an encrypted form. It is an
12 equivalent information, but it is in
13 encrypted form.

14 Q. Okay. Just making sure that's
15 where we're at.

16 Now, I think you touched on
17 this a little bit earlier, but talking
18 about the consent check process now, you
19 are aware that when Google performs a
20 consent check on analytics data, [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED]?

24 A. That's the impression I had,
25 yes.

1 Q. For Android devices?

2 A. That's consistent with my
3 understanding.

4 Q. As a result of that, [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] Is that also consistent with your
11 understanding of the --

12 A. I'm not sure that's right.

13 Q. Okay. What do you mean?

14 A. I'm not sure that's right.

15 Q. You're just not sure?

16 A. Well, [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED]

20 Q. Yeah.

21 A. So [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

24 Q. Right.

25 A. So [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED].

1 Q. Right.

2 A. And [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED].

3 Yes, under that scenario, I see what you're
4 saying.

5 Q. Okay. My question is why is it
6 designed that way? Do you have any opinion
7 about that?

8 A. I recognize the design pattern.

9 Q. What does it look like to you?

10 A. Well, that's a tactic called
11 isolation.

12 Q. Okay. What is -- can you
13 explain just briefly what that means?

14 A. By trying to separate the data
15 this can make it more difficult for an
16 attacker to get hold of the two pieces of
17 data.

18 Q. Is there any cost to
19 implementing an isolation pattern in
20 something like this?

21 A. I mean, for somebody like
22 Google, they have data centers full of
23 servers. They have plenty of servers.
24 This is not an extremely resource-intensive
25 calculation.

1 So I'm not sure, I mean, the
2 incremental cost, I mean, it may be that it
3 is all sunk cost for Google. I'm just not
4 sure. I don't think I've performed that
5 analysis and I haven't really thought about
6 that because this is the first time I have
7 heard about this process that you're
8 mentioning here or at least the first time
9 I've focused on it in terms of cost as far
10 as I can tell.

11 Q. Well, the process, [REDACTED] [REDACTED]
12 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] we were
13 just talking about, that is detailed in
14 Google's interrogatory response and you
15 describe it in your --

16 A. Can we take a look at where I
17 describe it just to refresh my memory?

18 Q. Sure. Why don't you take a
19 moment to read 162 through 164, which is a
20 few pages, 165, excuse me.

21 MR. SANTACANA: If we could
22 just go off, I need to use the restroom
23 real quick.

24 THE VIDEOGRAPHER: The time is
25 5:36 p.m. We are off the record.

1 (Recess taken.)

2 THE VIDEOGRAPHER: The time is
3 5:41 p.m. We are back on the record.

4 BY MR. SANTACANA:

5 Q. Have you had a chance to review
6 those paragraphs?

7 A. I've looked at 162. Is that
8 the right one?

9 Q. And what about 163 and 164 and
10 165?

11 A. No, I haven't gotten to those
12 yet. Just a minute.

13 Q. I think 163 is the key.
14 (Witness perusing document.)

15 A. Okay, yes, this thing here. So
16 what I can see is I haven't formed any
17 opinion about cost in this.

18 Q. Okay. Just, sorry, I'm just
19 trying to refresh your recollection as to
20 this idea that [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] I thought you were
23 saying that you hadn't thought about that
24 before.

25 A. No, I knew about that but I

1 hadn't thought about cost.

2 Q. Okay. So going back to my
3 question about cost, I want to clarify, I
4 actually did not mean in terms of money,
5 what I meant was the isolation, is it a
6 technique is what you would call it,
7 isolation pattern?

8 A. Isolation is one way to try to
9 improve security.

10 Q. Okay. So does isolation come
11 at any cost from a computing perspective?
12 Is there any reason not to do it, you know,
13 from let's say Google's perspective?

14 A. I'm not sure. I mean, that's
15 sort of a detailed engineering question
16 that may be specific to the circumstance.

17 Q. Okay. So talking about the
18 consent check, do you have any basis to
19 dispute that this isolation process we were
20 just talking about was designed to separate
21 what Google calls pseudonymous data from
22 GAIA keyed data?

23 A. I understand that Google is
24 trying to separate data, divide between
25 data that is stored with the GAIA ID and

1 data that's not stored with the GAIA ID. I
2 understand they are trying to separate
3 that.

4 Q. All right. Now let's talk
5 about iOS for a moment. So for iOS the
6 process is different, right?

7 A. Yes.

8 Q. And you talk about this at 164
9 and 165. One of the things you talk about
10 is a [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED]

13 A. Let me take a quick look here
14 and refresh my memory.

15 Q. Sure.

16 (Witness perusing document.)

17 A. Yes, okay, so I've looked at
18 that. Do you want to reask the question?

19 Q. All right. One of the things
20 you talk about is [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]?

22 A. Yes.

23 Q. Okay. One just clarifying
24 question, you don't, sitting here today,
25 know whether [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

1 [REDACTED] [REDACTED], do you?

2 MR. MAO: Sorry, can you read
3 back the last -- the end of that
4 question? Sorry, Eduardo, you just
5 covered your mouth a little bit.

6 MR. SANTACANA: That's all
7 right.

8 Q. Sitting here today, you don't
9 know whether [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

10 [REDACTED] [REDACTED], do you?

11 A. I don't recall.

12 Q. [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

13 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

14 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]?

15 A. I don't recall.

16 Q. What do you mean, you don't
17 recall?

18 A. I don't recall the answer to
19 that question. If it is documented in the
20 report, so be it, and if it's not in the
21 report, then it's not.

22 Q. I don't think it's documented
23 in the report. I'm just trying to
24 establish, you're not opining that Google

25 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

1 [REDACTED] [REDACTED] [REDACTED] [REDACTED], right?

2 MR. MAO: Objection,
3 argumentative.

4 A. Okay. So I think the point --
5 the key takeaway here is that [REDACTED] [REDACTED]
6 [REDACTED] [REDACTED] There is a [REDACTED] [REDACTED] [REDACTED]
7 [REDACTED] [REDACTED] [REDACTED] [REDACTED].

8 Q. Understood.

9 A. [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
10 [REDACTED] [REDACTED] [REDACTED] [REDACTED].

11 Q. Understood. [REDACTED] [REDACTED] [REDACTED] [REDACTED]
12 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
13 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
14 [REDACTED] [REDACTED]

15 MR. MAO: Objection, incomplete
16 hypothetical and argumentative. Go
17 ahead.

18 A. I don't recall saying anything
19 like that.

20 Q. Okay. Now, the iOS consent
21 check process has changed since iOS 14,
22 right?

23 A. I understand that Apple has
24 made some policy changes regarding use of
25 identifiers over time.

1 Q. And that includes its
2 incorporation of the app tracking
3 transparency protocol?

4 A. I believe I have mentioned that
5 somewhere in here.

6 Q. I think it is mentioned once or
7 twice. But you do not really analyze in
8 this report how that affects Google's
9 ability to check consents, right?

10 A. I mean, whatever I've said
11 about it is there for you to see. This
12 sounds like a detail which I just don't --
13 I can't put all these details in my head at
14 once, so I've got the report.

15 Q. That's fine. Is it your
16 opinion in this case that Google should
17 honor the sWAA control even in
18 circumstances where it does not know who
19 the user is?

20 A. If Google doesn't know who the
21 user is, if the user has asked and said I
22 don't want to be tracked, that should be
23 honored. I don't see any reason why it
24 shouldn't be honored.

25 Q. Did you render any opinion in

1 the case as to the technical limitations
2 that iOS 14 imposed on Google's ability to
3 identify Google users?

4 A. I'm aware that there has been
5 somewhat of an ongoing cat and mouse game
6 between Apple and the data brokers and
7 advertising networks where Apple seems to
8 be making moves to try to promote privacy
9 and the data brokers and ad networks seem
10 to be trying to retain their capabilities.
11 So that has just been an ongoing trend.

12 Q. Are you rendering -- did you
13 render any opinion in the case on how the
14 app tracking transparency protocol affects
15 Google Analytics?

16 A. I don't recall saying anything
17 about that. I don't recall that being part
18 of my opinions.

19 Q. Okay. I had something but I
20 lost it.

21 MR. MAO: It happens to all of
22 us. It happens more with age.

23 THE WITNESS: We might need a
24 dinner break here for everyone to
25 refresh and regain.

1 MR. SANTACANA: I might try to
2 make that flight.

3 MR. MAO: Okay, let's do it.
4 Is it shown on time?

5 MR. SANTACANA: Different
6 flight, JFK.

7 Q. I have a question about
8 paragraph 71.

9 A. Speed round. Okay, go ahead.

10 Q. It's the last sentence.

11 " [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED], " and you cite a
16 document.

17 You know, sometimes people make
18 approximations in e-mails and internal
19 documents. Did you do anything to confirm
20 whether that breakdown is precise or
21 accurate?

22 A. I'm relying on that document.

23 Q. Okay. And nothing else?

24 A. I'm relying just on that
25 document.

1 Q. Okay. So you're at least open
2 to the possibility that number is wrong or
3 even really wrong, it is just one document?

4 A. I mean, yeah, it's a
5 possibility that the person who -- I would
6 have to look at the document really before
7 I -- I shouldn't opine about a document in
8 the blind. But I can confirm that that's
9 the document I'm relying on and I'm not
10 relying on something else.

11 Q. Okay. App developers who use
12 Google Analytics for Firebase to measure
13 conversions could instead use some other
14 SDK to measure conversions, right?

15 A. Yes.

16 Q. And they could do that even
17 while continuing to place advertising on
18 Google's display network, right?

19 A. In theory, they could, and they
20 could also in theory use both SDKs at the
21 same time. I think we have covered that,
22 if you want to use the mobile ads, you need
23 the mobile ad SDK, GMA, and therefore you
24 get that Firebase -- Google Analytics for
25 Firebase functionality which is bundled in

1 with that now.

2 Q. Well, I think you may be
3 conflating two things. So an app that
4 doesn't serve ads would have no need for
5 the GMA SDK, right?

6 A. Correct.

7 Q. So for apps that are ad buyers
8 only and are using Google Analytics for
9 Firebase in their app, they could instead
10 use some other analytics provider and
11 continue to buy ads on Google's display
12 network?

13 MR. MAO: Objection. I think
14 that hypothetical is just wrong, your
15 hypothetical.

16 A. I'm sorry, so I didn't
17 understand it, the first time you asked the
18 question, I didn't understand it the way
19 you asked it. The second time I was in
20 fact mixed up.

21 Q. Okay.

22 A. So we shouldn't rely on my
23 first answer, and what we should do --

24 Q. Let's start over.

25 A. Yeah, start over and we will

1 try to get a clean answer.

2 Q. App developers who use Google
3 Analytics for Firebase to measure
4 conversions could instead use some other
5 SDK to measure conversions, right?

6 A. In theory they could.

7 Q. Including SDKs offered by
8 companies other than Google?

9 A. In theory I think they could.

10 Q. And they could use an SDK from
11 a company other than Google to measure
12 conversions on Google's display network,
13 right?

14 A. I would want to verify that
15 just to be sure, because these technologies
16 are kind of changing and it might even be a
17 dependent thing depending on when.
18 Something that is true now might not have
19 been true several years ago and vice versa.

20 The other thing I would say is
21 that the reason I have said theoretically
22 they could is that I don't know that any
23 significant number of people are doing it
24 that way because the Google Analytics
25 integrates so nicely with the Google ad

1 platforms that it is very beneficial to use
2 them together.

3 Q. So take a look at Appendix E.

4 A. Is that tab 3?

5 Q. Tab 3. [REDACTED]
[REDACTED]?

7 A. Yes.

8 Q. That was a project at Google to
9 [REDACTED]
[REDACTED]
[REDACTED], right?

12 A. Let me take a look at what I
13 said about that, but, I mean, the way I
14 think of it is the idea is to have one
15 Google Analytics, like one ring to rule
16 them all, but the Google Analytics 4 is the
17 evolution of Google Analytics for Firebase
18 as it is then extended to apply to the web
19 also, so that there is one analytics
20 platform that covers all of it. That's the
21 way I think of it.

22 Q. So take a look at paragraph 26
23 of this appendix. It says "[REDACTED]
[REDACTED]
[REDACTED] and it quotes an interrogatory

1 response from Google. "Google tracks app
2 campaign ad spend that is bid against
3 different types of conversions. As of last
4 month (October 2022) [REDACTED] [REDACTED]
5 [REDACTED] of app campaign ad revenue was
6 attributable to conversion types bid
7 against GA4F (as opposed to other sources
8 of conversions)."

9 Do you see all of that?

10 A. Yes.

11 Q. And then it says "When [REDACTED]
12 launched in the first half of 2019, the
13 percentage was [REDACTED] [REDACTED], and then
14 it [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
15 [REDACTED] [REDACTED] [REDACTED] in October of 2022."

16 Do you see all of that?

17 A. Yes.

18 Q. So do you understand that the
19 remainder of the 100 percent not
20 represented by conversions bid against GA4F
21 are being bid against some other conversion
22 measurement system?

23 A. Well, that would seem to be
24 implied, although I'm not sure that you
25 could infer that the other [REDACTED] [REDACTED] were

1 non-Google systems, because Google also has
2 Universal Analytics, their legacy product,
3 that is being phased out presently.

4 Q. So some of it may be Google,
5 some of it, though, may be non-Google?

6 A. And maybe some of it is not
7 tracked at all, in theory. Some people may
8 just not set up conversion tracking. I do
9 run across these kind of advertisers with
10 regularity, shockingly.

11 Q. Well, so let's clarify
12 something about that. The types of ad
13 campaigns at issue in this case, as I
14 understand it, is app ads campaigns, right?

15 A. Yes.

16 Q. And can you run an app ads
17 campaign without conversion measurement at
18 all?

19 A. I would have to double-check
20 that. It may be that it is not possible,
21 it may be that it is mandatory.

22 Q. I'm not sure either.

23 A. I would just take -- that's the
24 kind of thing I don't memorize. I just
25 look at the documentation.

1 Q. Okay.

2 MR. MAO: I just note for the
3 record that we have a fundamental
4 disagreement between you and I on what
5 an app campaign promo is.

6 MR. SANTACANA: That's fine.

7 Q. When an app developer places an
8 ad with Google for an app promo campaign or
9 an app ads campaign, do they pay per
10 conversion?

11 A. I think there -- I haven't used
12 this product recently. I would have to
13 look it up to be sure, but I've used it
14 sort of in the past some number of years
15 ago. But, again, I would just direct you
16 to the documentation which will answer that
17 question. I'm not sure I recorded it here
18 in the report.

19 Q. I think you did. Look at
20 paragraph 5.

21 A. Okay. I record this stuff
22 because I don't want to have to memorize
23 it.

24 See, the other problem is that
25 these products have an ever rotating set of

1 names and features.

2 Q. Sure.

3 A. So there are actually two
4 different kinds of app campaigns, there is
5 the install, the app install campaigns, the
6 app engagement campaigns where you try to
7 reengage some user who has lapsed, hasn't
8 used the app in, I don't know, 30 days.

9 Q. Right, okay, understood.

10 A. Okay. So I've noted Google
11 required app developers to implement app
12 conversion tracking and deep linking it to
13 have a minimum of 250,000 app installs in
14 order to run, I believe that is for the
15 ACE.

16 Q. Uh-huh. That's the engagement
17 campaign you are talking about?

18 A. Yeah, so I see that. There is
19 something about -- that is one note about
20 mandatory conversion.

21 Q. Right. You're not saying it
22 has to be with a Google product, you are
23 just saying that the advertiser has to
24 track conversion somehow?

25 A. I would just look it up in the

1 documentation to know for sure what systems
2 would satisfy that requirement.

3 Q. Okay.

4 A. Read the manual.

5 Q. Exactly. So back to my
6 question about how the advertisers pay for
7 all of this. How do they pay for all of
8 this?

9 A. Well, I believe it is sold per
10 install or per engagement. I believe the
11 advertiser is able to make a bid.

12 Q. The advertiser makes a bid.
13 What do you mean by that?

14 A. They specify the amount of
15 money they are willing to pay for a result.

16 Q. Okay.

17 A. This program -- these programs
18 have changed over time. So I may be
19 recalling how something was in the past and
20 it may be different at different points in
21 time. Probably the best thing to do is
22 actually just to look it up for whatever
23 era you are interested in and know for sure
24 for that era what it was.

25 Q. Okay, fair enough. Dr. Black

1 says at some point in his report that if
2 Google Analytics for Firebase were to just
3 disappear, right, snap your fingers, it's
4 gone, that advertisers, app developers who
5 advertise their apps, they would just
6 choose some other analytics SDK and keep
7 advertising with Google, they wouldn't just
8 stop advertising. I mean, you have done
9 internet marketing work with clients
10 before. Does that seem fair?

11 MR. MAO: Objection, incomplete
12 hypothetical, argumentative, and just
13 completely wrong, but go ahead.

14 A. Okay. So my concerns with that
15 hypothetical are, one, if users switch to
16 another conversion or analytics package,
17 that package may start pushing on them a
18 different ad platform. It might have a
19 really slick integration with a different
20 ad platform, which causes Google to lose
21 market share. So I wouldn't conclude that
22 everything -- they would just switch and
23 advertising with Google would proceed all
24 the same, I don't think you can draw that
25 conclusion.

1 Q. And I didn't mean to say it
2 would proceed all the same. I was just
3 saying they wouldn't stop advertising
4 altogether?

5 A. You know, there could be --
6 there could be some sort of seismic shift.
7 And also I'm not sure how realistic it is
8 that something like that would happen.

9 Q. Well, okay. We were just
10 looking at paragraph 26 of Appendix E of
11 your report. It says that in the first
12 half of 2019, [REDACTED] of app ad spend at
13 Google was bid against GA4F conversions,
14 right?

15 A. Yes.

16 Q. So at least as recently as the
17 first half of 2019 [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]?

21 A. The thing is in technology
22 times move fast and things move fast and
23 you can't necessarily stuff the genie back
24 in the bottle. Like if you took away this
25 product I don't know that you can conclude

1 things would just revert back to how they
2 were in 2019.

3 Q. And I'm not suggesting that
4 they would revert back to the way they were
5 in 2019. I'm just saying as recently as the
6 first half of 2019, [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]?

10 A. Well, there is also something
11 absent there which is how much money are
12 they spending with Google. Is that -- has
13 Google's market share of the app ad market
14 gone up or changed over this time period?
15 I think that's another thing. So I'm not
16 ready to make some sort of economic
17 judgment I don't think about, you know,
18 whether -- if people switch, Google's
19 revenue just keeps on the same. I wouldn't
20 draw that conclusion.

21 Q. Do you advertise your website
22 on Google's ad network?

23 A. I did until recently.

24 Q. When did you stop?

25 A. Not too long ago, like a month

1 ago maybe.

2 Q. Who do you advertise with now,
3 or do you just not advertise anymore?

4 A. I have some term contract that
5 I continue advertising with a SEEK
6 directory, which is a specialized website
7 for expert witnesses. It seems to produce
8 the best results for me. I have been
9 watching my ROI on Google erode, so I kind
10 of just pulled it.

11 Q. Got it.

12 A. I have been a big fan of Google
13 advertising over the years though.

14 Q. So you advertised your website
15 up until a month ago with Google, you used
16 Google Analytics, you also have advised
17 clients on using Google Analytics, right?

18 A. Yes.

19 Q. With websites?

20 A. Yes.

21 Q. And you have advised clients on
22 internet marketing, how to run ads and make
23 sure that they are doing it in the most
24 optimal way, right?

25 A. Yes.

1 Q. How many of those types of
2 consultations have you done?

3 A. Hundreds.

4 Q. Hundreds. Hundreds of
5 entities?

6 A. Probably, yeah.

7 Q. So let's say one of those
8 entities came to you now and said Google
9 Analytics, they just turned it off
10 yesterday, and now I can't tell if my ads
11 are converting or not. Would you say to
12 them you should stop advertising on Google
13 or would you say just measure your
14 conversions using some other tool?

15 A. I mean, it's sort of a -- it's
16 sort of a counterfactual assumption that
17 this product would just disappear
18 overnight. I would think that, for
19 example, if the Court would order an
20 injunction, somehow that impacted this, I
21 would hope that there would be some fair
22 notice to all the third parties that depend
23 on it, not to leave people high and dry,
24 that there should be a chance for -- a
25 chance for orderly migration.

1 Q. It is disappearing in six
2 months.

3 A. I don't know. This is -- it
4 gets into something very speculative. I
5 just don't know where that would go or how
6 I would deal with that because it has never
7 come up before like that.

8 Q. Have you ever advised anyone
9 not to use Google Analytics on their
10 website?

11 A. I have at times talked about
12 the pros and cons of using -- tracking
13 pixels on websites.

14 Q. Have you ever advised that
15 someone use a tracking pixel other than
16 Google Analytics?

17 A. I mean, in addition in the past
18 I used other products, but Google Analytics
19 has become very dominant in the market.

20 Q. If one of your clients said to
21 you I just got a notice that Google
22 Analytics will remain working just as it
23 always has, but for any of the users who
24 visit my website who have sWAA off, their
25 data will just not appear, won't be there,

1 won't contribute, what would you advise
2 them to do?

3 A. I would say that's fine, and I
4 will tell you why, because the Google
5 Analytics as it is does not give you an
6 exact count of anything. It actually uses
7 statistical sampling. They don't actually
8 measure every interaction, they measure a
9 sampling of them, and then extract from the
10 sampling.

11 So if there are WAA-off and
12 sWAA-off users it is possible to use
13 statistical methods to essentially replace
14 the missing data. So I think it's
15 something that one can use statistics to
16 correct for. Either Google could build
17 that into the product or the company using
18 it could know, okay, this has some
19 measurement error, and in fact we already
20 know that this has some potential for
21 measurement error because some users in the
22 past, you know, there have been issues with
23 people, for example, they might use Privacy
24 Badger and they might disable the tracking
25 beacons. You know, sometimes -- sometimes

1 there are things that affect the accuracy
2 of all the tracking.

3 If you get a good statistical
4 sample, if you get a read on three-quarters
5 of your visitors, you can extrapolate from
6 that and know what is going on, as long as
7 -- as long as there is not too much bias in
8 the data. In other words, if you are
9 selling -- I mean, there might be some
10 weird counterexample, for example, like if
11 Bruce Schneier is trying to sell his book
12 on the web and all the people coming to buy
13 the book are privacy hawks, like they might
14 all have Privacy Badger installed, so that
15 might be a little weird. But that is kind
16 of an unusual circumstance.

17 I mean, if you are just selling
18 sneakers or belts or whatever, those kind
19 of people are just kind of run of the
20 internet and there is not going to be any
21 sort of correlation between desire for
22 privacy and whether people have a
23 propensity to buy shoes, because everybody
24 wears shoes.

25 MR. MAO: Can we get a clock

1 check on that? I would like to at
2 least take a break before the last hour
3 just so we can kind of finish.

4 THE VIDEOGRAPHER: Five hours,
5 46 minutes.

6 MR. MAO: I'm going to need
7 about ten minutes with him for my part.

8 MR. SANTACANA: Sure.

9 MR. MAO: Just to be clear,
10 because I don't want you to complain
11 that you miss your plane. I'm not
12 trying to jam you on your time, I'm
13 simply saying if you are trying to make
14 your last flight, I'm going to insist
15 on having my ten minutes.

16 MR. SANTACANA: I understand.
17 I won't be surprised.

18 Q. So sticking with this for a
19 moment, wouldn't it be kind of difficult
20 for Google Analytics to tell your
21 hypothetical client in this scenario what
22 sWAA-off users would have done on the
23 website if the data has no sWAA-off users
24 in it at all?

25 A. I'm not sure exactly how to

1 best approach that, because this is, again,
2 one step into the future. It is sort of
3 presuming some sort of result in this case
4 and then what do we do next. I think it is
5 best to get there first and then figure
6 out -- everyone can figure out what that
7 next step is. That is hopefully not too
8 disruptive to the marketplace.

9 Q. So if let's say Google had
10 honored the sWAA setting the way that you
11 interpret it from the beginning, you don't
12 think that would have hampered Google
13 Analytics for Firebase in a way that really
14 like made it not work for app developers?

15 A. I'm not sure, but I think that
16 doing the right thing is usually a good
17 business decision, because the way I look
18 at business, the trust of your customers is
19 your most valuable asset and you want your
20 customers to trust you and be happy with
21 you.

22 So I think doing the right
23 thing for customers, even if there is some
24 immediate apparent cost and then there is
25 maybe some hard to determine future

1 benefit, I think it is always a good idea
2 to try to build up your customer trust.
3 But that's just my philosophy. You asked,
4 I answered, but make of it -- make of it
5 what you will.

6 Q. That is perfectly fine. I just
7 -- I want to really understand what you
8 meant when you were talking about analytics
9 and statistical sampling and the way that
10 you would react if your client said to you
11 I'm really upset, all of my -- all of the
12 SWAA-off users are being excluded from
13 Analytics now, this is a disaster, you
14 know, what are we supposed to do, this
15 thing is not working.

16 A. I have actually documented in
17 the report that something like [REDACTED]
18 [REDACTED] are SWAA on. So you have got [REDACTED]
19 [REDACTED] of your population, you are
20 collecting data on them. So if you are
21 missing [REDACTED] of the data you can just
22 sort of extrapolate that. If that
23 [REDACTED] is -- behavior of [REDACTED]
24 -- if the behavior of [REDACTED] is
25 representative of the behavior of the

1 [REDACTED], you can just extrapolate and
2 have a pretty good idea.

3 Q. So you wouldn't -- so you would
4 not necessarily tell them you need to stop
5 using Google Analytics, this isn't accurate
6 anymore?

7 A. I would have to evaluate the
8 circumstance and the situation at the time.
9 I think there is more to the hypothetical
10 that I would have to evaluate.

11 Q. Wouldn't, I mean, wouldn't in
12 this hypothetical, if the sWAA-off data was
13 excluded from web analytics and your
14 customer is upset about it and they come to
15 you for advice, wouldn't it drive down the
16 value to the customer of advertising with
17 Google?

18 A. I'm not sure. I mean, again,
19 it depends all on implementation details,
20 and, again, the going forward is different
21 than the history.

22 Q. So is that -- I mean, are you
23 saying I guess that going forward there's a
24 way in which Google could exclude sWAA-off
25 data from Analytics entirely, never get

1 sent, but the Analytics product could still
2 sort of work just as well for the app
3 developers who rely on it?

4 A. I mean, I'm not sure. I would
5 have to see the details of that
6 implementation. There is sort of unknowns
7 in this hypothetical that might guide that.

8 Q. Okay. I mean, you expressed a
9 little bit about it. I mean, I'm just
10 trying to understand what you're saying.

11 A. I'm saying there are some
12 scenarios under which you could do
13 extrapolation. I pointed that out. So I
14 don't know that I could give you a hard and
15 fast rule on this. I think it really
16 depends.

17 Q. I will just ask you something
18 quick about paragraph 182 on a completely
19 different topic.

20 A. Okay. Let's go like five
21 minutes and then take our break and then
22 try to finish.

23 Q. Sure. There is some blue
24 highlighting in here which I think was for
25 redaction purposes.

1 A. That's my understanding as
2 well.

3 Q. So I'm actually looking at the
4 blue highlight in this case. It says "I
5 understand that," and then a little later
6 it says "Anibal Rodriguez was signed in to
7 his peteysake@gmail.com account."

8 Do you see that?

9 A. Yes.

10 Q. And then you cite his
11 deposition transcript?

12 A. Yes.

13 Q. You're aware that Dr. Black
14 talks about this in his report, the
15 possibility that Mr. Rodriguez was signed
16 in to a different account at different
17 points in time during the class period?

18 A. I don't recall that section of
19 Dr. Black's report.

20 Q. Okay.

21 A. But I also would just comment
22 that the last sentence in blue is that he
23 says "As shown in Appendix A, all three
24 plaintiffs' signed-in accounts had WAA and
25 sWAA turned off when the Baseview data was

1 generated." So I know that Appendix A was
2 actually a list of status at different
3 dates.

4 Q. Right. I'm very familiar with
5 Appendix A.

6 A. Yeah, that could be -- the fact
7 that he was -- the sWAA and WAA status
8 could be verified as of when that data was
9 collected.

10 Q. Okay. Apart from the
11 deposition transcript cite that you have
12 here for Mr. Rodriguez and Ms. Harvey and
13 Mr. Cataldo, you cite each of their
14 transcripts, is there anything else that
15 you are relying on for your understanding
16 as to which accounts were signed in to
17 these devices at which times? And to be
18 clear, did you talk to them or did the
19 lawyers tell you something that's not
20 documented here?

21 MR. MAO: And you are not
22 referring to what else you may have
23 produced to us, you are just talking
24 about like other sources outside of the
25 formal discovery process?

1 MR. SANTACANA: No, or anything
2 that's not documented in this
3 paragraph.

4 A. I mean, what I would suggest is
5 I'm not going to be able to do it now live,
6 but I will check the records that were
7 collected and there may be something in the
8 actual record itself that corroborates that
9 information that they were signed in.

10 Q. Okay. There's -- but you
11 didn't talk to them, these plaintiffs?

12 A. I don't recall talking to them.

13 Q. Okay. And you're not relying
14 on something the lawyers told you about
15 which device -- which account was signed in
16 to which device at what time?

17 A. I'm relying on what's cited and
18 also the data itself.

19 MR. MAO: One other thing,
20 Eduardo, I know you are trying to get
21 out of here, but I do have on the
22 record a number of things that you
23 asked him that he agreed to follow up
24 on the appendix for the record. So I
25 don't know if you want to propose

1 something other than -- I can use my
2 time to do it. I don't care to hold
3 you to that. I'm just noting that that
4 is going to hold us over, okay?

5 MR. SANTACANA: I understand.

6 MR. MAO: Okay.

7 MR. SANTACANA: It's fine if I
8 miss it. It is completely fine. Let's
9 just do it right one time.

10 MR. MAO: I understand.

11 Q. So iOS 14 deprived third
12 parties of device ID if the user declined
13 the app tracking transparency prompt in
14 iOS. You're familiar with that?

15 A. Yeah, I recall that.

16 Q. You've gotten that prompt
17 yourself on an iPhone?

18 A. Probably.

19 Q. I would say almost certainly.

20 A. I don't remember it, but
21 probably I did.

22 Q. Well, it's a prompt that says
23 do you want to let this app track you for
24 advertising, and you say yes or no, and
25 sometimes it is worded differently, but

1 you've seen that before?

2 A. Probably.

3 Q. Okay.

4 A. I mean, maybe I have some other
5 setting somewhere in my phone that just
6 suppresses it and says like no, never.

7 Q. Not possible?

8 A. No, it's not possible.

9 Q. But you're a computer privacy
10 expert, you didn't notice the prompts when
11 they came up?

12 A. I don't recall seeing them
13 recently.

14 Q. Okay. Maybe you just haven't
15 installed apps a lot.

16 A. Actually, I am kind of paranoid
17 about apps, and I will only install certain
18 kinds of apps.

19 Q. Got it. And actually I take it
20 back, it may be possible that if you turn
21 something off, it is off for all of them.
22 I'm not sure. In any case, are you
23 familiar with Apple's SKAD network?

24 A. Yeah, I don't remember the
25 acronym, but if you tell me what it spells

1 out or what it means, I probably -- I
2 probably have heard of it. I just don't
3 necessarily remember the name.

4 Q. I don't think I have ever seen
5 it -- what it stands for, if anything. But
6 do you have any understanding of what it
7 does or what it's for?

8 A. Again, I have to just connect
9 the thing to the name, because I may know
10 about the thing, I just don't know what it
11 is called.

12 Q. SKAD network is the thing that
13 Apple has to provide analytics and
14 conversion information to third parties
15 without giving them device ID. Are you
16 familiar with that?

17 A. Okay, so it is some sort of
18 privacy preserving analytics solution.

19 Q. Yeah.

20 A. Okay, yeah, I think I have
21 heard something about it.

22 Q. Or so they market it as. Okay.
23 Are you particularly familiar
24 with it or you just heard about it?

25 A. I mean, I think I follow the

1 press, so I see, you know, all the articles
2 come across my inbox and I see them, but I
3 don't -- I haven't looked at it in detail
4 yet.

5 Q. Okay. And in your
6 professional -- in the course of your
7 professional life you haven't needed to --
8 you don't advise people on app advertising?

9 A. I do at times. I just haven't
10 had to look into it recently, and as I said
11 before, the field moves kind of quickly, so
12 I kind of do fresh investigation each time,
13 because things change.

14 Q. All right.

15 MR. MAO: That break, Eduardo,
16 at some point?

17 MR. SANTACANA: Sure, we can
18 break.

19 THE WITNESS: Now would be a
20 good time.

21 THE VIDEOGRAPHER: The time is
22 6:25 p.m. We are off the record.

23 (Recess taken.)

24 THE VIDEOGRAPHER: The time is
25 6:45 p.m. We are back on the record.

1 BY MR. SANTACANA:

2 Q. Can you take a look at
3 paragraph 269 of your report.

4 A. Yes.

5 Q. Sir, in this paragraph you make
6 an assertion about marginal cost?

7 A. Yes.

8 Q. Other than what you have cited
9 here in this paragraph, was there any other
10 basis for this assertion?

11 A. Sure. So within my experience
12 I know elsewhere in the report I mention
13 that Google stated that they have [REDACTED]
[REDACTED] [REDACTED] [REDACTED] and I'm aware of
15 Google's activities in storing video,
16 storing images, storing Gmail, storing an
17 index of the web. They have got some
18 pretty data-intensive applications there
19 that require a tremendous amount of
20 storage.

21 So what I'm thinking is that
22 the amount of storage required to store
23 this WAA-off and sWAA-off user data, which
24 is, you know, some of it is deleted
25 quickly, some of it is saved for a longer

1 period of time, presumably Google tries to
2 be a little bit efficient about how they
3 store things. You know, when they are
4 going to store it for long term, they kind
5 of, you know, filter out what they don't
6 need and keep what they need.

7 So I have in mind an inference
8 that this is a -- this amount of storage is
9 a rounding error in their whole scheme of
10 things. And I also have an idea of what
11 storage costs at Google, because I actually
12 buy storage from Google. I pay Google \$2 a
13 month for premium Gmail storage. I pay
14 them \$2 a month to get 100 gigabytes of
15 storage.

16 Q. That's less than I pay.

17 A. Okay. Well, and I also have,
18 you know, cloud storage with some other
19 providers like Dropbox, you know, I think
20 it is 150 bucks a year for 2 terabytes.
21 I'm aware of what the Amazon storage rates
22 are, especially cold storage is really
23 cheap, live storage is more money. But I
24 have some sort of general sense of what
25 cloud storage costs, and storage is pretty

1 cheap. So that's where all that opinion is
2 coming from.

3 Q. Okay. So I guess the word
4 material incremental cost, the word
5 "material" is doing some work there?

6 A. The word "material" is
7 definitely doing some work.

8 Q. Have you quantified the degree
9 to which a cost is material or not?

10 A. So generally my understanding
11 in these kind of situations, you know, the
12 difference between material and de minimus,
13 the threshold is somewhere around 5
14 percent. You know, when you get something
15 that is like 1 percent, that is pretty
16 minor.

17 I think this is -- if Google is
18 sitting down to plan out, okay, we need to
19 build more data centers, we need to
20 allocate storage, you know, what are our
21 forecast needs, they are looking at how
22 much video do they have to store, how much,
23 you know, images, how much mail they have
24 got to store, Google Docs, I mean, they
25 have got huge storage things.

1 I don't think the
2 WAA-off/sWAA-off data makes that list. I
3 don't think it factors into any sort of
4 calculation or projection of how much
5 storage one is going to need because I
6 think it is extremely small in the whole
7 scheme of things.

8 Q. Did you see any documents or
9 other evidence to that effect?

10 A. No, it is just an inference
11 from knowing how cloud computing platforms
12 work. And of course Google is welcome to
13 rebut me if they have an actual document
14 that shows otherwise, I'm totally happy to
15 take that document and see the facts.
16 Facts are friends.

17 Q. But you didn't see a document
18 either way?

19 A. They haven't produced that
20 document, but they certainly know what
21 their storage needs are and what their
22 storage use is for all this data. They
23 could, you know, if I'm wrong, they can put
24 the facts on the table.

25 Q. Got it. Okay. I have a

1 question about Firebase cloud messaging.
2 Any user that is receiving a notification
3 via Firebase cloud messaging has consented
4 to receive notifications on this device
5 from that app, right?

6 A. You know, I think that the
7 messaging, there is a setting that controls
8 whether apps can push messages.

9 Q. So to get such a message, a
10 user would have to expressly agree to get
11 messages from that app?

12 A. Well, it might be the other way
13 around. In order to not get messages a
14 user might have to turn it off.

15 Q. Do you know one way or the
16 other?

17 A. My impression is these things
18 could be opted in. I mean, we could
19 double-check it. I mean, you can check it,
20 I can check it. That is just something
21 that ought to be looked up.

22 Q. So is it your understanding
23 that when a user turns SWAA off that that
24 should disable the Firebase cloud messaging
25 function of the Firebase SDK?

1 A. I'm not sure. I haven't
2 considered that, I don't think. And that's
3 something that maybe Google could address,
4 you know, as a setting. You know, do you
5 want messaging to continue to work or not
6 if you flip this setting.

7 I mean, this is I think
8 something that some of the Google employees
9 have observed that is part of the issue
10 with the WAA and sWAA setting, which is
11 that it is dealt with inconsistently about
12 Google's range of products. It is hard,
13 very hard to understand what the behavior
14 is going to be.

15 Q. Okay. Do you opine that Google
16 has monetized the sWAA-off Firebase cloud
17 messaging data that you identify in your
18 report?

19 A. I know that cloud messaging is
20 a relatively minor product compared to, you
21 know, the Google Analytics for Firebase and
22 AdMob. Those are the two big ones. Cloud
23 messaging is a lesser -- lesser thing, less
24 significant.

25 Q. All right. Now, you opine in

1 your report that you could identify class
2 members using Google's data, right?

3 A. Yes.

4 Q. I think you start talking about
5 this in Section I, page 147.

6 A. Yes, okay.

7 Q. So one of the methods you
8 propose here, given that historical
9 records, not all of them exist anymore, is
10 that class members could identify
11 themselves to Google and that, combined
12 with records Google has, could identify
13 them as a class member?

14 A. I think I have said something
15 like that.

16 Q. And I think what you said was
17 that to do that, they would identify which
18 apps they use and then Google would confirm
19 whether that app uses Google Analytics for
20 Firebase or the ads SDK, right?

21 A. I believe I said something like
22 that.

23 Q. Even if a user who has sWAA off
24 has in the past used an app that has used
25 GA4F, that does not necessarily imply that

1 Google saved sWAA-off data about that user
2 from GA4F, right?

3 A. I think if Google had saved the
4 data that plaintiffs asked them to save
5 somewhere near to the front of this
6 litigation, they would have the data that
7 they needed to answer that question, and
8 Google decided that they didn't want to
9 save that data, and I think they made a
10 motion that they wouldn't have to save it
11 and they didn't have to save it.

12 Q. What data are you referring to?

13 A. I think these logs of all the
14 app activity data.

15 Q. Which logs?

16 A. I think I might have discussed
17 it somewhere in the report here, but what
18 I'm thinking of are the [REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED].

1 Q. Okay. So but you are here to
2 offer expert opinions, so I want to be
3 specific. Which logs in particular are you
4 saying could have been used had they not
5 been deleted to identify class members
6 during the class period?

7 A. I don't know off the top of my
8 head.

9 Q. Do you say so in your report?

10 A. I may say something about that
11 in the report.

12 Q. Well, you may say, you may not
13 say, I need to know if you do.

14 A. Again, I mean, this kind of
15 question, we have struggled with it all day
16 because I've got, you know, like it looks
17 like 600 pages worth of report and
18 appendices in front of me here and I can't
19 possibly like index all that with my brain
20 and remember where each and every little
21 fact is within that.

22 Q. Well, I'm not asking you to
23 index anything. I mean, there is a table
24 of contents. You have been holding this
25 report all day. I'm just asking you --

1 MR. MAO: While you are asking
2 him questions, if you want him to take
3 the time to look through that, look for
4 it --

5 Q. The time to look through your
6 report was before you sat down today.

7 A. Which I did actually.

8 Q. Good. So my question is which
9 logs, right, you have this Section I, Class
10 Member Identification, you are welcome to
11 look at it right now, it is eight pages
12 long, okay, does it identify the specific
13 logs that you would have used had they not
14 been deleted to identify class members?

15 A. I mean, the report either does
16 or does not identify the logs, and also it
17 may mention some docket action which may
18 have lists, and I think there was also
19 motions or requests in this case for lists
20 of logs and additional logs which Google
21 didn't produce. So, I mean, if Google has
22 resisted discovery and refused to provide
23 the relevant data, it doesn't seem cricket
24 that my client should be put at a
25 disadvantage for not having that which

1 Google has refused to produce.

2 Q. Your client being whom?

3 A. The plaintiffs in this case.

4 Q. So I honestly don't really know
5 what you're talking about. But this
6 section of your report does not discuss
7 motions or discovery. What it talks about
8 is methods for identifying class members
9 using data that Google has or data that the
10 users would have, okay? And I just want to
11 be really clear about what you're saying
12 right now.

13 You are claiming that there is
14 data that was deleted that could be -- that
15 could have been used to identify class
16 members and now it doesn't exist anymore.

17 A. Why don't we -- why don't we go
18 to the exact statement here, if I can find
19 it.

20 Q. Sure.

21 MR. MAO: Sorry, when you are
22 saying "sure," we are starting out with
23 page 147, this section?

24 MR. SANTACANA: Page 147. Why
25 don't we go off while you look for it.

1 THE VIDEOGRAPHER: The time is
2 6:58 p.m. We are off the record.

3 (Recess taken.)

4 THE VIDEOGRAPHER: The time is
5 7:00 p.m. We are back on the record.

6 BY MR. SANTACANA:

7 Q. Okay. So you are ready to
8 address this?

9 A. Yeah.

10 Q. Go ahead.

11 A. So I will just point you to
12 paragraphs 357, 358 and 359. That explains
13 it.

14 Q. Okay. I am looking at that
15 exact thing. So 357 says "Google could use
16 the data stored within its voluminous logs
17 to verify membership in the class. The
18 same records provide information about the
19 volume of WAA and sWAA-off data Google has
20 collected and saved, to the extent Google
21 did not destroy and delete such data."

22 But that paragraph does not
23 identify any log or logs in particular,
24 right?

25 A. Keep reading.

1 Q. Okay. But that one doesn't.
2 I'm going to keep reading in a moment. Am
3 I right?

4 A. Well, I told you there is three
5 paragraphs together that describe where
6 this data would have been found if it had
7 been retained.

8 Q. Okay. So paragraph 358, as I
9 see it, mentions 16 AdMob related logs,
10 eight of which are GAIA and I guess eight
11 of which are not GAIA logs?

12 A. Yeah, that's the microscopic
13 quantity of logs that Google produced.

14 Q. And then you identify the
15 [REDACTED] [REDACTED] log that contains a sWAA
16 bit in GAIA data, right?

17 A. Yeah, so there are sWAA and WAA
18 bits in some of these logs. I mean, Google
19 themselves said there was something like a
20 million hits when they searched through the
21 logs to find out how many fields mention
22 WAA or sWAA.

23 Q. And then it says
24 [REDACTED] which does contain
25 WAA and sWAA bits.

1 A. Right. And then 359 has the
2 sort of the payload here, "but Google has
3 withheld providing information about the
4 vast majority of logs that contain such a
5 bit," okay? That's the sWAA/WAA bit.

6 Q. Well, Mr. Hochman, my
7 questioning of you today is about what you
8 did do, not what you didn't do. So I just
9 need to know what you did do and what you
10 did opine on. I don't need to know about
11 the world of things that you may have never
12 seen that may or may not exist and that may
13 or may not be helpful to you, right?

14 So I think what you're saying
15 is at least with respect to the logs you
16 identify in 358, Google did not in your
17 view retain them long enough to identify
18 class membership?

19 A. So Google had the data, Google
20 had the data, and if Google says they no
21 longer have the data, then that's because
22 they didn't retain it, and the Court will
23 have to determine what to do about that.
24 That's not my question. I can't give you a
25 legal answer.

1 Q. Well, on that we agree.

2 Let's talk about the [REDACTED]
3 [REDACTED] log. That's the only analytics
4 log in paragraph 358, right? The others
5 are ads logs.

6 A. Let's take a look. Yes.

7 Q. The retention period on that
8 log is [REDACTED] [REDACTED]?

9 A. Okay.

10 Q. You're aware of that?

11 A. It doesn't surprise me.

12 Q. So on the day this case was
13 filed, at most there was [REDACTED] [REDACTED] of data in
14 it going back [REDACTED] [REDACTED], right?

15 A. For that log, but there are
16 other logs.

17 Q. Okay. But that log couldn't
18 help you figure out who was a class member
19 in 2018 or 2019 if the case was filed in
20 the spring of 2020, right?

21 A. But there may be other logs. I
22 mean, Google has said that they had a
23 million hits. You can see it there at 359.

24 Q. I'm asking you about this one
25 log that you identified, [REDACTED]

1 [REDACTED] I will ask about the other
2 ones in a moment.

3 MR. MAO: Objection, asked and
4 answered. Go ahead.

5 MR. SANTACANA: Well, I don't
6 think he answered it.

7 Q. The question is you could not
8 use the [REDACTED] [REDACTED] log on the date
9 this case was filed to figure out who was a
10 class member in 2018 or 2019, right?

11 A. That log, if it only had a
12 [REDACTED]-[REDACTED] retention period, that wouldn't have
13 gone back that far, but there may be other
14 logs that do go back further.

15 Q. So the [REDACTED]
16 log, do you know what the retention period
17 was on that one?

18 A. As I said, there is a
19 microscopic number of logs that Google
20 produced and I'm really not interested in
21 the retention policy on this very small
22 number of logs out of the total huge mass
23 of data which was hidden from us.

24 Q. Well, you should be interested.
25 I mean, if on the day the case was filed

1 there was no data older than [REDACTED] [REDACTED] that
2 you could use to identify a class member,
3 that would be pretty relevant to your
4 opinion, wouldn't it?

5 A. I think that the people who
6 have set this can say if they set it and
7 Google can use what data they have to try
8 to verify it. That's one of the things I
9 said. And I also said that if Google had
10 retained data they would be able to use
11 that data to ascertain who the class
12 members were.

13 Q. I understand. I'm just saying
14 that depends in part on what the retention
15 period was for the logs in question on the
16 day the case was filed.

17 A. And Google has resisted
18 providing us information about all these
19 million different fields and all the
20 relevant logs because some of these things
21 are kept indefinitely as I understand it.

22 Q. You're not answering my
23 question though. I didn't ask you about
24 the other logs. I said -- well, let me
25 just ask it a different way actually.

1 You just said if Google had
2 retained data they would be able to use it
3 to ascertain who the class members were,
4 right? That's an expert opinion you have
5 given in the case?

6 A. Well, because I have shown that
7 these logs contain information that is
8 identifying and that links to a user, so
9 that's really the thrust of my opinion.
10 Now, if you all want to argue about
11 retentions and discovery and all that, you
12 can. All I'm pointing out is that had
13 these things been retained, these people
14 would be identifiable.

15 Q. Based on your review of the
16 logs that were produced in the case?

17 A. And also documents and
18 testimony which talk about how Google
19 continues to collect and store data when
20 the WAA and sWAA settings are turned off.

21 Now, bear in mind if Google
22 honored that setting and didn't store and
23 retain that data, then, one, there would be
24 no case, and, two, the class members
25 wouldn't be ascertainable because Google

1 wouldn't have that data.

2 Q. When you say "that data" --

3 A. The data that -- let's call it
4 the contraband data, the data that was
5 collected while the switches were shut off.

6 Q. I don't think I will call it
7 that.

8 A. I may.

9 Q. But I'm just going to -- I need
10 to be clear about something. This is an
11 opinion that the Court may rely on one day,
12 okay, a federal judge is going to read
13 this, they may rely on it, they may ask you
14 to testify. It says "Google has collected
15 and saved data in ways that identify class
16 members," and you opine in here that that
17 data could have been used to identify class
18 members had it not been destroyed.

19 A. Yes.

20 Q. I just want to be clear, when
21 you say "that data," as an expert, what you
22 are opining on is the data that corresponds
23 to data that was produced to you in the
24 case, that had it been kept indefinitely --

25 A. I think the data that is

1 relevant, to the extent that it still
2 exists, or ever existed, would be found in
3 the non-GAIA logs that have WAA and
4 sWAA-off activity. [REDACTED]

[REDACTED]

7 So all those logs, whatever
8 they are, that have WAA and sWAA-off data,
9 preferably the ones that have some of these

10 [REDACTED]

11 [REDACTED] so they are identified as having
12 been collected with that setting, one of
13 those settings off.

14 Q. Okay, thank you. One
15 clarifying point. [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 MR. MAO: Objection. This is
19 not a memory test. The document speaks
20 for itself. Go ahead.

21 Q. No, I'm just asking what you
22 meant. Are you referring to Analytics
23 non-GAIA logs?

24 A. I would say generally any log
25 that is recording web and app activity of

1 this nature with WAA-off and sWAA-off data.
2 Additionally, I think there are some [REDACTED]
3 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
4 [REDACTED] If you remember in Section A,
5 Appendix A, I reproduced some data that
6 shows when the users turned WAA and sWAA
7 off. So that information is obviously
8 useful also.

9 Q. [REDACTED] [REDACTED] [REDACTED] [REDACTED]
10 [REDACTED] I think I understand your
11 opinion now.

12 A. I just would point out, if you
13 look at 354, there is also some explanation
14 there of -- essentially I'm summing up the
15 prior paragraphs that talk about three
16 categories of information.

17 Q. Right. No, and I understand
18 those.

19 A. Okay.

20 Q. I do. Okay. Did you get a
21 chance to check whether you ever performed
22 a join of GAIA/non-GAIA log entries?

23 MR. MAO: As I stated, we would
24 do that when you are done. Sorry, I
25 just thought there would be some type

1 of a pissy fight over it. I know you
2 want to get out of here.

3 MR. SANTACANA: No, I
4 misunderstood.

5 Q. You are still using Google
6 Analytics on your website?

7 A. Yes.

8 Q. I can't remember if I asked
9 this, do you know if the data sharing
10 setting is turned on?

11 A. I don't remember.

12 Q. Do you know if Google Signals
13 is turned on?

14 A. I don't remember. I mean, if
15 there is some data sharing thing -- my
16 recollection on that one is that there was
17 some setting which allowed essentially
18 Google's staff to go in there and take a
19 look and use that to counsel me, and I
20 don't recall if I have turned that off. I
21 mean, my nature would be to turn that off.
22 But I haven't looked at it lately.

23 Q. If your opinion in this report
24 is accurate, does that mean in your mind
25 that Google Analytics is actively deviating

1 from the SWAA description in users'
2 accounts when they turn it off?

3 MR. MAO: Objection to form.

4 Go ahead.

5 A. So I'm using GAIA on a website,
6 I'm not using it on an app.

7 Q. Right. No, I understand. I
8 think you said it's all unified now?

9 A. Yes, I believe that it is
10 moving towards that, but I just haven't --
11 I honestly haven't looked at it lately. I
12 have been sort of working on these cases
13 and not looking at my own web marketing.
14 So at some point I will sit back and
15 reevaluate like do I want to continue using
16 this product or not. But I can wait for
17 the Court to render an opinion about
18 whether Google has done something wrong or
19 not. I mean, I have my feelings, but I
20 will also defer to the Court and let the
21 Court decide.

22 Q. Okay. But, I mean, your
23 feelings have not risen to the level of
24 feeling like you need to discontinue your
25 use of Google Analytics immediately?

1 A. The thing is I use all of
2 Google's risky, privacy-invading products.
3 I mean, I use some Google Home products. I
4 use all kinds of Google stuff, because I
5 also want to know how it works. I use
6 Google Analytics because I also want to
7 keep on top of how it works. So I'm doing
8 that and also --

9 Q. Even at the cost of your
10 website visitors' privacy?

11 A. You know, my website visitors
12 who have privacy concerns have probably
13 much bigger concerns than what's going on
14 on my website, because my website is
15 targeted towards law firms, so the main
16 visitors to my site are lawyers. I have
17 some people come in to read articles on web
18 marketing.

19 I don't -- I am not here to
20 tell the Court what final decision should
21 be made. I've got my technical analysis,
22 I've got my beliefs, I'm using Google
23 Analytics because I have been using it
24 since 2005, and I just haven't spent the
25 time to figure out what other product I

1 could use that would fill that need,
2 because Google Analytics has kind of driven
3 most of the other products out of the
4 market. There is not really a lot of
5 choices for me. I'm open to your
6 suggestion, if you think there is some
7 other analytics package I can use, but I'm
8 not sure where else I could go.

9 Q. Well, I'm just trying to
10 understand how to square your opinion about
11 the privacy risks that users are facing as
12 a consequence of the way Google treats
13 SWAA-off data on the one hand and your
14 decision to continue to expose people to
15 those risks on the other. I mean, you have
16 said one single piece of data could ruin
17 somebody's life.

18 A. Yes.

19 Q. You don't disagree with that
20 now?

21 A. No.

22 Q. So you're okay taking that
23 risk?

24 A. People who have -- I have
25 documented here that people are spending

1 like four hours a day in apps and they are
2 using lots and lots of apps --

3 Q. But it could be your site that
4 gets hacked?

5 A. Well, I don't have an app.

6 Q. I understand. But it still
7 could be your site that gets hacked?

8 A. But my site doesn't have any
9 sensitive information from my visitors. I
10 don't record any sensitive information on
11 my site.

12 Q. You have tracking pixels on
13 your site, right?

14 A. And the tracking is done by
15 Google Analytics. Google is holding that
16 data.

17 Q. Okay.

18 A. And I don't think that that
19 materially increases anyone's risk, because
20 the amount of -- percent of browsing that
21 someone does when they come on the web on
22 my site is minuscule as a part of their
23 total browsing, their total risk profile,
24 okay? Because Google Analytics beacons are
25 located everywhere. They are all over the

1 place. Me taking that beacon off my
2 website does not materially reduce any
3 person's risk.

4 Q. Okay.

5 A. Because there is so many
6 beacons everywhere else.

7 MR. SANTACANA: All right.

8 Let's take a quick break.

9 THE VIDEOGRAPHER: The time is
10 7:16 p.m. We are off the record.

11 (Recess taken.)

12 THE VIDEOGRAPHER: The time is
13 8:03 p.m. We are back on the record.

14 MR. SANTACANA: So I'm passing
15 the witness.

16 EXAMINATION BY MR. MAO:

17 Q. So, Mr. Hochman, I just want to
18 make sure, you were given a number of
19 questions during this deposition regarding
20 whether or not you could find things like
21 your joinability analysis, whether or not
22 IP addresses were being collected, you
23 know, what the retention periods were for
24 permanent logs versus nonpermanent logs.
25 You agree a lot of that is either written

1 in your report or written in the appendix
2 to the report, correct?

3 A. Yes.

4 Q. You understand that the Exhibit
5 No. 1 that was provided to you is actually
6 an incomplete copy of your report, I'm not
7 pointing fingers, I'm just saying that it
8 was missing some parts of the appendices;
9 is that correct?

10 A. Yes, some of the appendices
11 weren't here because they were Excel files.

12 Q. Which appendices were not in
13 here?

14 A. One of them was H2.

15 Q. Any others that you saw?

16 A. Well, probably H1 wasn't in
17 there either.

18 Q. So there is a number of
19 appendices missing in there, correct?

20 A. Yes. And let's see. Yeah, the
21 H1s are not there, all of the H appendices
22 are not there.

23 MR. SANTACANA: And you want me
24 to just read out which ones are there?
25 When I first introduced it I explained

1 the native files wouldn't be in there.
2 So Exhibit A, Appendix E, Appendix G,
3 Appendix I, Appendix K, and Appendix L
4 are in this paper volume that I handed
5 you at the start of the day.

6 MR. MAO: I think the problem
7 is just we are going to have to make
8 that a part of the record because
9 what's in the record is just the core
10 report itself.

11 Q. In other words, you only had in
12 front of you during the examination
13 selected parts that counsel was going to
14 use, but some of the other stuff that you
15 needed in order to fully refresh your
16 recollection wasn't available to you; is
17 that correct?

18 A. Yes.

19 Q. Okay. And then you believe
20 that once you have those available, you are
21 going to be able to answer some of the
22 previous questions; is that correct?

23 A. Yes.

24 Q. Okay. Second area of
25 questioning that I wanted to ask you, and

1 you can put I guess Exhibit 1 plus
2 appendices away for now.

3 A. Okay.

4 Q. Is you were asked a number of
5 questions today regarding joinability and
6 also, you know, reidentification of users?

7 A. Yes.

8 Q. Are those two concepts the same
9 thing?

10 A. No. They can operate in
11 different ways.

12 Q. Okay. So in terms of what you
13 understood what was being discussed back
14 and forth between you and counsel, how
15 would you define these respective terms in
16 your own words?

17 A. Sure. Joinability is if you
18 have two sets of data is there an
19 overlapping identifier or fingerprintable
20 fields that can be matched up in order to
21 link two tables together. It literally
22 joined two tables of data together. So you
23 have two tables and there is an identifier
24 in each table and now those tables can be
25 joined together using that identifier.

1 Q. Okay. What about
2 reidentification, is that different, the
3 same? How would you define that?

4 A. Reidentification is different.
5 If you have a record where some sort of
6 identifying information has been stripped
7 away, is there remaining data that can be
8 used to reestablish an identification of
9 that record. So that could be even just a
10 single table that's taken. If some
11 additional piece of information is supplied
12 the record may be reidentified.

13 So, for example, if there is a
14 table of app activity and it has some app
15 instance IDs in it, if there is a suspect,
16 and the suspect's phone is seized, the app
17 ID can be taken off the phone and that can
18 be used to reidentify that record and say
19 aha, this record belongs to this suspect,
20 because it has a matching instance ID in
21 it.

22 Q. You heard counsel previously
23 talk about how Google [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] Assuming that is true,

1 does that mean that Google is not able to
2 reidentify the user?

3 A. No, because Google, having
4 separated them, can also put them back
5 together. Even though they may have a
6 policy not to do that, they still have the
7 technical capability to do that, and they
8 might in fact do it under some sort of
9 external pressure or legal process.

10 Q. In your report you refer to a
11 number of things you called Google IDs; is
12 that correct?

13 A. Yes.

14 Q. Is Google able to reidentify
15 users who have been given a Google ID?

16 A. Yes.

17 Q. And that was part of your point
18 with regard to pseudonymous versus a name
19 and how pseudonymous does not necessarily
20 mean that it is less identifying than a
21 name, correct?

22 A. Yes, pseudonymous does not
23 mean --

24 MR. SANTACANA: Sorry,
25 objection, vague.

1 A. Pseudonymous does not mean
2 anonymous.

3 Q. You were previously asked a
4 number of questions regarding conversions,
5 and I heard in there conversions and ad
6 promo and also Google Ads. Am I correct in
7 understanding that in your report there was
8 more than one type of ad that was being
9 discussed with regard to conversions?

10 MR. SANTACANA: Vague.

11 A. Yes, so in mobile conversions,
12 there can be mobile app ads, app promotion
13 ads. We talked about two different kinds,
14 the app install ad and the app engagement
15 ad, and those can have conversions that are
16 tracked.

17 But there is something that is
18 even let's say more common and bigger,
19 there are display ads that appear inside of
20 apps and those can also lead to
21 conversions, okay? So that they track --
22 so, for example, someone is in an app, they
23 see a display ad, they click it, and some
24 data is recorded, the app interaction data
25 is recorded, and then later on that person

1 goes to the website of the advertiser and
2 makes a purchase, and that conversion is
3 recorded, okay? So there can be
4 conversions going out of the app world and
5 there can be conversions coming in to the
6 app world.

7 Q. Right. And then for display
8 ads, whether or not Google can attribute a
9 conversion event within the conversion
10 window absolutely makes a difference to its
11 bottom line; isn't that correct?

12 A. Yes. I have testified about
13 that, that if the conversions are not
14 trackable, then the advertiser won't want
15 to pay for the ad.

16 Q. When you say pay for the ad,
17 how are the different ways in which an ad
18 can be paid?

19 A. The ad --

20 Q. And I'm talking about display
21 ads, not, you know, like a search ad or
22 something else that may be a nondisplay ad
23 within the network.

24 A. Well, so it gets complicated
25 because display ads can be paid for. In

1 the past there have been methods of bidding
2 on them by paying for the click or paying
3 for a thousand impressions or paying for a
4 conversion, and there is also automated bid
5 strategies which I think I have documented
6 in one of these appendices that the
7 automated bidding is a heavily-used
8 feature, which is only available in fact if
9 you use the Google Analytics for conversion
10 tracking. So there are a variety of ways
11 to pay.

12 But for the advertiser,
13 commonly conversions are the key
14 performance indicator of the advertising
15 campaign, is it converting. And if
16 conversions are not tracked, then the
17 advertiser is not going to want to pay for
18 the ads.

19 Q. So in your experience, have you
20 seen within Google's display ad system a
21 Google customer allowing a third-party
22 attribution to be the ultimate verifier as
23 to whether or not that advertiser would pay
24 Google or not?

25 A. I haven't seen that. For the

1 automated bid strategies, you have to use
2 Google Analytics.

3 Q. Probably my last area before I
4 turn it back to Mr. Santacana, and then I
5 will reserve my right to do a redirect,
6 with regard to the class members in this
7 case, whether they have WAA off or not,
8 Google treats them all the same with regard
9 to whether or not that data is collected;
10 is that correct?

11 MR. SANTACANA: Vague.

12 A. Yes. When a user has WAA
13 and/or sWAA off, they are all treated the
14 same way. Google collects the data
15 regardless for all the people.

16 Q. Actually, I have one more
17 question. You reviewed Mr. Black's report;
18 isn't that correct?

19 A. Yes.

20 Q. Did you see Mr. Black do any
21 type of sampling across Google's data at
22 all?

23 A. No.

24 MR. MAO: Back to you,
25 Mr. Santacana. I reserve my right to

1 do a further redirect.

2 EXAMINATION BY MR. SANTACANA:

3 Q. Mr. Hochman --

4 MR. MAO: By the way, if you
5 are looking at appendices that is not
6 part of what you give him --

7 MR. SANTACANA: I'm not.

8 MR. MAO: I ask that you put
9 that in the record. Thank you.

10 Q. I have a question about one of
11 the last questions you were just asked.
12 The question was "Have you seen within
13 Google's display ad system a Google
14 customer allowing a third-party attribution
15 to be the ultimate verifier as to whether
16 or not that advertiser would pay Google or
17 not?"

18 I have to confess, I don't
19 understand that question. Your answer was
20 "I haven't seen that. For the automated
21 bid strategies, you have to use Google
22 Analytics."

23 A. Right. In other words, if you
24 are paying for conversions or acquisitions
25 app, you know, if you have -- if you are

1 trying to pay for an acquisition, CPA, you
2 have to use Google Analytics to track that
3 conversion. I'm not aware of Google
4 accepting third-party conversion data for
5 that purpose. And also, likewise, for the
6 automated bidding, you have to use Google
7 Analytics to take advantage of automated
8 bidding.

9 Q. I see. So what you are saying
10 is that there are certain types of methods
11 of bidding or measuring performance of ad
12 campaigns that Google only permits
13 advertisers to do when they are using
14 Google Analytics?

15 A. Yes.

16 Q. And there are other types where
17 they can use Google Analytics or something
18 else?

19 A. Yes.

20 Q. Okay. I understand now. All
21 right.

22 Mr. Mao asked you about
23 appendices that are not in this paper
24 volume I handed you at the start of the
25 day, right?

1 A. Yes.

2 Q. And I think he asked you
3 something like once you have those other
4 appendices, you are going to be able to
5 answer some of the previous questions you
6 weren't able to answer, and you said yes.
7 Do you recall that?

8 A. Yes.

9 Q. I just want to be clear,
10 because I don't want to have to spend
11 another seven hours with you, you are not
12 saying that any question you weren't able
13 to answer today you could somehow magically
14 answer if I give you all of the Excel
15 files, right?

16 MR. MAO: Objection,
17 argumentative. Go ahead, answer.

18 A. There were certain questions,
19 there were select questions where if I were
20 to have those in front of me I would be
21 able to answer them.

22 Q. Which ones?

23 MR. MAO: Can we just say the
24 ones that he said he wanted to look at
25 the appendices?

1 Q. So there was a question about
2 have you ever performed a join.

3 A. Yes, and that is in Appendix
4 H2, and while we were off the record I
5 showed you that file and showed you how
6 that worked and I think you accepted my
7 explanation.

8 Q. And there was a question about
9 IP addresses.

10 A. Yes, and I think I pointed
11 to --

12 Q. Just yes or no, please.

13 A. I'm sorry.

14 Q. That was -- I'm just trying to
15 get the list. That's another question you
16 could have answered if you had had the
17 Excel spreadsheets?

18 A. I think so.

19 Q. Okay. And then --

20 A. I haven't seen them yet so I'm
21 not 100 percent sure, but I did mention the
22 IP address question, I did have a reference
23 to it in the report, so I think if you look
24 around there, it may actually have the
25 actual appendix that we need.

1 Q. Okay. And we will get to that.
2 You're not representing that, apart from
3 those two questions you had promised to
4 look into, and we'll look at the Excel
5 sheets, there aren't any other questions
6 today that you said I don't know or I can't
7 answer that where you're now representing
8 if you had the Excel sheets you could now
9 answer them?

10 A. I'm not sure I should be closed
11 off there, because there might be something
12 else we're just not thinking of right now.
13 But essentially if later on you were to
14 come in some motion and assert Mr. Hochman
15 didn't know the answer to this question and
16 then we answer and say well, the answer is
17 right here in this document that wasn't
18 shown to him during the deposition, you
19 should accept that.

20 Q. See, there is a problem with
21 that, which is at any point today you could
22 have said the answer is in this part of my
23 report and if I checked it I could give you
24 the answer. So now I have to comb the
25 record to find every time you said I don't

1 know and determine whether or not that was
2 because you didn't have Excel sheets in
3 front of you or if that was because you
4 don't know and you are closing yourself off
5 as to your knowledge, which I think you did
6 legitimately as to a number of things.

7 So I just -- I'm kind of stuck
8 in a difficult position here where you are
9 ending this seven-hour deposition by saying
10 well, if you had just given me some stuff
11 that I authored that you didn't give me
12 then I could answer all your questions.

13 So I have got a list of two
14 questions. Can you think of any other
15 questions that you weren't able to answer
16 today but if I were to hand you the other
17 appendices of your report which are Excel
18 spreadsheets that you would now be able to
19 answer them?

20 A. It is difficult for me to
21 answer that question without having those
22 sheets in front of me to remind me what's
23 in them, because I'm not looking at them
24 and I don't recall off the top of my head
25 what's in, is it B and C and --

1 Q. Okay. So you want me to just
2 mark all of them and then you're going to
3 look at them to see if there is any
4 other -- because, look, you and your
5 lawyer, right, you talked about what you
6 were going to do for this redirect. This
7 doesn't need to be overly complicated. I
8 just need to understand if you came in here
9 to talk about these two questions in
10 Appendix H2 or if you are reopening the
11 entire deposition.

12 MR. MAO: And just to be clear,
13 this, like what's in the appendices, is
14 not something that we knew until he
15 started looking through everything and
16 trying to take an inventory.

17 MR. SANTACANA: I'm not saying
18 you are trying to trick me. I'm saying
19 it is his expert report, not mine.

20 MR. MAO: Well, yeah, come on.
21 It is part of the preliminary
22 instructions that this is not a memory
23 test. So let's try to find a way to
24 fix it. How do you propose that we fix
25 it?

1 A. I think you can look at the
2 record and there are times where I said I
3 don't know or I don't have a way to do
4 that. There are some that are pretty clear
5 that it is just I don't know.

6 Q. I agree.

7 A. There are some that I think it
8 is in there somewhere, it may be in the
9 report, and I can't find it. So if I said
10 it may be in the report and I can't find it
11 that is indicating that it might be in one
12 of these pieces that hasn't been introduced
13 yet, and I think I was pretty clear when I
14 answered to distinguish between I don't
15 know versus I think it may be somewhere in
16 there, and if it's in the report, it is,
17 and I don't know exactly where it is. So I
18 gave two different kinds of answers, so I
19 think you can look at that and it should be
20 pretty clear.

21 Q. Okay. I will -- I will think
22 on that. Thank you for that answer. I
23 appreciate it.

24 MR. MAO: I'm totally fine with
25 taking a break so that if you want to

1 get that in order.

2 MR. SANTACANA: Yeah, let's go
3 off for a second.

4 THE VIDEOGRAPHER: The time is
5 8:20 p.m. We are off the record.

6 (Recess taken.)

7 THE VIDEOGRAPHER: The time is
8 8:23 p.m. We are back on the record.

9 BY MR. SANTACANA:

10 Q. Mr. Hochman, I have uploaded
11 all of these Excel files that were part of
12 your report, I think. I have done my best
13 anyway. None of them are currently marked.
14 I just threw them all in that marked
15 exhibits folder. We will deal with that
16 later. But you can see their titles. Some
17 of them are quite voluminous. What I want
18 you to do is just take a look at their
19 titles for a moment to refamiliarize
20 yourself with what each one is.

21 A. Yes.

22 Q. Let me know when you're done.

23 A. Okay.

24 Q. Okay. Sitting here right now,
25 can you recall any questions from the day

1 that you were unable to answer that you
2 would now be able to answer given your
3 access to these Excel files other than the
4 two questions you already listed for me?

5 A. Nothing immediately comes to
6 mind.

7 Q. Okay. So we will get to H2 in
8 a minute. You had a colloquy with your
9 attorney about reidentification as
10 distinguished from joinability.

11 A. Yes.

12 Q. I understand the difference, I
13 think, of what you defined to be
14 reidentification is what you defined to be
15 joinability.

16 My question is, that definition
17 of reidentification doesn't appear, I don't
18 think, in your report, or really any
19 mention of it in your own words, though you
20 do quote one witness as using the word. So
21 I'm trying to just process like in your
22 mind what relevance does that distinction
23 have to your expert opinions in the case.

24 A. Well, throughout the day today
25 I haven't been using that word because it

1 is a little bit jargony.

2 Q. Well, and because you didn't
3 use it in your report.

4 A. Well, but I talked about -- I
5 talked about it. I talked about the idea
6 that the data that includes identifiers
7 someone can extract an identifier from a
8 phone and they can now match it to the
9 data. So joinability is like taking two
10 pieces of data and putting them together,
11 whereas reidentification is you have some
12 external source of knowledge and you
13 combine it with a piece of data and now you
14 have reidentified the data.

15 Q. Got it. Are you opining in the
16 case that Google has engaged in
17 reidentification of SWAA data?

18 A. No, I'm not saying that Google
19 is doing this. I'm assuming that Google
20 has the best intentions here, but that the
21 problem is from threat actors or external
22 pressure applied to Google. Some foreign
23 government goes and puts pressure on Google
24 to release some data or something else
25 happens that causes that data to go out of

1 Google's control and somebody else is
2 exploiting it, and of course, I mean, there
3 is always insider risk, and maybe Google
4 changed its policy, maybe Google is nice
5 today but they become evil in the future.

6 Q. Okay. So on that subject, you
7 said something about Google having
8 separated them, "them" being I guess GAIA
9 logs and non-GAIA logs, they can put them
10 back together. Do you recall that?

11 A. Yes.

12 Q. And I think you said, for
13 example, under some type of legal pressure.
14 Do you recall that?

15 A. That's a possibility, sort of a
16 risk as a security technologist that one
17 would analyze and recognize.

18 Q. Just to be clear, you do not in
19 this case render the opinion that Google
20 has for any particular member of the class
21 or named plaintiff put them back together
22 under legal pressure or for any other
23 reason?

24 A. No, I haven't given that
25 opinion.

1 Q. Okay. Then you guys talked
2 about mobile app ads and display ads. I
3 just want to clarify something. So mobile
4 app ads is a buy-side concept, right, it is
5 a type of ad campaign that an ad buyer
6 would run?

7 A. Yes.

8 Q. And then when you were talking
9 about display ads, was that whole back and
10 forth about from the sell side perspective,
11 if you are selling space in your app?

12 MR. MAO: Objection to the form
13 of the question. Go ahead.

14 A. Yeah. So I think that's a very
15 nice way of putting it, that as an app
16 publisher, you could be a buyer of
17 advertising and want to track conversions
18 for your campaigns to drive people into
19 your app and use it, but you also could be
20 hosting ads within your app and that
21 conversion needs to be tracked for those
22 ads so that the advertiser is willing to
23 continue paying for that space.

24 Q. Right. And I think if you
25 could look at paragraph 281 of your main

1 report, you outline two attribution
2 scenarios. Does that ring a bell?

3 A. Yes, so that I think roughly
4 corresponds to these two scenarios.

5 Q. Okay. So I think, then, what
6 you're saying is from the sell-side display
7 ad perspective, like AdMob as an example of
8 display network on the sell side, from that
9 perspective, the measurement that is
10 occurring is the measurement of the ad
11 render or click or impression, right, even
12 if -- even if that ad buyer uses something
13 other than analytics to measure
14 conversions?

15 MR. MAO: Objection, incomplete
16 hypothetical, misstates his testimony,
17 incomplete. But go ahead.

18 Q. If I'm confused, please
19 straighten me out.

20 A. You might be. I'm not sure I
21 fully understand it.

22 Q. Okay.

23 A. So maybe you want to reask
24 that.

25 Q. Well, scenario 1, "When an ad

1 is served through the GMA SDK in a
2 third-party publisher app, Google's ability
3 to connect this ad with a later conversion
4 event relies on Google's collection of app
5 ads data (ad impressions, clicks and
6 similar data) via the GMA SDK and the
7 saving of this data in its logs for later
8 attribution."

9 Do you see that?

10 A. Sorry, I just stumbled across
11 the answer to another unanswered question,
12 so I was distracted. I'm very sorry.

13 Q. That's all right. Enlighten
14 me.

15 A. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

1 these are some of the ones I was thinking
2 of.

3 Q. Those are all GAIA logs, right?

4 MR. MAO: [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED]

8 Q. Right. The ones that are
9 listed as [REDACTED] --

10 MR. MAO: [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED].

15 MR. SANTACANA: Oh, [REDACTED] [REDACTED] [REDACTED]
16 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED].

17 MR. MAO: [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED].

19 MR. SANTACANA: Got it, okay.
20 Let's stick with that for a second. We
21 will come back to 281.

22 Q. [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

1
2
3
4
5
6
7
8
9
10

[REDACTED]

[REDACTED] ?

A. I haven't found it yet, but yeah, I take your word for it. Yeah, I see them, sorry, at the bottom -- at the top of the next page.

Q. Okay. So in terms of identifying class members with respect to the GMA SDK, collecting and saving sWAA-off data, your proposal would be to [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]

9 THE VIDEOGRAPHER: Just a heads
10 up, Counsel, ten minutes remaining.

11 MR. SANTACANA: Thank you.

12 Q. So let's look at 281.

13 A. Okay. Sorry about my
14 distraction there.

15 Q. That's all right. Paragraph
16 281, we were talking about ad impressions,
17 clicks and similar data in scenario 1.

18 A. Yes.

19 MR. MAO: I thought that was
20 scenario 2. That's okay, whatever you
21 want to ask.

22 Q. And then scenario 2 appears to
23 be focused on analytics data and the
24 recording of a conversion event as opposed
25 to an ad interaction; is that fair to say?

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1 A. Hold on. Let me just read it,
2 because it has been a long day.

3 (Witness perusing document.)

4 A. So this is -- scenario 2 is a
5 conversion coming in to app world and
6 scenario 1 is an ad served in the Google
7 Mobile Ad SDK, or via the Google Mobile Ad
8 SDK, which then converts somewhere else,
9 like on a publisher's web or app. So
10 someone sees an ad, for example, for Amazon
11 and they go to the Amazon website or the
12 Amazon app and make a purchase.

13 Q. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

23 Q. Sure.

24 (Witness perusing document.)

25 A. It is a little bit hard to see

1 on this tiny screen. Let me see if I can
2 open -- I might need to download this and
3 open it in Excel. Let me do that. Because
4 in Exhibit Share it's not clear enough.
5 Okay, I'm getting nagged by Microsoft.
6 Yes, this is it.

7 Q. There is something like, I
8 don't know, a dozen joins in here I think,
9 a dozen pairs that you lined up of data.
10 Do you see what I'm talking about?

11 A. I mean, I'm not sure that the
12 count is exactly right, because, okay, so
13 there's three lines per pair and it starts
14 at line 2 and it goes down through line 69,
15 so maybe there's more than that.

16 Q. Okay.

17 MR. MAO: Sorry, time check
18 real fast?

19 THE VIDEOGRAPHER: Total time,
20 five minutes and nine seconds
21 remaining.

22 Q. So you received data from
23 Google that was quite voluminous relating
24 to your test devices, I think that's what
25 you call it in your report. Was this all

1 of the joins you were able to perform or
2 did you stop trying at some point once you
3 hit a certain threshold?

4 A. I mean, these are the -- these
5 are the joins that we did here and I'm just
6 taking a quick look at the data to refresh
7 my memory. I mean, I think these are the
8 ones that we were able to do.

9 Q. I noticed that in column F you
10 have under WAA/sWAA, it is listed as on for
11 all of these joins. Do you see what I'm
12 talking about?

13 A. I see that.

14 Q. Were you able to perform any
15 joins of GAIA and non-GAIA data for
16 sWAA-off data?

17 A. I think I would have to go back
18 and review everything again to clarify
19 that. I'm sorry, I just -- I need to dig
20 through this again to refresh my memory.

21 Q. Okay. But this does not
22 document any sWAA-off joins that you were
23 able to perform, right?

24 MR. MAO: Objection, misstates
25 the document. Go ahead.

1 A. Just let me have another minute
2 with this, okay?

3 Q. Well, let me ask you this a
4 different way for a second. If you're
5 trying to perform a join at the event level
6 as you've done here, matching up two events
7 in two different logs to each other, right,
8 one in a GAIA log, one in a non-GAIA log,
9 isn't it by definition only possible if the
10 event was a SWAA-on event, because if it
11 was a SWAA-off event it wouldn't be in a
12 GAIA log?

13 A. Yes, of course. If SWAA is off
14 it's not going to be in a GAIA log. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] Now, if

18 someone has WAA and SWAA on and they do
19 some activity and this is logged in both
20 places, now it can be joined.

21 Q. Right.

22 A. Now, if they turn WAA and SWAA
23 off --

24 Q. Then subsequently they could be
25 reidentified?

1 A. Subsequently they could be
2 reidentified because there will be an
3 overlap between the different entries.

4 Q. So your project here was to
5 show that you could create a mapping
6 between GAIA and device ID?

7 A. Yes, and that later could be
8 used to reidentify other stuff after SWAA
9 had been turned off.

10 Q. Now this is from the [REDACTED]
11 [REDACTED] [REDACTED], right? Look at the title.

12 A. Yeah, hold on a second. Yes.

13 Q. Now, you're aware that Google
14 altered the [REDACTED] [REDACTED] [REDACTED]
15 specifically for this litigation in order
16 to provide you with these pseudonymous
17 entries, device IDs otherwise encrypted in
18 that log, right?

19 A. Yes. Of course Google,
20 whatever they encrypt, they can also
21 decrypt.

22 Q. Well, actually, I don't know
23 that that's exactly correct. Google
24 altered the way this data was logged ex
25 ante and then you started your experiment

1 process, and only during that time, because
2 there was a special field that referred to
3 the Rodriguez litigation in the log, was
4 Google even able to give you those entries.

5 A. Yes, so this is getting deeper
6 and probably I need to go back and read
7 everything around this to make sure I
8 have -- to make sure I have it clear. I
9 don't know that in the next three minutes
10 I'm going to get clarity for you.

11 MR. MAO: Do you want to save a
12 minute or two? Because I'm going to
13 have questions.

14 MR. SANTACANA: What's that?

15 MR. MAO: Do you want to save a
16 minute or two? Because I'm going to
17 have questions on these two areas you
18 are asking about. I'm just letting you
19 know. Your choice.

20 MR. SANTACANA: I don't
21 understand what you're saying. You are
22 saying you want me to ask more
23 questions after you ask questions?

24 MR. MAO: It's up to you. I
25 have got two questions on your

1 questions.

2 MR. SANTACANA: Sure, go for
3 it.

4 EXAMINATION BY MR. MAO:

5 Q. All right, sorry, so back on
6 the record, this is Mr. Mao.

7 On this issue of
8 reidentification, I just want to make sure
9 I understand. You agree there is a
10 difference between trying to map two
11 tables, i.e. join, versus reidentifying a
12 user, right?

13 A. Yes.

14 Q. When a user has a persistent
15 identifier, regardless of whether we call
16 it a pseudonymous identifier or not, that
17 user can be readily reidentified, right?

18 MR. SANTACANA: Vague,
19 incomplete hypothetical.

20 A. It is often the case that the
21 user can be reidentified. It is not
22 necessary to do a join to reidentify them.

23 Q. Okay. And that is a point in
24 which you made in the report and that you
25 believe you made clear today in this

1 deposition; is that correct?

2 A. Yes.

3 Q. Second thing, Mr. Santacana
4 asked you a number of questions regarding
5 the buy/sell side of app promo and display
6 ads, assuming that they are -- let's just
7 assume that they are different, okay? You
8 agree in both of those transactions there
9 is both a buy and a sell side on both
10 sides?

11 A. Yes.

12 Q. Okay. So when we're talking
13 about display ad side, yes, the app
14 developer is tracking attribution for ads
15 that are sold but there is also an
16 advertiser that's tracking -- or being
17 given tracking, right, for the app, sorry,
18 for the ad that was bought; isn't that
19 correct?

20 A. Yes.

21 Q. Okay. And Google is tracking
22 both of those transactions when we are
23 talking about things like AdMob, for
24 example; is that correct?

25 A. Yes.

1 Q. So when we were asking
2 questions regarding the ability to do
3 attributions and we were asking about
4 whether or not Google would allow a
5 third-party competitor to come in and do
6 the attribution, you understood that that
7 applied equally to the buy and sell side
8 for display ads; is that correct?

9 A. Yes.

10 Q. Okay. So here is the reason
11 why I'm asking this, okay? For the
12 purposes of these conversion measurements,
13 whether it be on the buy side or the sell
14 side, okay, what is your typical conversion
15 window for a display ad as to when, for
16 example, you can have a conversion by
17 action, a cost per action, CPA?

18 A. I mean, I think it may be
19 redefinable, but the typical window is
20 something like seven to 30 days. But I
21 think you maybe could change that too.

22 Q. Okay. So within that seven to
23 30 days, is there any doubt as to whether
24 or not Google reidentifies that user if
25 there is a conversion event?

1 MR. SANTACANA: Objection,
2 vague, misstates prior testimony.

3 Q. Okay. Well, I'm just going on
4 definitions right now, but go ahead.

5 A. Look, so if a user comes in and
6 clicks on an ad and then 15 days later they
7 convert, Google has to reidentify that user
8 in order to say oh, it's the same person
9 who clicked on this ad is the person who
10 has made the conversion.

11 Q. Okay. Last question and then I
12 will hand it back to Mr. Santacana for
13 whatever the remaining balance of his time,
14 give him a chance.

15 You were asked a lot of
16 questions today about ad personalization
17 and then we also talked about attribution,
18 okay? Is ad personalization for display
19 ads the same thing as ad attribution for
20 display ads?

21 A. No.

22 Q. How are they different?

23 A. Personalization is selecting an
24 ad for someone based on their, according to
25 Google's definition, based on some data

1 that is saved in their GAIA logs, in the
2 Google account, what Google calls the
3 Google account.

4 Ad attribution is tracking
5 conversions, and conversion can be
6 allocated to a single ad, but sometimes
7 conversions are allocated to a different
8 conversion attribution model to multiple
9 ads, because the person might click on
10 three or four ads and then convert and some
11 credit is given to each one of those ads.

12 Q. Okay. Just so that we
13 understand the significance of your word
14 "credit," and then I'm handing it off,
15 okay, handing you off, the difference in
16 credit to Google, their bottom line, right,
17 between an impression that's unattributed,
18 i.e. CPM, okay, just an impression that is
19 served, versus an attribution in which an
20 action is given, it could be millions of
21 folds in terms of the profit, right? This
22 is like a sliver of a cent versus dollars,
23 right? So the proportion between the two
24 in terms of attribution is millions of
25 times more; is that correct?

1 MR. SANTACANA: Calls for
2 speculation, incomplete hypothetical.

3 A. I have experience buying ads
4 and I will tell you that financial
5 institutions will pay \$300 CPA for a
6 qualified mortgage application, 350 maybe,
7 whereas CPMs, you know, people are paying
8 fractions of a penny to have an ad display.
9 So the ad that is displayed and nothing
10 happens is fractions of a penny. The ad
11 that is displayed, someone clicks and fills
12 out a mortgage application is worth \$350.

13 Q. And that is why ad attribution
14 is important for Google for the purposes of
15 conversions; isn't that correct?

16 A. Yes.

17 MR. MAO: Back to you.

18 EXAMINATION BY MR. SANTACANA:

19 Q. You disclaimed issuing any
20 opinion on what is important to Google.
21 Are you opining now on what is important to
22 Google?

23 A. I think that Google has said
24 that conversion tracking is very important.
25 That's part of the training that they have

1 given us over the years which I have taken
2 many times. Google says conversion
3 tracking is very important. It is one of
4 the unique defining features of the Google
5 ads program.

6 Q. But you are not opining as to
7 Google's intent?

8 A. I'm not opining, I'm only
9 opining about what they have said, what
10 they have told and taught, which is that
11 attribution and conversion tracking is very
12 important. It is a defining feature of
13 this kind of advertising.

14 Q. And you have done nothing in
15 this case to study the difference between
16 Google Analytics for Firebase and other
17 analytics SDKs, right?

18 MR. MAO: Objection, misstates
19 the documents. Go ahead.

20 A. My report doesn't address other
21 analytics packages.

22 Q. Have you, just while we're on
23 it, have you done anything to address other
24 ads packages, like from Meta?

25 A. My report does not talk about

1 Meta or other ads platforms.

2 Q. Looking back at Appendix H2 for
3 a second --

4 THE VIDEOGRAPHER: We're at
5 seven hours.

6 MR. MAO: Why don't you finish
7 your question.

8 MR. SANTACANA: Oh, you are not
9 going to give me your time?

10 MR. MAO: What do you mean?

11 MR. SANTACANA: The time you
12 used?

13 MR. MAO: No, no, did you count
14 my time?

15 THE VIDEOGRAPHER: No, it is
16 separate.

17 MR. SANTACANA: Oh, it is
18 separate.

19 MR. MAO: Don't question me on
20 goodwill. I could stop it here. I
21 want you to finish your question.

22 MR. SANTACANA: Well, I didn't
23 know he had separated your time.

24 MR. MAO: Go ahead, finish your
25 question.

1 Q. Were you able to perform any
2 joins like the ones in the tab we were
3 talking about in H2 using the named
4 plaintiffs' data, not test device data?

5 A. I have to go back to the record
6 and look and see, because, again, the
7 report speaks for itself.

8 MR. MAO: Your time is up.
9 Your time is up.

10 MR. SANTACANA: Well, he is
11 asking me for clarification.

12 Q. It says --

13 MR. MAO: Let me just get my
14 objection then. The report speaks for
15 itself. But go ahead and ask your
16 question.

17 Q. In H2 it says Android 1 and
18 Android 2 are the JH phones that you found
19 matches on GAIA and pseudonymous. Neither
20 of those were nomenclature you used for a
21 named plaintiffs' phone, right?

22 A. Correct.

23 MR. SANTACANA: Okay, that's
24 all I have.

25 MR. MAO: Thank you.

1 THE VIDEOGRAPHER: Stand by.

2 The time is --

3 MR. SANTACANA: I will just do
4 it on the record. I will designate
5 this attorneys' eyes only. Did you
6 want to cross-designate as to I think
7 very briefly we talked about one of the
8 named plaintiffs' e-mail addresss?

9 MR. MAO: Yeah, but you
10 already -- yeah, I mean, I'll agree to
11 that.

12 Sorry, just for the record, do
13 we have now all the appendices in
14 there? Can we just call that Exhibit
15 4?

16 MR. SANTACANA: 5 I think.

17 MR. MAO: 5, let's call it
18 Exhibit 5. Jointly?

19 MR. SANTACANA: All of them
20 are Exhibit 5.

21 MR. MAO: I'm fine with like
22 5A, B, C, D, that way you have them
23 all. Is that all right?

24 MR. SANTACANA: Sounds good.

25 MR. MAO: Thank you.

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(Hochman Exhibits 5A through 5J
marked for identification.)

THE VIDEOGRAPHER: Stand by.
The time is 8:53 p.m. and this
concludes today's testimony given by
Jonathan Hochman.

[TIME NOTED: 8:53 p.m.]

JONATHAN HOCHMAN

Subscribed and sworn to
before me this _____
day of _____, 2023.

Notary Public

CONFIDENTIAL - ATTORNEYS' EYES ONLY

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Exhibit 5J	Appendix J to Hochman report	388

(Exhibit 4 was retained by counsel.)

1 DIRECTIONS NOT TO ANSWER

2 Page Line

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5 REQUESTS

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CERTIFICATION

I, TODD DeSIMONE, a Notary Public for
and within the State of New York, do hereby
certify:

That the witness whose testimony as
herein set forth, was duly sworn by me; and
that the within transcript is a true record
of the testimony given by said witness.

I further certify that I am not related
to any of the parties to this action by
blood or marriage, and that I am in no way
interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set
my hand this 26th day of June, 2023.



TODD DESIMONE

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ERRATA SHEET
VERITEXT/NEW YORK REPORTING, LLC

CASE NAME: RODRIGUEZ v. GOOGLE
DATE OF DEPOSITION: 6/26/23
WITNESS' NAME: JONATHAN HOCHMAN

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JONATHAN HOCHMAN
SUBSCRIBED AND SWORN TO
BEFORE ME THIS ____ DAY
OF _____, 2023.

NOTARY PUBLIC
MY COMMISSION EXPIRES _____

1 EDUARDO SANTACANA, ESQ.

2 esantacana@willkie.com

3 June 29, 2023

4 RE: RODRIGUEZ vs. GOOGLE LLC

5 June 26, 2023, JONATHAN HOCHMAN, JOB NO. 5971096

6 The above-referenced transcript has been

7 completed by Veritext Legal Solutions and

8 review of the transcript is being handled as follows:

9 ___ Per CA State Code (CCP 2025.520 (a)-(e)) - Contact Veritext
10 to schedule a time to review the original transcript at
11 a Veritext office.

12 ___ Per CA State Code (CCP 2025.520 (a)-(e)) - Locked .PDF
13 Transcript - The witness should review the transcript and
14 make any necessary corrections on the errata pages included
15 below, notating the page and line number of the corrections.
16 The witness should then sign and date the errata and penalty
17 of perjury pages and return the completed pages to all
18 appearing counsel within the period of time determined at
19 the deposition or provided by the Code of Civil Procedure.

20 ___ Waiving the CA Code of Civil Procedure per Stipulation of
21 Counsel - Original transcript to be released for signature
22 as determined at the deposition.

23 ___ Signature Waived - Reading & Signature was waived at the
24 time of the deposition.

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1 ___ Federal R&S Requested (FRCP 30(e)(1)(B)) - Locked .PDF
2 Transcript - The witness should review the transcript and
3 make any necessary corrections on the errata pages included
4 below, notating the page and line number of the corrections.
5 The witness should then sign and date the errata and penalty
6 of perjury pages and return the completed pages to all
7 appearing counsel within the period of time determined at
8 the deposition or provided by the Federal Rules.
9 _x_ Federal R&S Not Requested - Reading & Signature was not
10 requested before the completion of the deposition.

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1 RODRIGUEZ vs. GOOGLE LLC

2 JONATHAN HOCHMAN (#5971096)

3 E R R A T A S H E E T

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24 WITNESS _____ Date _____

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate.

The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS
COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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