

EXHIBIT B

In The Matter Of:
Skyhook Wireless v.
Google

David Kotz, Vol. 2
October 14, 2011

Jones Reporting Company
Two Oliver Street, 8th Floor
Boston, MA 02109

JonesReporting
COMPANY

Original File 1014Kotz.txt
Min-U-Script® with Word Index

1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE DISTRICT OF MASSACHUSETTS

3 SKYHOOK WIRELESS, INC. *
4 vs. * Civil Action No.
5 GOOGLE INC. * 10-cv-11571-RWZ
6 *

7 VIDEOTAPED

8 D E P O S I T I O N

9 of

10 DAVID KOTZ, Ph.D. - VOLUME II

11 Taken on behalf of the Defendant on
12 Friday, October 14, 2011, at the
13 Holiday Inn Express,
14 White River Junction, Vermont.

15 APPEARANCES:

16 SAMUEL K. LU, ESQ., of the firm Irell & Manella, 1800
17 Avenue of the Stars, Suite 900, Los Angeles,
18 California, 90067-4276, appeared and represented the
19 Plaintiff.

20 SUSAN BAKER MANNING, ESQ., of the firm Bingham
21 McCutchen, 2020 K Street, NW, Washington, D.C.,
22 20006-1806, appeared and represented the Defendant.

23 VIDEODIRECTOR: Eric Fernald

24 COURT REPORTER: Lisa M. Hallstrom, RPR, CRR, CCP

25

(08:32:26-08:33:22)

1 (Commencing at approximately 8:32 a.m.)

2 **VIDEOGRAPHER:** On the record. Today is

3 October 14th, 2011. The time on the monitor is

4 8:32. We're here at the Holiday Inn Express

5 Hotel, White River Junction, Vermont, for a

6 continued deposition of David Kotz in the

7 matter of Skyhook Wireless versus Google Inc.

8 United States District Court, District of

9 Massachusetts, Number 10-CV-11571-RWZ.

10 The videographer is Eric Fernald. The

11 court reporter is Lisa Hallstrom.

12 Would counsel please introduce themselves

13 and state whom you represent today.

14 **MS. MANNING:** Good morning. Susan Baker

15 Manning of the firm Bingham McCutchen. I

16 represent Google Inc. in this action.

17 **MR. LU:** Samuel Lu of Irell and Manella.

18 I represent Skyhook Wireless, Inc.

19 E X A M I N A T I O N

20 **BY MS. MANNING:**

21 Q Good morning, Dr. Kotz.

22 A **Good morning.**

23 Q Do you understand that you are still under oath

24 after our break from the first session of your

25 deposition?

1 INDEX

2 PAGE

3 Examination by Ms. Manning 3

4 Examination by Mr. Lu 59

5 Signature Page 61

6 Certificate 62

7

8 EXHIBITS

9 PAGE LINE

10 1015 U.S. Paten Number 7474897 31 20

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

(08:33:23-08:34:42)

1 **A Yes, I do.**

2 Q And have you done anything more to prepare for

3 your deposition since we broke on Wednesday?

4 **A No.**

5 Q You have with you this morning, I notice, the

6 same green notebook, looks like the same green

7 notebook you had on Wednesday. Can I just ask what's

8 in it?

9 **A Let's see. So there's a copy of my declaration**

10 **and there's a copy of the four patents and there's my**

11 **vita.**

12 Q I wanted to ask you about arterial bias. Do you

13 know one way or another whether arterial bias was a

14 problem that was known prior to the invention of the

15 patents in suit?

16 **A Certainly I had never heard that term before. In**

17 **fact, I hadn't heard it before reading these patents.**

18 Q Okay.

19 **A I'm not aware of any -- I can't recall any papers**

20 **or trade literature I had seen that referred to that**

21 **concept.**

22 Q Okay. So you can't remember anything. Do you --

23 do you know one way or another whether it was a known

24 concept in the art prior to the inventions of the

25 patents in suit?

Page 5

(08:34:43-08:36:49)

1 **A No.**

2 **MR. LU:** Objection. Asked and answered.

3 **A No, I don't know.**

4 **Q** Are you aware of any other sources of information

5 besides the patents themselves and the prosecution

6 histories that we can look to to inform our

7 understanding of the term arterial bias?

8 **MR. LU:** Objection to the extent asked and

9 answered.

10 **A No, I don't know of any other literature or**

11 **information.**

12 **Q** Okay. With reference to Claim 1 of the 988

13 patent, you've got it there in your notebook and we

14 have also marked the 988 -- 988 patent as Exhibit

15 1007, could Claim 1 of the 988 patent cover a database

16 with calculated position information based on access

17 point readings that were gathered through war driving?

18 **MR. LU:** Objection. Vague. Ambiguous.

19 Foundation. Calls for speculation.

20 **A I -- you know, on a quick rereading of the claim**

21 **I would say not likely because war driving wouldn't**

22 **lead to reference symmetry or a reduction in arterial**

23 **bias of the calculated information.**

24 **Q** Why wouldn't it lead to reference symmetry?

25 **MR. LU:** Objection. Foundation. Vague

Page 7

(08:38:38-08:40:22)

1 **as driving all the streets and in an effort to observe**

2 **as many access points as possible from as many sides**

3 **as possible.**

4 **Q** And can you not cover all of the streets through

5 a war driving method?

6 **MR. LU:** Objection. Vague and ambiguous.

7 Foundation. Calls for speculation.

8 **A Like I said before, it's possible, but it's not**

9 **likely.**

10 **Q** And the likelihood depends on, among other

11 factors, at least the number of scanning vehicles

12 you -- you employed in your war driving project,

13 right?

14 **MR. LU:** Same objections.

15 **A Yes, it would correspond to that, and other**

16 **factors related to how well planned the scanning**

17 **drivers were.**

18 **Q** Can you -- can you practice the claimed invention

19 of the 988 patent, Claim 1, without planning a route?

20 **MR. LU:** Objection. Vague and ambiguous.

21 Calls for speculation.

22 **A I'm finding it difficult to think of any way you**

23 **could accomplish this without planning the route**

24 **because, otherwise, you wouldn't be able to say things**

25 **like so that the multiple readings have reference**

Page 6

(08:36:50-08:38:35)

1 and ambiguous. Calls for speculation.

2 **A I -- I think the -- most war driving data is**

3 **collected in an unstructured, unplanned way and so the**

4 **collection of access points that you've observed**

5 **wouldn't likely lead to reference symmetry.**

6 **Q** By your use of the word likely I take it you

7 would allow this, war driving could lead to reference

8 symmetry in the data?

9 **MR. LU:** Same objections.

10 **A It's possible but not probable.**

11 **Q** Okay. Do you have a way of ballparking that

12 likelihood?

13 **MR. LU:** Same objections.

14 **A Certainly not quantifying it, but I'll refer to**

15 **the common analogy of a monkey randomly typing on a**

16 **typewriter. Eventually he writes all of Shakespeare**

17 **so that there's always a chance that the data would be**

18 **collected in a sufficient way as to produce reference**

19 **symmetry, but it's unlikely.**

20 **Q** So what are the factors that would -- that would

21 lead to reference symmetry in the claimed invention

22 that would -- would not allow you to achieve reference

23 symmetry through war driving?

24 **A I think the invention describes a planned,**

25 **structured method of collecting the information, such**

Page 8

(08:40:25-08:42:06)

1 **symmetry and so that the calculated position avoids**

2 **arterial bias.**

3 **Q** So if I'm understanding you correctly, the taking

4 of multiple readings at locations around the access

5 point with the result that you achieve reference

6 symmetry and avoid arterial bias, the achievement of

7 those things depends on collecting the data in a

8 planned way?

9 **MR. LU:** Same objections.

10 **BY MS. MANNING:**

11 **Q** Is that a fair characterization of what you're

12 trying to tell me?

13 **A Reasonably fair. Of course, one would need to**

14 **think about what it means to be planned. So planning**

15 **could be preplanned from the start where you've mapped**

16 **out your entire route before you start driving. One**

17 **could imagine alternatives where you did some driving**

18 **and then looked to see what you had missed and then**

19 **went -- made a plan to go back and accomplish the**

20 **missed parts. So planning could be an ongoing**

21 **process, but it seems unlikely that you would**

22 **accomplish these goals without some conscious effort**

23 **to structure your scanning.**

24 **Q** Okay. I believe we looked on Wednesday at some

25 of the passages in the 988 patent that talk about

Page 9

(08:42:11-08:43:46)

1 planning a route. One of those that I know we looked
 2 at was column 8, lines 28 and following.
 3 **A That sounds familiar.**
 4 Q Okay. And you agree with me that that discusses
 5 the planning of a route?
 6 **A Yes.**
 7 Q Is there any place in the patent that talks about
 8 this, what you describe as sort of an ongoing plan or
 9 an iterative plan as opposed to preplanning the route?
 10 **MR. LU:** Objection. Vague. Ambiguous.
 11 **A Not that I recall.**
 12 Q Are there any reasons other than what we've been
 13 discussing why in your view war driving could not lead
 14 to reference symmetry?
 15 **MR. LU:** Objection. Vague. Ambiguous.
 16 Calls for speculation.
 17 **A So are you referring to reference symmetry --**
 18 Q Yes.
 19 **A -- is that your question?**
 20 Q Yes, sir.
 21 **A Okay. I can't think of any other reasons at this**
 22 **time.**
 23 Q Okay. And you gave us your view a few moments
 24 ago that war driving could not lead to the avoidance
 25 of arterial bias within the meaning of Claim 1 of the

Page 10

(08:43:49-08:45:38)

1 988 patent -- patent. Why is that?
 2 **MR. LU:** Same objections.
 3 **A Well, war driving would tend to concentrate on**
 4 **the arteries -- concentrate the scanning effort on the**
 5 **arteries and, thus, the data collected would be on the**
 6 **artery side, as it were, of the buildings and so that**
 7 **would tend to bias the calculated positions toward**
 8 **those arteries.**
 9 Q One of the things we discussed during your first
 10 session of your deposition was your view that at least
 11 some war drivers made an effort to systematically
 12 traverse areas in order to -- to have more complete
 13 scan data. Do you recall that discussion?
 14 **A Yes.**
 15 Q And given your view that -- that that constitutes
 16 war driving, why couldn't that kind of war driving
 17 avoid arterial bias?
 18 **MR. LU:** Objection. Vague. Ambiguous.
 19 Foundation. Calls for speculation.
 20 **A I think in that case if the war drivers were**
 21 **making plans to cover all of the streets, then in**
 22 **effect they would be practicing this invention. I**
 23 **know it's a question of terminology, right? What is**
 24 **war driving and what is -- what is not.**
 25 Q You have anticipated my follow-up question.

Page 11

(08:45:41-08:47:28)

1 **A Okay.**
 2 Q So can you -- could you describe for me, you
 3 know, the distinction you are -- you are drawing
 4 between war drivers who would be planning a route and
 5 systematically scanning an area versus someone who is
 6 practicing the claimed invention or is there no
 7 distinction?
 8 **MR. LU:** Objection. Compound. Vague.
 9 **A Well, I think the -- the term war drivers**
 10 **generally means to me a collection of uncoordinated**
 11 **volunteers who are not necessarily coordinating with**
 12 **each other or necessarily themselves planning their**
 13 **scanning efforts, but among this -- there may be a**
 14 **subset of those, as you implied, that are planning**
 15 **their routes or perhaps coordinating their efforts,**
 16 **and in that case I think they would be doing something**
 17 **similar to what's in this patent.**
 18 Q So back to my original question, which was Claim
 19 1 of the 988 patent cover a database that has
 20 calculated position information based on access point
 21 readings that were gathered through war driving?
 22 **MR. LU:** Objection. Vague. Ambiguous.
 23 Foundation. Calls for speculation. Asked and
 24 answered.
 25 **A Well, my answer doesn't really change. It's the**

Page 12

(08:47:32-08:49:14)

1 **same question and it relates to how one defines war**
 2 **driving.**
 3 Q Okay. So your definition of war driving is --
 4 isn't -- is necessarily an unplanned approach to
 5 scanning data, is that fair to say?
 6 **A Generally, yes.**
 7 Q Okay. Anything else important to your -- your
 8 own definition that you're using as we talk here today
 9 to what constitutes war driving?
 10 **A Not that I'm conscious of.**
 11 Q Okay. And when we talked during the last session
 12 of your deposition you drew a distinction between war
 13 driving and the random model -- the random method of
 14 data collection that's discussed in the patent. Could
 15 Claim 1 of the 988 patent cover a database that has
 16 calculated position information based on access point
 17 readings that were gathered through the random method?
 18 **A No, and for largely the same reasons.**
 19 Q Okay. Any different reading -- reasons or
 20 exactly the same as what we've been discussing?
 21 **MR. LU:** Objection. Vague and ambiguous.
 22 **A So I was thinking of the same reasons, the fact**
 23 **that the random model wouldn't lead to reference**
 24 **symmetry or avoiding arterial bias.**
 25 Q And is that because it's -- does not employ

Page 13

(08:49:19-08:51:04)

1 planned routes?

2 **A Yes. The random model doesn't employ any**

3 **planning as they describe it in here.**

4 **Q Any other reasons why the random model could not**

5 **lead to a database consistent with Claim 1 of the 988**

6 **patent?**

7 **A Well, as they presented it in the specification,**

8 **the random model places scanners on, for example,**

9 **taxis and delivery vans and so forth, and those**

10 **vehicles tend to concentrate their efforts on the**

11 **arteries and may not cover all of the streets, likely**

12 **wouldn't, and so they would end up with arterial bias**

13 **and so they wouldn't accomplish the goals of Claim 1.**

14 **Q Okay. The questions I've just been asking you**

15 **about war driving and the random model have been**

16 **directed to Claim 1 of the 988 -- 988 patent, and I'd**

17 **like to ask you about Claim 1 of the 694 patent. The**

18 **694 patent we have marked as Exhibit 1010. Do you**

19 **have it there, sir?**

20 **A Yes.**

21 **Q So could Claim 1 of the 694 patent cover a**

22 **database that has calculated position information**

23 **based on access point readings that were gathered**

24 **using war driving?**

25 **MR. LU: Objection. Vague and ambiguous.**

Page 14

(08:51:06-08:53:04)

1 Foundation. Calls for speculation. Also

2 object to the extent it's been asked and

3 answered.

4 **A No. It's -- it has the same problem. War**

5 **driving would have the same -- would result in the**

6 **same problems in this case as well.**

7 **Q Okay. So -- so your answer is no, and for the**

8 **same reasons we've discussed with respect to the 988**

9 **patent?**

10 **A Yes.**

11 **Q Any different reasons?**

12 **A No, not -- not at first glance.**

13 **Q If you -- if you want a minute to think about it,**

14 **I'm -- I'm happy to give you that minute.**

15 **A No.**

16 **Q Okay. Could Claim 1 of the 694 patent cover a**

17 **database that has calculated position information**

18 **based on access point readings that were gathered**

19 **through the random method?**

20 **MR. LU: Objection. Vague and ambiguous.**

21 **Calls for speculation. Foundation. Also**

22 **object to the extent it's been asked and**

23 **answered.**

24 **A No, and for the same reasons.**

25 **Q With respect to Claim 1 of the 694 patent, I'd**

Page 15

(08:53:15-08:55:37)

1 like to ask you a hypothetical question about that.

2 I'm a competitor. Like not to get sued by Skyhook.

3 I'd like to design around Claim 1 of the 694 patent

4 and, in particular, I'd like to not meet the avoids

5 arterial bias limitation in Claim 1 of the 694 patent.

6 How do I avoid meeting that limitation while

7 practicing the rest of the claim?

8 **MR. LU: Objection. Vague and ambiguous.**

9 **Foundation. Calls for speculation.**

10 **A I think that would be difficult to do because you**

11 **still want to achieve the reference symmetry part of**

12 **the claim without achieving the arterial bias part of**

13 **the claim, if I understand your -- you correctly, and**

14 **a method that accomplishes the reference symmetry goal**

15 **would -- at least as far as I can imagine, would**

16 **probably also avoid arterial bias, but I may have not**

17 **thought of a method yet that somehow does that.**

18 **Q If I understood your testimony on Wednesday, it's**

19 **your view that reference symmetry in -- in the 694**

20 **patent is -- is about the general distribution of**

21 **access points within the targeted area, is that right?**

22 **A Yes.**

23 **Q Okay. Why couldn't you have reference symmetry**

24 **in the target area by having broad distribution of**

25 **calculated locations, all of which are exactly on the**

Page 16

(08:55:42-08:57:17)

1 streets exactly on the locations of the scan vehicle

2 as it traversed the area?

3 **MR. LU: Objection. Vague and ambiguous.**

4 **Also object to the extent it's been asked and**

5 **answered.**

6 **A Well, so your earlier question was -- was about**

7 **whether I could think of a way that one might**

8 **accomplish that and this question is about assuming**

9 **that one did accomplish that having arterial bias and**

10 **yet achieving reference symmetry.**

11 **Q I'm asking why -- why -- why couldn't that**

12 **happen? Why isn't that a possibility? And if you**

13 **think it's not a possibility, I'd be interested in**

14 **hearing why.**

15 **A Yeah, right.**

16 **MR. LU: Same objections.**

17 **A I suppose it is a possibility. If you drove all**

18 **the streets and made no effort to calculate the**

19 **position of access points simply recording the**

20 **locations along the streets, you would -- you would**

21 **have a form of reference symmetry. I think you**

22 **would -- it would lead to poor accuracy.**

23 **Q Is arterial bias, at least in part, a function of**

24 **the quality of the algorithm used to calculate the**

25 **location of the access point?**

Page 17

(08:57:19-08:59:00)

1 **MR. LU:** Objection. Vague. Ambiguous.
 2 Foundation.
 3 **A Well, I -- it's -- I would say probably not. You**
 4 **know, my interpretation of arterial bias as a term is**
 5 **that it is a bias in the result of the calculation of**
 6 **the access point location caused by one scanning the**
 7 **arteries rather than enough points elsewhere. There,**
 8 **of course, are any possible number of algorithms one**
 9 **might use, but I don't think it would be a function of**
 10 **the algorithm that results in arterial bias.**
 11 **Q** Would you agree with me that the overall accuracy
 12 of the calculated location, how close it gets to the
 13 actual location of the access point, that's -- that's
 14 a function of the quality of the algorithm used, yes?
 15 **A That's --**
 16 **MR. LU:** Objection. Vague. Ambiguous.
 17 **A That -- that is part of it.**
 18 **Q** Okay. And if you have a poor algorithm, one
 19 result of that could be that your access points are
 20 calculated quite close to the location of the scanning
 21 vehicle as opposed to closer to the actual point of
 22 the access point?
 23 **MR. LU:** Same objection. Foundation.
 24 **A Right. So, I mean, it's -- it's a function of**
 25 **the collection process as well as the algorithm.**

Page 19

(09:01:44-09:04:18)

1 and 694 patent, do you have to determine what
 2 constitutes an artery as opposed to any other street?
 3 **A Well, you know, I -- I had that impression to**
 4 **some extent when I was reading the -- their definition**
 5 **or their examples of arterial bias and, you know, my**
 6 **impression was that they -- they were defining**
 7 **arterial bias in the context of the -- in the random**
 8 **model where the data collection -- the points that you**
 9 **collect occur from tracking randomly driving vehicles**
 10 **which tend to spend more time on arteries and that in**
 11 **a way -- in a way that defines arteries. I guess to**
 12 **come back to your question, in order to determine**
 13 **whether there's arterial bias does one need to**
 14 **determine -- you know, know where the arteries are?**
 15 **Q** Right.
 16 **A I think you would.**
 17 **Q** And does the patent give us any -- any
 18 information that would help us draw the line between
 19 what constitutes an artery and what doesn't constitute
 20 an artery?
 21 **A I vaguely remember something about the, you know,**
 22 **heavily trafficked routes or something to that effect.**
 23 **I don't remember exactly. So, for example, column 8,**
 24 **line 8 of the 988 patent.**
 25 **Q** Yes. So starting at line 4 of column 8 the 988

Page 18

(08:59:03-09:01:38)

1 **Q** Okay. And that -- and that if there is, the
 2 accuracy of the calculated location information is a
 3 function of both the scanning methodology and the
 4 algorithm used?
 5 **A Correct.**
 6 **Q** The -- the question I asked about designing
 7 around Claim 1 of the 694 patent by avoiding the
 8 arterial bias question, I'll ask you the same question
 9 in the context of the 988 patent. I'm a competitor
 10 and I want to design around Claim 1 of the 988. In
 11 particular, I want to not meet the avoid arterial bias
 12 limitation and I want to practice the rest of the
 13 claim. Can I do that?
 14 **MR. LU:** Objection. Vague. Ambiguous.
 15 Also object to the extent it calls for
 16 speculation, and asked and answered.
 17 **A Yeah, I think the fundamentals are the same as**
 18 **the 6 -- as in the 694 patent so, you know, as I said**
 19 **there, I -- I -- I find it difficult to think of a way**
 20 **that one could achieve the reference symmetry without**
 21 **also avoiding arterial bias. Then in the follow-up**
 22 **question we imagined a situation where that might**
 23 **happen, but then you would end up with poor accuracy.**
 24 **Q** Okay. In order to determine whether a given data
 25 set has arterial bias within the meaning of the 988

Page 20

(09:04:34-09:05:57)

1 patent says, as a result, over time the random driving
 2 covers more and more ground by the cumulative coverage
 3 shows a bias to the main roads, comma, or arteries at
 4 the expense of the smaller and surrounding roads.
 5 **A Right. So that's -- that's one definition of**
 6 **artery.**
 7 **Q** The next sentence after -- after what I read in
 8 Figure 3, arteries 304 and 305 are heavily traversed
 9 by the scanning vehicles resulting in a heavy amount
 10 of scanning data for those streets.
 11 **A But the next sentence, at streets 306 and 307 are**
 12 **rarely, if ever, covered because there is no frequent**
 13 **destination of those streets and the arteries are more**
 14 **optimal travel roads.**
 15 **Q** Okay. So that, in your view, gives us at least
 16 some information to start with?
 17 **A Some.**
 18 **Q** Okay. So, again, my question goes -- goes back
 19 to, where do we -- how do we actually draw the line
 20 between what constitutes an artery and what
 21 constitutes a road that is not an artery?
 22 **MR. LU:** Objection. Vague. Ambiguous.
 23 **A I'm not sure that you can draw the -- a hard line**
 24 **in this case, and I'm not sure one needs to in this**
 25 **patent or -- because the idea is to come -- you know,**

Page 21

(09:06:05-09:08:46)

1 **is to -- the invention describes a way of covering**
 2 **the -- all of the streets to avoid in general this --**
 3 **this form of bias that would happen if you didn't**
 4 **cover all the streets.**

5 Q Is avoid a synonym for eliminate in your mind?
 6 A **Did you say is avoid a synonym for eliminate?**
 7 Q Yes.
 8 A **No. I think I actually addressed that point.**
 9 Q Is reduce a synonym for avoid?
 10 A **Well, in this context I think that's what avoid**
 11 **means. I think I said as much.**

12 Q What's your basis for the contention that to
 13 avoid arterial bias is to reduce arterial bias?
 14 A **Well, I have some points in my declaration. So,**
 15 **for example, I mean, drawing on the specification**
 16 **itself in my paragraph 122, they use the word reduced**
 17 **in the specification, and for also example Figures 3**
 18 **and 4 my paragraphs 123 and 124 show an example where**
 19 **the arterial bias is reduced but not necessarily**
 20 **eliminated.**

21 Q Which one of those shows an example where it's
 22 reduced but not necessarily eliminated?
 23 A **Well, Figure 4 is showing -- is showing that the**
 24 **calculated locations are closer to the correct**
 25 **location than in Figure 3. Figure 3, as captioned, is**

Page 23

(09:11:09-09:13:20)

1 **arteries and streets in Figure 4.**
 2 Q If -- if -- you're right that it doesn't say
 3 that, but let's assume that that's true for the moment
 4 and that in that situation, given the assumption that
 5 the arteries identified in Figure 3 should be deemed
 6 to be arteries in Figure 4, in that case does Figure 4
 7 show arterial bias?
 8 A **No, I guess it doesn't.**
 9 Q In -- well, strike that.
 10 By how much does arterial bias have to be reduced
 11 in order to be avoided within the meaning of the 988
 12 and 694 patents?
 13 A **I'm not sure one can quantify or -- I'm not sure**
 14 **one can quantify the degree to which it is reduced or**
 15 **needs to be reduced. I think that it's an imprecise**
 16 **term. The patent may not need that level of precision**
 17 **in the context of this claim. The goal is to collect**
 18 **the data and construct a database in a way that the**
 19 **calculated positions will reduce arterial bias and**
 20 **perform the invention, then you will -- it will result**
 21 **in reduced arterial bias.**

22 Q And so I understand your last answer, when you
 23 say perform the invention, what exactly do you mean by
 24 that?
 25 A **I would mean collecting the scanning data using**

Page 22

(09:08:52-09:11:05)

1 **an example of arterial bias.**
 2 Q And is it your view that Figure 4 shows
 3 calculated locations for the access points with
 4 reduced arterial bias but still some arterial bias?
 5 A **Yes.**
 6 Q Okay. Can you tell me why you think that there
 7 is some arterial bias shown in Figure 4?
 8 A **Well, the -- the degree to which you can reduce**
 9 **arterial bias depends on a lot of factors, as I said**
 10 **in the declaration, and including the ability -- the**
 11 **distribution of roads and the distribution of access**
 12 **points and the strength of your antennas and so forth.**
 13 **And on reflection it might be difficult to tell simply**
 14 **by looking at Figure 4 that there is still some**
 15 **arterial bias as opposed to simply inaccurate location**
 16 **calculations, but I was thinking that -- I was**
 17 **thinking that in general you would still have some**
 18 **bias toward the arteries. I have to admit I'm having**
 19 **difficulty reconciling why that is because there's so**
 20 **many factors involved in the degree of arterial bias.**

21 Q Do -- does Figure 4 show arteries?
 22 A **It doesn't label any arteries. The Figure 3 --**
 23 **assuming that Figure 4 is meant to be the same city as**
 24 **Figure 3, Figure 3 labels the arteries and streets and**
 25 **so I guess by implication the same roads would be**

Page 24

(09:13:25-09:16:03)

1 **some kind of a planned route that covers all of the**
 2 **streets or substantially all the streets so that you**
 3 **can obtain a better sample of the access point and**
 4 **locations.**

5 Q As you mentioned a moment ago, you have
 6 identified some factors in your declaration that
 7 relate to the degree by which arterial bias might be
 8 avoided or reduced in your view of that term, and
 9 that's what we see at paragraph 125, right?
 10 A **Right.**

11 Q Could the capabilities of the scanning device --
 12 just to take one of the examples you give, could the
 13 capabilities of the scanning device be so limited that
 14 even when you collect the scan data using a planned
 15 route that covers substantially all -- all streets in
 16 the area, could the capabilities of the scanning
 17 device be so bad that you would, in fact, have
 18 arterial bias?
 19 **MR. LU: Objection. Vague and ambiguous.**
 20 **Foundation. Calls for speculation.**

21 A **I think if you used the same scanning device for**
 22 **all of your scanning and it had bad qualities you**
 23 **didn't -- you weren't precise about, let's assume**
 24 **we're talking about a weaker antenna, then if you're**
 25 **using that same device on the arteries as well as on**

Page 25

(09:16:05-09:17:56)

1 **the back streets, for example, I'm not sure how that**
2 **would change the effects of arterial bias**
3 **significantly. Right.**
4 Q Could the number of roads in the target area,
5 another factor you identify, or the distribution of
6 roads, another factor that you identify, could either
7 of those factors be so significant that arterial bias
8 couldn't be avoided?
9 **MR. LU:** Objection. Vague.
10 **A Yes. I'm thinking of the smaller towns where I**
11 **live that have very sparse roads, and so if you can**
12 **only drive on one side in effect within the radio**
13 **range con -- of the antenna, if you can only drive on**
14 **one side of the buildings, then all of your**
15 **observations will be on one side, it would be**
16 **difficult to avoid bias toward those roads.**
17 Q And in the sort of small town limited number of
18 road situation you've described, would that also have
19 an effect on reference symmetry?
20 **A Yes.**
21 **MR. LU:** Take a short break?
22 **MS. MANNING:** Let me ask one more
23 question.
24 **MR. LU:** Sure thing.
25

Page 26

(09:17:58-09:19:27)

1 **BY MS. MANNING:**
2 Q Looking at the next paragraph, paragraph 126.
3 **A Yes.**
4 Q You give your view that Skyhook's claim
5 construction for avoids arterial bias is as precise as
6 the subject matter of the 988 and 694 patents permits.
7 Could you tell me what you mean by that?
8 **A Well, we touched on this a few minutes ago when**
9 **you asked about the degree of reduction, and I was**
10 **saying something to the effect that it would be**
11 **difficult to quantify the degree of reduction of**
12 **arterial bias because it is sort of inherently an**
13 **imprecise term and the patent itself doesn't require**
14 **one to quantify it, simply to perform the scanning in**
15 **a way that leads to less arterial bias than you had**
16 **before. So it doesn't -- it doesn't matter how much**
17 **or it would be difficult to quantify how much.**
18 Q When you say less than you had before, what do
19 you mean by before?
20 **A Oh, I'm sorry. So less arterial bias with their**
21 **method than without their method such as were shown in**
22 **their examples.**
23 Q And arterial bias varies in, for example, the
24 random method, right? I think we established that.
25 **MR. LU:** Objection. Vague. Ambiguous.

Page 27

(09:19:29-09:20:49)

1 **A Arterial bias varies in the random method. I'm**
2 **not sure what you mean.**
3 Q Well, the amount of arterial bias present in, for
4 example, the database that had been compiled through
5 scanning using the random method of traversing the
6 area, the amount of arterial bias for any given access
7 point can vary --
8 **MR. LU:** Same objection.
9 **BY MS. MANNING:**
10 Q -- correct?
11 **A Well, for any given access point. So now we're**
12 **talking about a different situation than the general**
13 **concept of arterial bias as a whole -- of your data**
14 **set as a whole, but certainly the random method is --**
15 **is going to lead to unpredictable coverage of your**
16 **area and so some areas will have better coverage than**
17 **others in terms of the set of streets and the degree**
18 **to which you're getting observations around an access**
19 **point. So, yes, some access points will have more**
20 **bias than others.**
21 **MS. MANNING:** Why don't we take a break.
22 **MR. LU:** Okay.
23 **VIDEOGRAPHER:** The time is now 9:20 and
24 we're going off the record.
25 (Recess taken)

Page 28

(09:31:38-09:32:55)

1 **VIDEOGRAPHER:** The time is now 9:31 and
2 we're on the record.
3 **BY MS. MANNING:**
4 Q Dr. Kotz, I had a question for you about
5 paragraph 132 of your declaration. You got it?
6 **A Yes.**
7 Q In paragraph 132 you said the Chinese postman
8 routing model may drive some streets more than once,
9 citation. In such cases driving an additional street
10 or two would actually reduce arterial bias, not
11 increase it. Could you explain that last sentence to
12 me? Why would driving an additional street or two
13 actually reduce arterial bias, not increase it in the
14 Chinese postman routing model?
15 **A Yeah, I think I was thinking about if you were**
16 **driving additional streets that weren't arteries, such**
17 **as in the figure, then you would have more data points**
18 **on nonarteries and tend to reduce the effects of**
19 **arterial bias.**
20 Q When -- when -- and when you said the figure, you
21 were referring to Figure 4 of the 988 patent?
22 **A Yes.**
23 Q So does the statement, again, depend upon the
24 distinction you've been drawing of arteries versus
25 other kinds of streets?

Page 29

(09:32:57-09:34:17)

1 **A Right. In this -- in this context it would.**

2 Q Any other reason why driving the additional

3 street or two would reduce arterial bias?

4 **A I don't think so. Of course, in 133 I would -- I**

5 **point out that an even better solution would be to**

6 **simply not count the data from driving streets twice**

7 **or otherwise compensate for it.**

8 Q Okay. I did note that you have identified a

9 couple of techniques for reducing arterial bias other

10 than -- well, strike that.

11 The technique of discarding the data for streets

12 driven more than once, is that a way of reducing ar --

13 strike that again.

14 The technique you note of discarding data for

15 streets driven more than once, would that be a way of

16 avoiding arterial bias within the meaning of the

17 claims?

18 **MR. LU:** Objection. Vague and ambiguous.

19 Foundation.

20 **A No, I don't think it's -- in some ways it's not**

21 **related to arterial bias. It's -- it's -- it's a bias**

22 **that results from driving a street more than once,**

23 **whether it's an artery or not.**

24 Q And regardless of what kind of street it is, you

25 can avoid that problem by getting rid of the data?

Page 30

(09:34:18-09:35:31)

1 **A That would be one way to avoid it.**

2 Q Okay. And that would be outside the claims of

3 the patent?

4 **A Yeah, I don't think -- I don't recall the patent**

5 **talking about that issue specifically.**

6 Q Okay. And another technique you note here would

7 be in paragraph 133 would be to simply turn off the

8 scanning when driving a street already driven. Would

9 that be a way of avoiding arterial bias within the

10 meaning of the claims?

11 **MR. LU:** Same objections.

12 **A No, I don't think it's -- it's a different --**

13 **it's an orthogonal concept, orthogonal bias problem.**

14 Q Okay. Are there any other ways that you can

15 think of of reducing the effect of arterial bias?

16 **A Well, in effect, you're asking me to invent new**

17 **technology on the spot.**

18 Q I am -- I am not. I'm asking you if you -- if

19 you are aware of any. If you are, that's great, I'd

20 ask you to tell us that, and if you're not, you can

21 tell us that too.

22 **A Not off the top of my head, no.**

23 Q The -- the two that you've identified in

24 paragraph 133, those two techniques, discarding data

25 for streets driven more than once or turning off the

Page 31

(09:35:32-09:37:32)

1 scanner when redriving the street, are those ways of

2 approaching the problem that would have been known to

3 a person of ordinary skill in the art in late 2005?

4 **A I just want to clarify. You say are those ways**

5 **of approaching which problem?**

6 Q Fair point. Let me ask you a different question.

7 In paragraph 133 they say there are -- there are

8 any one of a number of techniques to reduce the

9 effects of arterial bias and then you give two

10 examples of ways to do that. Other than the two

11 examples that you've identified here, there are no

12 other ways that you can think of to do that, right?

13 **A Right.**

14 Q Okay. So my question is the -- the two examples

15 you do give, were those two examples known to persons

16 of ordinary skill in the art in late 2005, the time

17 the patents were filed?

18 **A I don't know.**

19 Q Dr. Kotz, I've handed you what we have marked as

20 Google Exhibit 1015. It is a copy of U.S. Patent

21 Number 7474897 and it is Bates numbered GSHFED_0000061

22 through 74. And have you reviewed this document

23 before, sir?

24 **A Yes.**

25 Q And you're aware that the predefined rules

Page 32

(09:37:37-09:39:54)

1 limitation in Step C of Claim 1 is at issue in this

2 case?

3 **A Yes.**

4 Q Sir, once again, I am a competitor and I'd like

5 to practice Claim 1 of 897 except I would like not to

6 infringe it, so I've identified a particular

7 limitation I want to avoid practicing. The particular

8 limitation I want to avoid practicing is in Step C. I

9 would like to, in particular, determine whether an

10 observed access point should be included or excluded

11 from a set of WiFi access points, but I don't want to

12 do it using predefined rules. How would I do that?

13 **MR. LU:** Objection. Vague and ambiguous.

14 Incomplete hypothetical. Foundation.

15 **A That would be difficult because even if you**

16 **decided to, for example, exclude or include an access**

17 **point based on a flip of a coin or other random**

18 **method, that itself is a rule --**

19 Q Right.

20 **A -- and presumably predefined. So if there's a**

21 **way, I don't see it right now.**

22 Q Okay. Is a -- is a rule within the meaning of

23 the 897 patent just any decision-making criteria?

24 **MR. LU:** Objection. Vague and ambiguous.

25 **A Well, I mean, I -- I defined it in my declaration**

Page 33

(09:40:08-09:41:14)

1 **and so, for example, we used -- there's a citation**
 2 **here to a dictionary and a determinant method for**
 3 **obtaining a certain result, which sounds similar to**
 4 **what you're talking about, but more precise than your**
 5 **definition just now.**
 6 Q Okay. And you think this is an accurate
 7 definition of the ordinary meaning of the rule that we
 8 see here in paragraph 89?
 9 A **It's accurate to the extent that we're citing a**
 10 **well-known dictionary. It also seems reasonable to**
 11 **me.**
 12 Q Is that the meaning of rule within Claim 1 of
 13 897?
 14 A **That seems --**
 15 **MR. LU:** Objection. Vague and ambiguous.
 16 Incomplete hypothetical. Do you want to read
 17 to him the whole claim limitation rather than
 18 selective portions of it?
 19 **MS. MANNING:** I don't actually. I'm
 20 asking about the meaning of the rule.
 21 **MR. LU:** All right.
 22 **BY MS. MANNING:**
 23 Q And --
 24 **MR. LU:** And just to be clear, all this
 25 testimony has been about the meaning of rule?

Page 34

(09:41:17-09:42:41)

1 **THE WITNESS:** That's my understanding.
 2 **MS. MANNING:** That is my understanding as
 3 well.
 4 **MR. LU:** Okay. Fair enough.
 5 **BY MS. MANNING:**
 6 Q So as a predefined rule -- well, strike that.
 7 What's a predefined rule?
 8 A **Well, I'm trying to remember if I actually opined**
 9 **on that specifically. Yeah. So, for example, I had**
 10 **said in paragraph 94 I understand predefined to refer**
 11 **to something that is determined prior to a specified**
 12 **occurrence.**
 13 Q So putting those together, a predefined rule
 14 would be something that is determined prior to a
 15 specified occurrence, that something being a
 16 determinant method for obtaining a certain result,
 17 right?
 18 A **Yes.**
 19 Q Okay. And those are the definitions you gave at
 20 paragraphs 94 and 89 of your declaration, Exhibit
 21 1004, right?
 22 A **Correct.**
 23 Q Is a predefined rule that says I'm going to use
 24 every observed WiFi access point to determine the
 25 location of user device a predefined rule within the

Page 35

(09:42:45-09:44:12)

1 meaning of the 897 patent?
 2 **MR. LU:** Objection. Vague and ambiguous.
 3 A **Well, I mean, within the meaning of the patent**
 4 **you have to look at the context of the use of the word**
 5 **predefined rule and the context is using the recorded**
 6 **location information as part of -- in the -- in the**
 7 **context of the rule to determine whether you include**
 8 **it or not. So to use every WiFi access point isn't**
 9 **using -- to include every WiFi access point is not**
 10 **using the recorded location information.**
 11 Q Why not?
 12 A **Because your rule, as you stated it if I heard it**
 13 **correctly, was to use -- simply include every WiFi**
 14 **access point, and that rule doesn't mention literally**
 15 **or implicitly the recorded location information.**
 16 Q Well, it would in that my rule is use all of
 17 the -- all of the observed access points.
 18 A **But your rule isn't determined at all by the**
 19 **location information.**
 20 Q So does the -- does the criteria of -- of -- of
 21 the predefined rule within the meaning of the claim
 22 have to be about the calculated location information?
 23 **MR. LU:** Objection.
 24 **BY MS. MANNING:**
 25 Q In other words, does -- does whatever decisional

Page 36

(09:44:14-09:45:22)

1 criteria I'm using have to turn on something about the
 2 calculated location information?
 3 **MR. LU:** Objection. Vague and ambiguous.
 4 Compound.
 5 A **The rule has to in some part at least refer to**
 6 **the recorded location information. You said**
 7 **calculated, but I'm looking at the claim and it's the**
 8 **recorded location information.**
 9 Q Yes.
 10 A **And my feeling is that if it didn't refer to that**
 11 **information at all, such as your earlier example, then**
 12 **it's not a predefined rule in this context.**
 13 Q When you say refer to, help me understand what
 14 you mean by that. In what sense must it refer to the
 15 recorded location information?
 16 A **So -- so the rule, as we discussed earlier, is a**
 17 **determinant method for obtaining a result. In this**
 18 **case the result you're -- you're trying to obtain is a**
 19 **decision about whether to include or exclude the WiFi**
 20 **access point, and so this determinant method needs to**
 21 **refer to the recorded location information in making**
 22 **its decision.**
 23 Q Why?
 24 A **Well, that's the way I read the claim. Using the**
 25 **recorded location information in conjunction with**

Page 37

(09:45:25-09:47:01)

1 **rules to determine whether to include or exclude.**

2 Q You emphasize using in your answer just now.

3 A **Yes.**

4 Q All right. So to use something in conjunction

5 with the predefined rules means that the decisional

6 criteria relies on some -- something about the nature

7 of the calculated location information, is that right?

8 A **It -- it relies on the recorded location**

9 **information in some way.**

10 Q Why isn't the more natural reading of this just

11 you've got a rule, it's predefined, whatever that rule

12 is, you just apply that rule to the -- to the in or

13 out decision on the calculated -- on using the

14 calculated location information in -- in the set or

15 out of the set?

16 MR. LU: Objection. Vague and ambiguous.

17 A **I really think you should restate that question**

18 **because I found it vague also.**

19 Q Okay. Let me -- let me strike that last and I'll

20 ask it a slightly different way.

21 Why can't you have a predefined rule that will

22 allow you to determine whether to put an observed

23 access point in the set you're going to use for a

24 location or exclude it from that set? Why can't you

25 have such a rule that does not depend on any quality

Page 38

(09:47:09-09:48:16)

1 of the calculated location information?

2 A **So --**

3 MR. LU: Objection. Vague and ambiguous.

4 Foundation.

5 A **So I'm going to correct you again. This is about**

6 **recorded location information.**

7 Q Yes, I apologize for using the --

8 A **That's fine.**

9 Q -- other term. I do mean -- I do mean them to be

10 synonymous.

11 A **Well, they're not but --**

12 Q Well, that is -- that is an issue but -- but if

13 you can answer with reference to the recorded location

14 information.

15 A **Right. So the -- if you had a rule that did not**

16 **use the recorded location information in some way in**

17 **making the decision, then I don't feel that it would**

18 **fall under the -- this -- this term of the claim.**

19 Q Why not?

20 A **Because to be simple about it, it's simply the**

21 **way I read it. You have -- the word in conjunction**

22 **with means that the -- the rules are used in**

23 **conjunction with this information, and if you have a**

24 **rule that isn't used in conjunction with that**

25 **information, then it's not covered by this language.**

Page 39

(09:48:21-09:49:58)

1 Q Why doesn't in conjunction with simply mean that

2 the rule is applied to the various recorded location

3 information as opposed to being -- as opposed to

4 turning on some quality of the recorded location

5 information?

6 MR. LU: Objection. Vague.

7 A **That's a different distinction than I heard you**

8 **make before. Sorry. Well, so quality of recorded**

9 **location information is very vague. I'm not sure what**

10 **you mean by that.**

11 Q As I understand your testimony, it's that the

12 decisional criteria, the predefined rule, has to

13 relate in some way to some characteristic or quality

14 of the recorded location information, is that -- is

15 that right?

16 A **It has to refer to the location information in**

17 **some way, and I could imagine thinking mathematically**

18 **that any function of that information could be used,**

19 **and if you had a function that defined a**

20 **characteristic of the location or a quality of the**

21 **location, whatever -- however you might choose to**

22 **define those functions because those words themselves**

23 **are loose, then that would fit, but I wouldn't**

24 **constrain it to quality or characteristic. Any use of**

25 **the recorded location information fits.**

Page 40

(09:50:04-09:52:47)

1 Q What if my predefined rule was I'm going to use

2 every other recorded location information, every other

3 piece of recorded location information for each WiFi

4 access point -- withdrawn.

5 Let me try again. Why can't my rule be that I'm

6 going to use the recorded location information for

7 every other observed WiFi access point?

8 A **Well, let's look at this carefully. So it says**

9 **using the recorded location information for each of**

10 **the observed WiFi access points. So as I read this**

11 **rule, it is talking about a particular access point,**

12 **and you're trying to decide whether it should be**

13 **included or excluded from the set of access points,**

14 **and so constraining our thought then to a particular**

15 **access point, you're going to use the recorded**

16 **location information for that access point in deciding**

17 **about that access point, and so then your question is**

18 **not quite phrased correctly because you talk about**

19 **every other access point.**

20 Q Why can't my predefined rule be -- strike that.

21 Given your view that the rule must be applied to

22 each owned WiFi access point on an individualized

23 basis, which is what I just heard you testify, given

24 that view, why can't my predefined rule be I'm going

25 to use that access point --

Page 41

(09:52:50-09:53:38)

1 **A Because you --**
2 Q -- and, therefore, you would use every access
3 point?
4 **A Because then you didn't use the location**
5 **information.**
6 Q Again, so the rule has to be something about the
7 ac -- has to turn on some -- something having to do
8 with the information itself -- recorded locations I
9 should say?
10 **A Right.**
11 **MR. LU:** Objection. Asked and answered.
12 **BY MS. MANNING:**
13 Q Why?
14 **MR. LU:** Objection. Asked and answered.
15 **BY MS. MANNING:**
16 Q Is that -- is that -- is that based on anything
17 other than the claim language? Is there something in
18 the specification that supports that or is that just
19 your straight reading of the claim language?
20 **A Well, it is my straight reading of the claim**
21 **language, but I -- you know, I'd have to go back and**
22 **look, but I'd be surprised if the specification didn't**
23 **talk about --**
24 **MR. LU:** David, if you want to look at the
25 specification, you should.

Page 42

(09:53:38-09:55:40)

1 **BY MS. MANNING:**
2 Q Yeah. And Mr. Lu is right. If you want to look
3 at the specification, that's fine. My -- my question
4 was in giving your answer were you basing that on
5 anything other than the -- than your reading of the
6 claims? Were you -- did you have in your mind
7 something about the specification that informed your
8 views or not?
9 **MR. LU:** And, David, if you need to look
10 at the specification, you should.
11 **MS. MANNING:** Yes.
12 **A Well, I mean, the straight answer is that I did**
13 **not have in my mind when I answered the question a**
14 **particular place in the specification, but I'd be**
15 **surprised if the specification wasn't using the**
16 **location information because that would be, you know,**
17 **an obvious part of such a method.**
18 **MR. LU:** David, again, take your time to
19 review the patent specification. You don't
20 have to answer these questions on the fly.
21 **BY MS. MANNING:**
22 Q If you feel that you need to review it more to
23 answer my question, you're certainly welcome to do
24 that. My question was about what you had in mind as
25 opposed to --

Page 43

(09:55:41-09:57:10)

1 **A Right, which is why I eventually answered it.**
2 Q Okay. The recorded location --
3 **MR. LU:** David, are you still reviewing
4 the patent specification right now before she
5 moves on?
6 **THE WITNESS:** Well --
7 **BY MS. MANNING:**
8 Q Are you done answering the question or are you
9 still considering your answer?
10 **A I'm done.**
11 Q The recorded location information, would that be
12 recorded as a latitude and longitude or do you know?
13 **MR. LU:** Objection. Vague and ambiguous.
14 Goes beyond the scope of the witness's expert
15 declaration.
16 **A I didn't -- I -- I wasn't asked to think about**
17 **that, to opine about recorded -- what location means.**
18 **I didn't say anything about that in my declaration. I**
19 **hadn't really thought about it.**
20 Q Okay. So do you know one way or the other?
21 **A I don't recall.**
22 Q Assuming -- assume with me that the recorded
23 location information is recorded as a latitude and a
24 longitude. Could a predefined rule be to use only
25 those latitudes that end with an even number?

Page 44

(09:57:17-09:58:29)

1 **MR. LU:** Objection. Vague. Which --
2 which -- which -- which -- which digit are you
3 talking about in terms of a latitude and
4 longitude?
5 **MS. MANNING:** The final digit ends with.
6 **MR. LU:** Okay.
7 **A Well --**
8 Q And I think I said use the -- use the -- I meant
9 use the recorded location information that has a
10 latitude that ends with an even number.
11 **MR. LU:** Objection. Foundation.
12 **A So be pedantic for a moment. Latitude and**
13 **longitude are real numbers, but when they're measured,**
14 **one has a certain degree of precision and so there is**
15 **a last digit. And so let's assume for the moment that**
16 **location is measured by latitude and longitude up to a**
17 **certain precision and that there's a last digit and**
18 **one can easily determine whether it's even or not. So**
19 **a rule that made a -- made its decision based simply**
20 **on that would be using the recorded location**
21 **information in a rather silly way.**
22 Q But it would? That would be a predefined rule
23 within the meaning of the claim?
24 **A I think so.**
25 Q Okay. What -- what's an algorithm?

Page 45

(09:58:59-10:00:39)

1 **A Let's see. I don't remember if I defined it in**
 2 **my declaration.**

3 **Q** You're welcome to review your declaration. If
 4 you did, I didn't note it.

5 **A Yeah, I don't think I did, and I don't recall**
 6 **that that was a term that was in contest, is it?**

7 **Q** It is -- it is a term that you use in your
 8 declaration, the word algorithm appears in there?

9 **A Yes. Right. Right.**

10 **Q** And I wanted to understand, you know, what it is
 11 you meant by it.

12 **A Okay. I just didn't want to accidentally on the**
 13 **fly construe a term that was in contest so -- so I**
 14 **guess an algorithm would be a -- and, again, this is**
 15 **an on-the-fly definition, but it would be a**
 16 **determinant method of accomplishing some task. I'm**
 17 **sure I could, you know, define it better, but that's**
 18 **quick.**

19 **Q** That's quite similar to your definition in
 20 paragraph 89 of a rule, a rule being simply a
 21 determinant method for obtaining a certain result?

22 **A Right, which is why I thought of it. Another**
 23 **good definition -- reasonable definition of an**
 24 **algorithm would be a series of steps to accomplish**
 25 **some calculation or task.**

Page 46

(10:00:46-10:02:53)

1 **Q** One definition that I found was in mathematics
 2 and computer science an algorithm is an effective
 3 method expressed as a finite list of well-defined
 4 instructions for calculating a function. Would that
 5 seem like a reasonable definition for you?

6 **MR. LU:** Objection. Vague and ambiguous.
 7 Also objection to the extent it calls for a
 8 legal conclusion.

9 **A Well, from a computer scientist's point of view**
 10 **as opposed to a lawyer's point of view, it's a**
 11 **reasonable definition.**

12 **Q** To -- to give an analogy to someone who, unlike
 13 yourself, is not a computer scientist, would it be
 14 fair to analogize an algorithm to something like the
 15 steps of a recipe, would that be a fair analogy?

16 **A That's a common analogy, yes.**

17 **Q** Okay. If you gave one of your graduate students
 18 the assignment of -- of stating for you an algorithm
 19 for determining a weighted centroid position for all
 20 position information reported for an access point and
 21 your student gave you the specification of the 988
 22 patent, would you say that your student had in fact
 23 given you that algorithm?

24 **MR. LU:** Objection. Vague. Ambiguous.
 25 Foundation.

Page 47

(10:02:54-10:05:00)

1 **A Well, first of all, I would expect any student to**
 2 **be able to simply write down that algorithm without**
 3 **having to look at the 988 patent. Weighted centroid**
 4 **is a fairly routine algorithm. Also the patent, of**
 5 **course, provides a lot more in it than the weighted**
 6 **centroid. I don't recall whether it provides a**
 7 **specific algorithm or description of that algorithm.**
 8 **On the other hand, I don't think it would need to.**

9 **Q** Why not?

10 **A Because, as I said, any graduate student worth**
 11 **their salt would be able to do that in their sleep or**
 12 **undergraduate for that matter.**

13 **Q** What do you understand the term logic in the
 14 claims of the 988 patent to refer to?

15 **A Well, so let's see. I have quite a lot of**
 16 **opinions related to that term. In the -- in the**
 17 **context of these patents we're talking about computer**
 18 **implementing logic, and so I take the word logic to**
 19 **refer to computer hardware/software.**

20 **Q** Is that an either/or, computer hardware or
 21 software?

22 **A Yes.**

23 **MR. LU:** I'm sorry. That was vague and
 24 ambiguous. Are you saying either A or B but
 25 not both A or B or it can be A, it can be B, or

Page 48

(10:05:04-10:06:18)

1 it can be A and B?

2 **MS. MANNING:** Let me clarify that for you.

3 **MR. LU:** Just so you know, the reason why
 4 I raise that is I spent quite a bit of time
 5 litigating over that particular issue as to
 6 what or -- what or meant.

7 **THE WITNESS:** In computer science that
 8 would be an exclusive or.

9 **MR. LU:** That's correct.

10 **BY MS. MANNING:**

11 **Q** Do you mean it as an exclusive or, it's either
 12 one or the other but not both?

13 **A No, I would include both certainly, yes.**

14 **Q** Okay. So -- so your view is that logic could be
 15 computer hardware, it could be computer software, or
 16 it could be both computer hardware and software
 17 together?

18 **A Yes.**

19 **Q** And what's your view based on?

20 **A Common use of the term in -- in -- at least in my**
 21 **field.**

22 **Q** With respect to the -- well, actually, why don't
 23 you take the 988 patent. I'm going to ask you a
 24 specific question about it. Could you look at column
 25 12, there's a passage from line 29 to roughly line 38.

Page 49

(10:06:27-10:08:23)

1 Do you see that?

2 **A Once the parsing process?**

3 Q Yes.

4 **A Once the parsing process.**

5 Q There is a reference on line 34 -- I'm sorry, 33

6 and 34 of column 12 in the 988 patent, there's a

7 reference there to new access points being added to

8 the database?

9 **A Right.**

10 Q And would you agree with me that -- that that

11 tells you what to do, not how to -- how to actually

12 add them to the database?

13 **MR. LU:** Objection. Vague and ambiguous.

14 **A True.**

15 Q And in Claim 1, the limitation refers to logic to

16 add records to the database for newly discovered WiFi

17 access points. Would you agree with me that the

18 records referenced there have to have both

19 identification information for the access point and

20 calculated location information for the access point,

21 that's -- that's the record that's actually being

22 added?

23 **MR. LU:** Could you read that question

24 back?

25 (Pending question read back)

Page 50

(10:08:40-10:10:55)

1 **A So I'm -- oh, here we go. Well, it's not**

2 **immediately clear from the claim, but I think so.**

3 Q The claim does refer to each record including

4 identification information for a corresponding WiFi

5 access point and calculated position information?

6 **A Oh, you mean earlier in the claim?**

7 Q Yes.

8 **A Yeah, okay. I was just looking at that clause.**

9 **Sorry. Right. Okay. So I see that.**

10 Q So given that -- that requirement further up in

11 the claim, would you agree with me that the logic to

12 add records to the database for newly discovered WiFi

13 access points has to be -- has to be adding records

14 that actually have the -- the identification

15 information and the calculated location information?

16 **A I would think so, yeah.**

17 Q So would you agree with me that that logic has to

18 do more than just generically save?

19 **MR. LU:** Objection. Vague. Ambiguous.

20 **A Well, you know, the -- the claim term itself**

21 **says -- goes on to say that said computer logic,**

22 **including logic to recalculate position information,**

23 **etc. So it's not simply adding it, it's explicitly**

24 **doing some recalculation as well.**

25 Q Okay. Okay. So I gather that's a -- that's a

Page 51

(10:10:58-10:12:42)

1 yes. It has to do more than just generically save

2 information to the database?

3 **A Correct.**

4 Q It has to do some work with the actual data

5 before it's saved?

6 **A Yes.**

7 Q The sort of further limitation that you just

8 referenced where it starts said computer logic

9 including logic to recalculate position information,

10 goes on from there, at column 12, lines 33 and 34, do

11 you see there's a number 2 that says, and 2) existing

12 access points are repositioned based on any new data

13 recorded by the scanners?

14 **A Yes.**

15 Q Do you see that? That part of the specification

16 there, that tells a person of ordinary skill in the

17 art what they should do?

18 **A Yes.**

19 Q But not -- yes?

20 **A Yes.**

21 Q And would you agree with me that it doesn't tell

22 them how to do it?

23 **A Not in that sentence, no.**

24 Q Is there -- is there any place else in the -- in

25 the patent that you think tells a person of -- of

Page 52

(10:12:46-10:15:30)

1 skill in the art specifically how to accomplish

2 recalculating position information for WiFi access

3 points previously stored in the database to utilize

4 position information for the newly discovered readings

5 of the previously stored WiFi access points?

6 **MR. LU:** David, you should certainly refer

7 to anything you need to refer to when answering

8 that question.

9 **A Yeah. I'm studying the specification to see if I**

10 **can find it. Let's see if I have it somewhere else in**

11 **here.**

12 **So in that same paragraph, which is about the**

13 **reverse triangulation model for processing the new**

14 **data, it talks about the algorithm which factors in**

15 **the number of records and the associated signal**

16 **strengths and how it weights stronger signal readings**

17 **more than weaker signals with a quasi weighted average**

18 **model, and so the question was about how to**

19 **recalculate position information for access points**

20 **previously stored.**

21 Q Yes.

22 **A So my understanding would be that this -- these**

23 **sentences here and some of the sentences prior to that**

24 **paragraph are helping you understand those**

25 **calculations. That's using this reverse triangulation**

Page 53

(10:15:35-10:17:24)

1 **algorithm it's going to factor in number of records,**
 2 **signal strengths, it's going to be weighting those**
 3 **readings according to the signal strengths, and so I**
 4 **think there's -- you know -- and also the age of the**
 5 **records. So they're using all this information to**
 6 **calculate the location information or the estimated**
 7 **location. I think you would do the recalculation in**
 8 **the same way.**
 9 Q Okay. And just for the record, you were
 10 referring to the paragraph at column 12, lines 29
 11 through roughly 38?
 12 A **Yes. And the paragraph before that, lines 25**
 13 **through 29 I guess.**
 14 Q Okay. It's your view that the -- the reverse
 15 triangulation algorithm is the -- is the algorithm
 16 that accomplishes that. Would you agree that the
 17 specification doesn't tell you what that algorithm
 18 actually is?
 19 MR. LU: Objection. Vague. Ambiguous.
 20 A **Well, let's see. I mean, it -- it doesn't -- it**
 21 **doesn't spell out the algorithm in detail, but it does**
 22 **provide -- I don't think it would need to. I mean, it**
 23 **provides some of the mathematics that are part of the**
 24 **reverse triangulation model and it provides the**
 25 **factors that the algorithm uses, the number of**

Page 54

(10:17:28-10:18:46)

1 **records, the signal strengths, the age of the records,**
 2 **etc., but my understanding is that one need not spell**
 3 **out an algorithm in detail in order to teach it**
 4 **sufficiently as long as one of ordinary skill in the**
 5 **art can construct an algorithm that accomplishes**
 6 **what's said in the claim.**
 7 Q Right. That's -- that's -- that's your
 8 understanding of the legal requirement?
 9 A **Right. Right.**
 10 Q Right. So my -- my question's about whether
 11 it -- whether the -- whether the patent actually
 12 discloses the al -- regardless of your view about
 13 whether it needs to or not.
 14 A **Okay. Okay.**
 15 Q The question was does it disclose the algorithm?
 16 A **Not in detail, but there's a lot of information**
 17 **about the -- that is needed to understand their**
 18 **embodiment of an algorithm that would do that.**
 19 Q Let me ask you about a limitation in Claim 2 of
 20 the 988 patent. You see that refers to logic to
 21 identify position information based on error prone GPS
 22 information?
 23 A **Yeah.**
 24 Q My first question is, what is error prone GPS
 25 information in your understanding?

Page 55

(10:18:49-10:20:33)

1 A **Well, it would be a GPS reading that has some**
 2 **error relative to your actual location.**
 3 Q Is it -- is it -- is -- is the phrase error
 4 prone -- prone GPS information, is that some
 5 commentary on the typical quality of GPS information
 6 or is it specific to I have a GPS -- I have this GPS
 7 reading and it appears to be erroneous?
 8 A **I see. Let's see the context here. I think --**
 9 **GPS is -- information is typically erroneous, it's not**
 10 **perfect, and GPS devices are known to occasionally**
 11 **have large errors. I think in the context of this**
 12 **claim they're talking about this clustering logic and**
 13 **the purpose, as I recall from the specification, is**
 14 **that the clustering logic is enabling you to decide**
 15 **which readings are substantially erroneous and should**
 16 **be excluded.**
 17 Q Okay. And clustering logic --
 18 MR. LU: We've reached seven hours so if
 19 you can finish up.
 20 MS. MANNING: Let me just tell you what
 21 I'm hoping to do. I have, I think, a couple
 22 more -- a couple more questions. If we could
 23 take a quick break, make sure there's nothing
 24 else of great significance and we can figure
 25 out if we're done or if I need a couple of

Page 56

(10:20:35-10:29:10)

1 questions.
 2 MR. LU: Okay. And I may have one or two
 3 follow-up questions. So let's take a short
 4 break.
 5 VIDEOGRAPHER: The time is now 10:20 and
 6 we're going off the record.
 7 (Recess taken)
 8 VIDEOGRAPHER: The time is now 10:28 and
 9 we're on the record.
 10 A **So I wanted to start with a clarification about**
 11 **what we were just discussing with respect to the**
 12 **algorithm in the 988 patent.**
 13 Q Sure.
 14 A **And so, you know, I -- I had some time to look at**
 15 **it a little more closely, and these mathematical**
 16 **equations close to the paragraphs we were looking at**
 17 **before lines 50 through 64, for example, are part of**
 18 **a -- it actually calls it this, applying the**
 19 **algorithm. So this is the algorithm for triangulating**
 20 **the position of an access point using latitude and**
 21 **longitude. It goes on. I mean, there's more detail**
 22 **on the next column as well. And it describes it in a**
 23 **sequence of steps so, for example, column 13, line 26**
 24 **or 7 there's a paragraph, this final lat long is then**
 25 **used as the final centroid value for the location of**

Page 57

(10:29:14-10:31:26)

1 **that access point. So these two columns together at**
 2 **least provide, like I said before, sufficient detail,**
 3 **I think, for one to construct an implementation of an**
 4 **algorithm for calculating or recalculating the**
 5 **positions of access points.**
 6 Q Since you've directed our attention to them, I do
 7 have a question for you about them. In all cases it
 8 refers to a lat subscript U and long subscript U, both
 9 equations. I should probably say sets of equations
 10 refer to that. In the text it says, if the
 11 corresponding recorded GPS location of access point I
 12 is denoted by lat I long I, what's the relationship
 13 between lat I long I and lat U long U?
 14 A **So lat U, for example, is calculated using this**
 15 **equation from a combination of all the lat I values,**
 16 **and from the looks of it there are N, N as in Nancy,**
 17 **lat I values that are being computed together to**
 18 **produce lat U and, similarly, long U. And so the --**
 19 **the U subscript refers to the result and the I**
 20 **subscript refers to the inputs.**
 21 Q In paragraph 70 of your declaration you note that
 22 there are many possible ways to divide data points
 23 into groups or clusters. Do the claims require
 24 clustering by, for example, distance?
 25 **MR. LU:** Objection. Vague and ambiguous.

Page 58

(10:31:32-10:33:03)

1 A **Talking about 988 claims?**
 2 Q Yes.
 3 A **And specifically Claim 2, clustering logic?**
 4 Q Yes.
 5 A **No.**
 6 Q Would any criteria for putting the data into
 7 groups or clusters fall within the scope of that
 8 limitation?
 9 **MR. LU:** And you're talking about the
 10 whole limitation? Could you read the
 11 limitation, otherwise I object to it being
 12 vague and ambiguous.
 13 **BY MS. MANNING:**
 14 Q In Claim 2 where it recites, clustering logic to
 15 identify position location based on error prone GPS
 16 information, would any -- any clustering logic that
 17 clustered based on any criteria fall within that
 18 claim?
 19 **MR. LU:** Other than error prone GPS
 20 information? I just want to make sure the
 21 claim -- the question is clear. Objection.
 22 Vague and ambiguous.
 23 A **I would think so.**
 24 Q Okay.
 25 **MS. MANNING:** I have no further questions

Page 59

(10:33:04-10:34:19)

1 for the witness at this time, though I do
 2 reserve the right to recross if you direct him.
 3 **MR. LU:** Fair enough.
 4 E X A M I N A T I O N
 5 **BY MR. LU:**
 6 Q Dr. Kotz, I'd like you to turn to the 897 patent.
 7 And you recall that we had a discussion regarding the
 8 meaning of the phrase predefined rules, and during
 9 that discussion you were asked whether or not you
 10 recollected any portions of the 897 patent
 11 specification that disclosed using the locations of
 12 recorded WiFi access points in conjunction with the
 13 predefined rules. Do you recall that line of
 14 questioning?
 15 A **Yes.**
 16 Q And it was my recollection that you did not
 17 immediately recollect any portions of the patent
 18 specification. Is that also correct?
 19 A **I think so.**
 20 Q I would direct your attention to column 10, line
 21 5 of the 897 patent titled Realtime Filtering of
 22 Suspect Access Points. Do you see that?
 23 A **Yes.**
 24 Q If you could read that section and let me know
 25 when you're done.

Page 60

(10:34:58-10:36:06)

1 A **Okay.**
 2 Q Does rereading that section refresh your
 3 recollection as to whether the 897 patent discloses
 4 the use of recorded access -- recorded location
 5 information for WiFi access points in conjunction with
 6 predefined rules?
 7 **MS. MANNING:** Objection. Leading.
 8 A **Well, this -- this paragraph or section certainly**
 9 **does use location information to determine which**
 10 **access points to include in location calculations,**
 11 **yes.**
 12 Q Okay.
 13 **MR. LU:** No further questions.
 14 **MS. MANNING:** I have no further questions.
 15 **VIDEOGRAPHER:** The time is now 10:35, and
 16 this concludes the video deposition of David
 17 Kotz.
 18 **THE REPORTER:** Same transcript orders as
 19 yesterday?
 20 **MS. MANNING:** Yes, please.
 21 **MR. LU:** Yes.
 22 (WHEREUPON, the deposition was closed at
 23 approximately 10:36 a.m.)
 24
 25

1 I have carefully read the foregoing
2 deposition and the answers made by me are true.

3
4
5
6
7

David Kotz, Ph.D.

8 STATE OF _____
9 COUNTY OF _____

10

11 At _____ in said
12 County, this _____ day of _____,
13 2011, personally appeared the above named
14 _____ and made oath that the
15 foregoing answers, subscribed by him, are true.
16 Before me,

17
18
19

Notary Public

20
21
22
23

24 My commission expires: _____

25

CERTIFICATE

1 I, Lisa M. Hallstrom, Registered Professional
2 Reporter, certify:

3
4
5
6

That the foregoing proceedings were
reported stenographically by me at the time and
place herein set forth;

7
8

That the foregoing is a true and correct
transcript of my shorthand notes so taken;

9
10

That the witness was sworn by me as a
Notary Public for the State of Vermont;

11
12
13

That I am not a relative or employee of
any attorney of the parties nor financially
interested in the action.

14
15
16
17

The certification of this transcript does not apply
to any reproduction of the same by any means unless
under the direct control and/or direction of the
certifying reporter.

18
19
20

Lisa M. Hallstrom, RPR, CRR, CCP

21
22
23
24

My commission expires February 10, 2015.

25

1	29 (3) 48:25;53:10,13	89 (3) 33:8;34:20;45:20	action (1) 3:16
1 (21) 5:12,15;7:19;9:25;11:19; 12:15;13:5,13,16,17,21;14:16, 25;15:3,5;18:7,10;32:1,5;33:12; 49:15 10 (1) 59:20 10:20 (1) 56:5 10:28 (1) 56:8 10:35 (1) 60:15 10:36 (1) 60:23 1004 (1) 34:21 1007 (1) 5:15 1010 (1) 13:18 1015 (1) 31:20 10-CV-11571-RWZ (1) 3:9 12 (4) 48:25;49:6;51:10;53:10 122 (1) 21:16 123 (1) 21:18 124 (1) 21:18 125 (1) 24:9 126 (1) 26:2 13 (1) 56:23 132 (2) 28:5,7 133 (4) 29:4;30:7,24;31:7 14th (1) 3:3	3	897 (8) 32:5,23;33:13;35:1;59:6,10, 21;60:3	actual (4) 17:13,21;51:4;55:2
	3 (8) 20:8;21:17,25,25;22:22,24, 24;23:5	9	actually (13) 20:19;21:8;28:10,13;33:19; 34:8;48:22;49:11,21;50:14; 53:18;54:11;56:18
	304 (1) 20:8	9:20 (1) 27:23	add (3) 49:12,16;50:12
	305 (1) 20:8	9:31 (1) 28:1	added (2) 49:7,22
	306 (1) 20:11	94 (2) 34:10,20	adding (2) 50:13,23
	307 (1) 20:11	988 (29) 5:12,14,14,15;7:19;8:25;10:1; 11:19;12:15;13:5,16,16;14:8; 18:9,10,25;19:24,25;23:11; 26:6;28:21;46:21;47:3,14; 48:23;49:6;54:20;56:12;58:1	additional (4) 28:9,12,16;29:2
	33 (2) 49:5;51:10	A	addressed (1) 21:8
	34 (3) 49:5,6;51:10		admit (1) 22:18
	38 (2) 48:25;53:11		again (9) 20:18;28:23;29:13;32:4;38:5; 40:5;41:6;42:18;45:14
	4	ability (1) 22:10	age (2) 53:4;54:1
	4 (12) 19:25;21:18,23;22:2,7,14,21, 23;23:1,6,6;28:21	able (3) 7:24;47:2,11	ago (3) 9:24;24:5;26:8
	5	above (1) 61:13	agree (8) 9:4;17:11;49:10,17;50:11,17; 51:21;53:16
	5 (1) 59:21	ac (1) 41:7	al (1) 54:12
	50 (1) 56:17	access (64) 5:16;6:4;7:2;8:4;11:20;12:16; 13:23;14:18;15:21;16:19,25; 17:6,13,19,22;22:3,11;24:3; 27:6,11,18,19;32:10,11,16; 34:24;35:8,9,14,17;36:20; 37:23;40:4,7,10,11,13,15,16,17, 19,22,25;41:2;46:20;49:7,17,19, 20;50:5,13;51:12;52:2,5,19; 56:20;57:1,5,11;59:12,22;60:4, 5,10	algorithm (33) 16:24;17:10,14,18,25;18:4; 44:25;45:8,14,24;46:2,14,18,23; 47:2,4,7,7;52:14;53:1,15,15,17, 21,25;54:3,5,15,18;56:12,19,19; 57:4
	6	accidentally (1) 45:12	algorithms (1) 17:8
	6 (1) 18:18	accomplish (8) 7:23;8:19,22;13:13;16:8,9; 45:24;52:1	allow (3) 6:7,22;37:22
	64 (1) 56:17	accomplishes (3) 15:14;53:16;54:5	along (1) 16:20
	694 (13) 13:17,18,21;14:16,25;15:3,5, 19;18:7,18;19:1;23:12;26:6	accomplishing (1) 45:16	alternatives (1) 8:17
	7	according (1) 53:3	always (1) 6:17
	7 (1) 56:24	accuracy (4) 16:22;17:11;18:2,23	Ambiguous (37) 5:18;6:1;7:6,20;9:10,15; 10:18;11:22;12:21;13:25; 14:20;15:8;16:3;17:1,16;18:14; 20:22;24:19;26:25;29:18;32:13, 24;33:15;35:2;36:3;37:16;38:3; 43:13;46:6,24;47:24;49:13; 50:19;53:19;57:25;58:12,22
	70 (1) 57:21	accurate (2) 33:6,9	among (2) 7:10;11:13
	74 (1) 31:22	achieve (4) 6:22;8:5;15:11;18:20	amount (3) 20:9;27:3,6
	7474897 (1) 31:21	achievement (1) 8:6	analogize (1) 46:14
	8	achieving (2) 15:12;16:10	analogy (4)
2	8 (4) 9:2;19:23,24,25		
2 (5) 51:11,11;54:19;58:3,14	8:32 (2) 3:1,4		
2005 (2) 31:3,16			
2011 (2) 3:3;61:13			
25 (1) 53:12			
26 (1) 56:23			
28 (1) 9:2			

<p>6:15;46:12,15,16 answered (11) 5:2,9;11:24;14:3,23;16:5; 18:16;41:11,14;42:13;43:1 antenna (2) 24:24;25:13 antennas (1) 22:12 anticipated (1) 10:25 apologize (1) 38:7 appeared (1) 61:13 appears (2) 45:8;55:7 applied (2) 39:2;40:21 apply (1) 37:12 applying (1) 56:18 approach (1) 12:4 approaching (2) 31:2,5 approximately (2) 3:1;60:23 ar (1) 29:12 area (8) 11:5;15:21,24;16:2;24:16; 25:4;27:6,16 areas (2) 10:12;27:16 around (5) 8:4;15:3;18:7,10;27:18 art (6) 4:24;31:3,16;51:17;52:1;54:5 arterial (61) 4:12,13;5:7,22;8:2,6;9:25; 10:17;12:24;13:12;15:5,12,16; 16:9,23;17:4,10;18:8,11,21,25; 19:5,7,13;21:13,13,19;22:1,4,4, 7,9,15,20;23:7,10,19,21;24:7, 18;25:2,7;26:5,12,15,20,23; 27:1,3,6,13;28:10,13,19;29:3,9, 16,21;30:9,15;31:9 arteries (21) 10:4,5,8;13:11;17:7;19:10,11, 14;20:3,8,13;22:18,21,22,24; 23:1,5,6;24:25;28:16,24 artery (8) 10:6;19:2,19,20;20:6,20,21; 29:23 assignment (1) 46:18 associated (1) 52:15 assume (4) 23:3;24:23;43:22;44:15 assuming (3) 16:8;22:23;43:22</p>	<p>assumption (1) 23:4 attention (2) 57:6;59:20 average (1) 52:17 avoid (16) 8:6;10:17;15:6,16;18:11; 21:2,5,6,9,10,13;25:16;29:25; 30:1;32:7,8 avoidance (1) 9:24 avoided (3) 23:11;24:8;25:8 avoiding (5) 12:24;18:7,21;29:16;30:9 avoids (3) 8:1;15:4;26:5 aware (4) 4:19;5:4;30:19;31:25</p> <p style="text-align: center;">B</p> <p>back (8) 8:19;11:18;19:12;20:18;25:1; 41:21;49:24,25 bad (2) 24:17,22 Baker (1) 3:14 ballparking (1) 6:11 based (13) 5:16;11:20;12:16;13:23; 14:18;32:17;41:16;44:19; 48:19;51:12;54:21;58:15,17 basing (1) 42:4 basis (2) 21:12;40:23 Bates (1) 31:21 besides (1) 5:5 better (4) 24:3;27:16;29:5;45:17 beyond (1) 43:14 bias (70) 4:12,13;5:7,23;8:2,6;9:25; 10:7,17;12:24;13:12;15:5,12, 16;16:9,23;17:4,5,10;18:8,11, 21,25;19:5,7,13;20:3;21:3,13, 13,19;22:1,4,4,7,9,15,18,20; 23:7,10,19,21;24:7,18;25:2,7, 16;26:5,12,15,20,23;27:1,3,6, 13,20;28:10,13,19;29:3,9,16,21, 21;30:9,13,15;31:9 Bingham (1) 3:15 bit (1) 48:4 both (7)</p>	<p>18:3;47:25;48:12,13,16; 49:18;57:8 break (5) 3:24;25:21;27:21;55:23;56:4 broad (1) 15:24 broke (1) 4:3 buildings (2) 10:6;25:14</p> <p style="text-align: center;">C</p> <p>calculate (3) 16:18,24;53:6 calculated (26) 5:16,23;8:1;10:7;11:20; 12:16;13:22;14:17;15:25;17:12, 20;18:2;21:24;22:3;23:19; 35:22;36:2,7;37:7,13,14;38:1; 49:20;50:5,15;57:14 calculating (2) 46:4;57:4 calculation (2) 17:5;45:25 calculations (3) 22:16;52:25;60:10 Calls (14) 5:19;6:1;7:7,21;9:16;10:19; 11:23;14:1,21;15:9;18:15; 24:20;46:7;56:18 Can (30) 4:7;5:6;7:4,18,18;11:2;15:15; 18:13;20:23;22:6,8;23:13,14; 24:3;25:11,13;27:7;29:25; 30:14,20;31:12;38:13;44:18; 47:25,25;48:1;52:10;54:5; 55:19,24 capabilities (3) 24:11,13,16 captioned (1) 21:25 carefully (2) 40:8;61:1 case (7) 10:20;11:16;14:6;20:24;23:6; 32:2;36:18 cases (2) 28:9;57:7 caused (1) 17:6 centroid (4) 46:19;47:3,6;56:25 certain (5) 33:3;34:16;44:14,17;45:21 Certainly (7) 4:16;6:14;27:14;42:23;48:13; 52:6;60:8 chance (1) 6:17 change (2) 11:25;25:2 characteristic (3)</p>	<p>39:13,20,24 characterization (1) 8:11 Chinese (2) 28:7,14 choose (1) 39:21 citation (2) 28:9;33:1 citing (1) 33:9 city (1) 22:23 Claim (49) 5:12,15,20;7:19;9:25;11:18; 12:15;13:5,13,16,17,21;14:16, 25;15:3,5,7,12,13;18:7,10,13; 23:17;26:4;32:1,5;33:12,17; 35:21;36:7,24;38:18;41:17,19, 20;44:23;49:15;50:2,3,6,11,20; 54:6,19;55:12;58:3,14,18,21 claimed (3) 6:21;7:18;11:6 claims (7) 29:17;30:2,10;42:6;47:14; 57:23;58:1 clarification (1) 56:10 clarify (2) 31:4;48:2 clause (1) 50:8 clear (3) 33:24;50:2;58:21 close (3) 17:12,20;56:16 closed (1) 60:22 closely (1) 56:15 closer (2) 17:21;21:24 clustered (1) 58:17 clustering (7) 55:12,14,17;57:24;58:3,14,16 clusters (2) 57:23;58:7 coin (1) 32:17 collect (3) 19:9;23:17;24:14 collected (3) 6:3,18;10:5 collecting (3) 6:25;8:7;23:25 collection (5) 6:4;11:10;12:14;17:25;19:8 column (10) 9:2;19:23,25;48:24;49:6; 51:10;53:10;56:22,23;59:20 columns (1) 57:1</p>
---	---	--	--

<p>combination (1) 57:15</p> <p>comma (1) 20:3</p> <p>Commencing (1) 3:1</p> <p>commentary (1) 55:5</p> <p>commission (1) 61:24</p> <p>common (3) 6:15;46:16;48:20</p> <p>compensate (1) 29:7</p> <p>competitor (3) 15:2;18:9;32:4</p> <p>compiled (1) 27:4</p> <p>complete (1) 10:12</p> <p>Compound (2) 11:8;36:4</p> <p>computed (1) 57:17</p> <p>computer (12) 46:2,9,13;47:17,19,20;48:7, 15,15,16;50:21;51:8</p> <p>con (1) 25:13</p> <p>concentrate (3) 10:3,4;13:10</p> <p>concept (4) 4:21,24;27:13;30:13</p> <p>concludes (1) 60:16</p> <p>conclusion (1) 46:8</p> <p>conjunction (8) 36:25;37:4;38:21,23,24;39:1; 59:12;60:5</p> <p>conscious (2) 8:22;12:10</p> <p>considering (1) 43:9</p> <p>consistent (1) 13:5</p> <p>constitute (1) 19:19</p> <p>constitutes (6) 10:15;12:9;19:2,19;20:20,21</p> <p>constrain (1) 39:24</p> <p>constraining (1) 40:14</p> <p>construct (3) 23:18;54:5;57:3</p> <p>construction (1) 26:5</p> <p>construe (1) 45:13</p> <p>contention (1) 21:12</p> <p>contest (2)</p>	<p>45:6,13</p> <p>context (12) 18:9;19:7;21:10;23:17;29:1; 35:4,5,7;36:12;47:17;55:8,11</p> <p>continued (1) 3:6</p> <p>coordinating (2) 11:11,15</p> <p>copy (3) 4:9,10;31:20</p> <p>correctly (4) 8:3;15:13;35:13;40:18</p> <p>correspond (1) 7:15</p> <p>corresponding (2) 50:4;57:11</p> <p>counsel (1) 3:12</p> <p>count (1) 29:6</p> <p>COUNTY (2) 61:9,12</p> <p>couple (4) 29:9;55:21,22,25</p> <p>course (4) 8:13;17:8;29:4;47:5</p> <p>Court (2) 3:8,11</p> <p>cover (9) 5:15;7:4;10:21;11:19;12:15; 13:11,21;14:16;21:4</p> <p>coverage (3) 20:2;27:15,16</p> <p>covered (2) 20:12;38:25</p> <p>covering (1) 21:1</p> <p>covers (3) 20:2;24:1,15</p> <p>criteria (7) 32:23;35:20;36:1;37:6;39:12; 58:6,17</p> <p>cumulative (1) 20:2</p>	<p>40:12;55:14</p> <p>decided (1) 32:16</p> <p>deciding (1) 40:16</p> <p>decision (5) 36:19,22;37:13;38:17;44:19</p> <p>decisional (3) 35:25;37:5;39:12</p> <p>decision-making (1) 32:23</p> <p>declaration (13) 4:9;21:14;22:10;24:6;28:5; 32:25;34:20;43:15,18;45:2,3,8; 57:21</p> <p>deemed (1) 23:5</p> <p>define (2) 39:22;45:17</p> <p>defined (3) 32:25;39:19;45:1</p> <p>defines (2) 12:1;19:11</p> <p>defining (1) 19:6</p> <p>definition (13) 12:3,8;19:4;20:5;33:5,7; 45:15,19,23,23;46:1,5,11</p> <p>definitions (1) 34:19</p> <p>degree (8) 22:8,20;23:14;24:7;26:9,11; 27:17;44:14</p> <p>delivery (1) 13:9</p> <p>denoted (1) 57:12</p> <p>depend (2) 28:23;37:25</p> <p>depends (3) 7:10;8:7;22:9</p> <p>deposition (8) 3:6,25;4:3;10:10;12:12; 60:16,22;61:2</p> <p>describe (3) 9:8;11:2;13:3</p> <p>described (1) 25:18</p> <p>describes (3) 6:24;21:1;56:22</p> <p>description (1) 47:7</p> <p>design (2) 15:3;18:10</p> <p>designing (1) 18:6</p> <p>destination (1) 20:13</p> <p>detail (5) 53:21;54:3,16;56:21;57:2</p> <p>determinant (6) 33:2;34:16;36:17,20;45:16,21</p> <p>determine (11)</p>	<p>18:24;19:1,12,14;32:9;34:24; 35:7;37:1,22;44:18;60:9</p> <p>determined (3) 34:11,14;35:18</p> <p>determining (1) 46:19</p> <p>device (6) 24:11,13,17,21,25;34:25</p> <p>devices (1) 55:10</p> <p>dictionary (2) 33:2,10</p> <p>different (7) 12:19;14:11;27:12;30:12; 31:6;37:20;39:7</p> <p>difficult (8) 7:22;15:10;18:19;22:13; 25:16;26:11,17;32:15</p> <p>difficulty (1) 22:19</p> <p>digit (4) 44:2,5,15,17</p> <p>direct (2) 59:2,20</p> <p>directed (2) 13:16;57:6</p> <p>discarding (3) 29:11,14;30:24</p> <p>disclose (1) 54:15</p> <p>disclosed (1) 59:11</p> <p>discloses (2) 54:12;60:3</p> <p>discovered (3) 49:16;50:12;52:4</p> <p>discussed (4) 10:9;12:14;14:8;36:16</p> <p>discusses (1) 9:4</p> <p>discussing (3) 9:13;12:20;56:11</p> <p>discussion (3) 10:13;59:7,9</p> <p>distance (1) 57:24</p> <p>distinction (5) 11:3,7;12:12;28:24;39:7</p> <p>distribution (5) 15:20,24;22:11,11;25:5</p> <p>District (2) 3:8,8</p> <p>divide (1) 57:22</p> <p>document (1) 31:22</p> <p>done (5) 4:2;43:8,10;55:25;59:25</p> <p>down (1) 47:2</p> <p>Dr (4) 3:21;28:4;31:19;59:6</p> <p>draw (3)</p>
	D		
	<p>data (26) 6:2,8,17;8:7;10:5,13;12:5,14; 18:24;19:8;20:10;23:18,25; 24:14;27:13;28:17;29:6,11,14, 25;30:24;51:4,12;52:14;57:22; 58:6</p> <p>database (14) 5:15;11:19;12:15;13:5,22; 14:17;23:18;27:4;49:8,12,16; 50:12;51:2;52:3</p> <p>David (8) 3:6;41:24;42:9,18;43:3;52:6; 60:16;61:5</p> <p>day (1) 61:12</p> <p>decide (2)</p>		

<p>19:18;20:19,23 drawing (3) 11:3;21:15;28:24 drew (1) 12:12 drive (3) 25:12,13;28:8 driven (4) 29:12,15;30:8,25 drivers (5) 7:17;10:11,20;11:4,9 driving (33) 5:17,21;6:2,7,23;7:1,5,12; 8:16,17;9:13,24;10:3,16,16,24; 11:21;12:2,3,9,13;13:15,24; 14:5;19:9;20:1;28:9,12,16;29:2, 6,22;30:8 drove (1) 16:17 during (3) 10:9;12:11;59:8</p>	<p>ends (2) 44:5,10 enough (3) 17:7;34:4;59:3 entire (1) 8:16 equation (1) 57:15 equations (3) 56:16;57:9,9 Eric (1) 3:10 erroneous (3) 55:7,9,15 error (6) 54:21,24;55:2,3;58:15,19 errors (1) 55:11 established (1) 26:24 estimated (1) 53:6 etc (2) 50:23;54:2 even (6) 24:14;29:5;32:15;43:25; 44:10,18 Eventually (2) 6:16;43:1 exactly (5) 12:20;15:25;16:1;19:23; 23:23 example (18) 13:8;19:23;21:15,17,18,21; 22:1;25:1;26:23;27:4;32:16; 33:1;34:9;36:11;56:17,23; 57:14,24 examples (7) 19:5;24:12;26:22;31:10,11, 14,15 except (1) 32:5 exclude (4) 32:16;36:19;37:1,24 excluded (3) 32:10;40:13;55:16 exclusive (2) 48:8,11 Exhibit (4) 5:14;13:18;31:20;34:20 existing (1) 51:11 expect (1) 47:1 expense (1) 20:4 expert (1) 43:14 expires (1) 61:24 explain (1) 28:11 explicitly (1)</p>	<p>50:23 Express (1) 3:4 expressed (1) 46:3 extent (8) 5:8;14:2,22;16:4;18:15;19:4; 33:9;46:7</p> <p style="text-align: center;">F</p> <p>fact (4) 4:17;12:22;24:17;46:22 factor (3) 25:5,6;53:1 factors (9) 6:20;7:11,16;22:9,20;24:6; 25:7;52:14;53:25 fair (8) 8:11,13;12:5;31:6;34:4; 46:14,15;59:3 fairly (1) 47:4 fall (3) 38:18;58:7,17 familiar (1) 9:3 far (1) 15:15 feel (2) 38:17;42:22 feeling (1) 36:10 Fernald (1) 3:10 few (2) 9:23;26:8 field (1) 48:21 Figure (20) 20:8;21:23,25,25;22:2,7,14, 21,22,23,24,24;23:1,5,6,6; 28:17,20,21;55:24 Figures (1) 21:17 filed (1) 31:17 Filtering (1) 59:21 final (3) 44:5;56:24,25 find (2) 18:19;52:10 finding (1) 7:22 fine (2) 38:8;42:3 finish (1) 55:19 finite (1) 46:3 firm (1) 3:15</p>	<p>first (5) 3:24;10:9;14:12;47:1;54:24 fit (1) 39:23 fits (1) 39:25 flip (1) 32:17 fly (2) 42:20;45:13 following (1) 9:2 follow-up (3) 10:25;18:21;56:3 foregoing (2) 61:1,15 form (2) 16:21;21:3 forth (2) 13:9;22:12 found (2) 37:18;46:1 Foundation (16) 5:19,25;7:7;10:19;11:23; 14:1,21;15:9;17:2,23;24:20; 29:19;32:14;38:4;44:11;46:25 four (1) 4:10 frequent (1) 20:12 function (8) 16:23;17:9,14,24;18:3;39:18, 19;46:4 functions (1) 39:22 fundamentals (1) 18:17 further (5) 50:10;51:7;58:25;60:13,14</p> <p style="text-align: center;">G</p> <p>gather (1) 50:25 gathered (5) 5:17;11:21;12:17;13:23; 14:18 gave (4) 9:23;34:19;46:17,21 general (4) 15:20;21:2;22:17;27:12 generally (2) 11:10;12:6 generically (2) 50:18;51:1 gets (1) 17:12 given (9) 10:15;18:24;23:4;27:6,11; 40:21,23;46:23;50:10 gives (1) 20:15 giving (1)</p>
E			
<p>earlier (4) 16:6;36:11,16;50:6 easily (1) 44:18 effect (7) 10:22;19:22;25:12,19;26:10; 30:15,16 effective (1) 46:2 effects (3) 25:2;28:18;31:9 effort (5) 7:1;8:22;10:4,11;16:18 efforts (3) 11:13,15;13:10 either (3) 25:6;47:24;48:11 either/or (1) 47:20 eliminate (2) 21:5,6 eliminated (2) 21:20,22 else (4) 12:7;51:24;52:10;55:24 elsewhere (1) 17:7 embodiment (1) 54:18 emphasize (1) 37:2 employ (2) 12:25;13:2 employed (1) 7:12 enabling (1) 55:14 end (3) 13:12;18:23;43:25</p>			

<p>42:4 glance (1) 14:12 goal (2) 15:14;23:17 goals (2) 8:22;13:13 goes (6) 20:18,18;43:14;50:21;51:10; 56:21 Good (4) 3:14,21,22;45:23 Google (3) 3:7,16;31:20 GPS (12) 54:21,24;55:1,4,5,6,6,9,10; 57:11;58:15,19 graduate (2) 46:17;47:10 great (2) 30:19;55:24 green (2) 4:6,6 ground (1) 20:2 groups (2) 57:23;58:7 GSHFED_0000061 (1) 31:21 guess (5) 19:11;22:25;23:8;45:14; 53:13</p>	<p>helping (1) 52:24 histories (1) 5:6 Holiday (1) 3:4 hoping (1) 55:21 Hotel (1) 3:5 hours (1) 55:18 hypothetical (3) 15:1;32:14;33:16</p>	<p>individualized (1) 40:22 inform (1) 5:6 information (78) 5:4,11,16,23;6:25;11:20; 12:16;13:22;14:17;18:2;19:18; 20:16;35:6,10,15,19,22;36:2,6, 8,11,15,21,25;37:7,9,14;38:1,6, 14,16,23,25;39:3,5,9,14,16,18, 25;40:2,3,6,9,16;41:5,8;42:16; 43:11,23;44:9,21;46:20;49:19, 20;50:4,5,15,15,22;51:2,9;52:2, 4,19;53:5,6;54:16,21,22,25; 55:4,5,9;58:16,20;60:5,9</p>	<p>4:14,23;31:2,15;55:10 Kotz (7) 3:6,21;28:4;31:19;59:6; 60:17;61:5</p>
H	I	<p>informed (1) 42:7 infringe (1) 32:6 inherently (1) 26:12 Inn (1) 3:4 inputs (1) 57:20 instructions (1) 46:4 interested (1) 16:13 interpretation (1) 17:4 into (2) 57:23;58:6 introduce (1) 3:12 invent (1) 30:16 invention (9) 4:14;6:21,24;7:18;10:22; 11:6;21:1;23:20,23 inventions (1) 4:24 involved (1) 22:20 Irell (1) 3:17 issue (4) 30:5;32:1;38:12;48:5 iterative (1) 9:9</p>	L
<p>Hallstrom (1) 3:11 hand (1) 47:8 handed (1) 31:19 happen (3) 16:12;18:23;21:3 happy (1) 14:14 hard (1) 20:23 hardware (3) 47:20;48:15,16 hardware/software (1) 47:19 head (1) 30:22 heard (5) 4:16,17;35:12;39:7;40:23 hearing (1) 16:14 heavily (2) 19:22;20:8 heavy (1) 20:9 help (2) 19:18;36:13</p>	<p>idea (1) 20:25 identification (3) 49:19;50:4,14 identified (6) 23:5;24:6;29:8;30:23;31:11; 32:6 identify (4) 25:5,6;54:21;58:15 imagine (3) 8:17;15:15;39:17 imagined (1) 18:22 immediately (2) 50:2;59:17 implementation (1) 57:3 implementing (1) 47:18 implication (1) 22:25 implicitly (1) 35:15 implied (1) 11:14 important (1) 12:7 imprecise (2) 23:15;26:13 impression (2) 19:3,6 inaccurate (1) 22:15 Inc (3) 3:7,16,18 include (8) 32:16;35:7,9,13;36:19;37:1; 48:13;60:10 included (2) 32:10;40:13 including (4) 22:10;50:3,22;51:9 Incomplete (2) 32:14;33:16 increase (2) 28:11,13</p>	<p>J</p> <p>Junction (1) 3:5</p> <p>K</p> <p>kind (3) 10:16;24:1;29:24 kinds (1) 28:25 known (5)</p>	<p>label (1) 22:22 labels (1) 22:24 language (4) 38:25;41:17,19,21 large (1) 55:11 largely (1) 12:18 last (6) 12:11;23:22;28:11;37:19; 44:15,17 lat (9) 56:24;57:8,12,13,13,14,15,17, 18 late (2) 31:3,16 latitude (7) 43:12,23;44:3,10,12,16;56:20 latitudes (1) 43:25 lawyer's (1) 46:10 lead (11) 5:22,24;6:5,7,21;9:13,24; 12:23;13:5;16:22;27:15 Leading (1) 60:7 leads (1) 26:15 least (8) 7:11;10:10;15:15;16:23; 20:15;36:5;48:20;57:2 legal (2) 46:8;54:8 less (3) 26:15,18,20 level (1) 23:16 likelihood (2) 6:12;7:10 likely (5) 5:21;6:5,6;7:9;13:11 limitation (13) 15:5,6;18:12;32:1,7,8;33:17; 49:15;51:7;54:19;58:8,10,11 limited (2) 24:13;25:17 line (11) 19:18,24,25;20:19,23;48:25, 25;49:5;56:23;59:13,20 lines (5) 9:2;51:10;53:10,12;56:17 Lisa (1) 3:11</p>

<p>list (1) 46:3</p> <p>literally (1) 35:14</p> <p>literature (2) 4:20;5:10</p> <p>litigating (1) 48:5</p> <p>little (1) 56:15</p> <p>live (1) 25:11</p> <p>location (61) 16:25;17:6,12,13,20;18:2; 21:25;22:15;34:25;35:6,10,15, 19,22;36:2,6,8,15,21,25;37:7,8, 14,24;38:1,6,13,16;39:2,4,9,14, 16,20,21,25;40:2,3,6,9,16;41:4; 42:16;43:2,11,17,23;44:9,16,20; 49:20;50:15;53:6,7;55:2;56:25; 57:11;58:15;60:4,9,10</p> <p>locations (9) 8:4;15:25;16:1,20;21:24; 22:3;24:4;41:8;59:11</p> <p>logic (18) 47:13,18,18;48:14;49:15; 50:11,17,21,22;51:8,9;54:20; 55:12,14,17;58:3,14,16</p> <p>long (7) 54:4;56:24;57:8,12,13,13,18</p> <p>longitude (6) 43:12,24;44:4,13,16;56:21</p> <p>look (10) 5:6;35:4;40:8;41:22,24;42:2, 9;47:3;48:24;56:14</p> <p>looked (3) 8:18,24;9:1</p> <p>looking (5) 22:14;26:2;36:7;50:8;56:16</p> <p>looks (2) 4:6;57:16</p> <p>loose (1) 39:23</p> <p>lot (4) 22:9;47:5,15;54:16</p> <p>Lu (80) 3:17,17;5:2,8,18,25;6:9,13; 7:6,14,20;8:9;9:10,15;10:2,18; 11:8,22;12:21;13:25;14:20; 15:8;16:3,16;17:1,16,23;18:14; 20:22;24:19;25:9,21,24;26:25; 27:8,22;29:18;30:11;32:13,24; 33:15,21,24;34:4;35:2,23;36:3; 37:16;38:3;39:6;41:11,14,24; 42:2,9,18;43:3,13;44:1,6,11; 46:6,24;47:23;48:3,9;49:13,23; 50:19;52:6;53:19;55:18;56:2; 57:25;58:9,19;59:3,5;60:13,21</p>	<p>making (3) 10:21;36:21;38:17</p> <p>Manella (1) 3:17</p> <p>MANNING (29) 3:14,15,20;8:10;25:22;26:1; 27:9,21;28:3;33:19,22;34:2,5; 35:24;41:12,15;42:1,11,21; 43:7;44:5;48:2,10;55:20;58:13, 25;60:7,14,20</p> <p>many (4) 7:2,2;22:20;57:22</p> <p>mapped (1) 8:15</p> <p>marked (3) 5:14;13:18;31:19</p> <p>Massachusetts (1) 3:9</p> <p>mathematical (1) 56:15</p> <p>mathematically (1) 39:17</p> <p>mathematics (2) 46:1;53:23</p> <p>matter (4) 3:7;26:6,16;47:12</p> <p>may (6) 11:13;13:11;15:16;23:16; 28:8;56:2</p> <p>McCutchen (1) 3:15</p> <p>mean (20) 17:24;21:15;23:23,25;26:7, 19;27:2;32:25;35:3;36:14;38:9, 9;39:1,10;42:12;48:11;50:6; 53:20,22;56:21</p> <p>meaning (15) 9:25;18:25;23:11;29:16; 30:10;32:22;33:7,12,20,25; 35:1,3,21;44:23;59:8</p> <p>means (6) 8:14;11:10;21:11;37:5;38:22; 43:17</p> <p>meant (4) 22:23;44:8;45:11;48:6</p> <p>measured (2) 44:13,16</p> <p>meet (2) 15:4;18:11</p> <p>meeting (1) 15:6</p> <p>mention (1) 35:14</p> <p>mentioned (1) 24:5</p> <p>method (22) 6:25;7:5;12:13,17;14:19; 15:14,17;26:21,21,24;27:1,5,14; 32:18;33:2;34:16;36:17,20; 42:17;45:16,21;46:3</p> <p>methodology (1) 18:3</p> <p>might (6) 16:7;17:9;18:22;22:13;24:7; 39:21</p> <p>mind (4) 21:5;42:6,13,24</p> <p>minute (2) 14:13,14</p> <p>minutes (1) 26:8</p> <p>missed (2) 8:18,20</p> <p>model (12) 12:13,23;13:2,4,8,15;19:8; 28:8,14;52:13,18;53:24</p> <p>moment (4) 23:3;24:5;44:12,15</p> <p>moments (1) 9:23</p> <p>monitor (1) 3:3</p> <p>monkey (1) 6:15</p> <p>more (25) 4:2;10:12;19:10;20:2,2,13; 25:22;27:19;28:8,17;29:12,15, 22;30:25;33:4;37:10;42:22; 47:5;50:18;51:1;52:17;55:22, 22;56:15,21</p> <p>morning (4) 3:14,21,22;4:5</p> <p>most (1) 6:2</p> <p>moves (1) 43:5</p> <p>much (4) 21:11;23:10;26:16,17</p> <p>multiple (2) 7:25;8:4</p> <p>must (2) 36:14;40:21</p>	<p>next (4) 20:7,11;26:2;56:22</p> <p>nonarteries (1) 28:18</p> <p>Notary (1) 61:20</p> <p>note (5) 29:8,14;30:6;45:4;57:21</p> <p>notebook (3) 4:6,7;5:13</p> <p>notice (1) 4:5</p> <p>Number (13) 3:9;7:11;17:8;25:4,17;31:8, 21;43:25;44:10;51:11;52:15; 53:1,25</p> <p>numbered (1) 31:21</p> <p>numbers (1) 44:13</p>
O		
		<p>oath (2) 3:23;61:14</p> <p>object (5) 14:2,22;16:4;18:15;58:11</p> <p>Objection (49) 5:2,8,18,25;7:6,20;9:10,15; 10:18;11:8,22;12:21;13:25; 14:20;15:8;16:3;17:1,16,23; 18:14;20:22;24:19;25:9;26:25; 27:8;29:18;32:13,24;33:15; 35:2,23;36:3;37:16;38:3;39:6; 41:11,14;43:13;44:1,11;46:6,7, 24;49:13;50:19;53:19;57:25; 58:21;60:7</p> <p>objections (7) 6:9,13;7:14;8:9;10:2;16:16; 30:11</p> <p>observations (2) 25:15;27:18</p> <p>observe (1) 7:1</p> <p>observed (7) 6:4;32:10;34:24;35:17;37:22; 40:7,10</p> <p>obtain (2) 24:3;36:18</p> <p>obtaining (4) 33:3;34:16;36:17;45:21</p> <p>obvious (1) 42:17</p> <p>occasionally (1) 55:10</p> <p>occur (1) 19:9</p> <p>occurrence (2) 34:12,15</p> <p>October (1) 3:3</p> <p>off (5) 27:24;30:7,22,25;56:6</p>
N		
	<p>named (1) 61:13</p> <p>Nancy (1) 57:16</p> <p>natural (1) 37:10</p> <p>nature (1) 37:6</p> <p>necessarily (5) 11:11,12;12:4;21:19,22</p> <p>need (10) 8:13;19:13;23:16;42:9,22; 47:8;52:7;53:22;54:2;55:25</p> <p>needed (1) 54:17</p> <p>needs (4) 20:24;23:15;36:20;54:13</p> <p>new (4) 30:16;49:7;51:12;52:13</p> <p>newly (3) 49:16;50:12;52:4</p>	
M		
<p>main (1) 20:3</p>		

<p>once (8) 28:8;29:12,15,22;30:25;32:4; 49:2,4</p> <p>one (37) 4:13,23;8:13,16;9:1;10:9; 12:1;16:7,9;17:6,8,18;18:20; 19:13;20:5,24;21:21;23:13,14; 24:12;25:12,14,15,22;26:14; 30:1;31:8;43:20;44:14,18;46:1, 17;48:12;54:2,4;56:2;57:3</p> <p>ongoing (2) 8:20;9:8</p> <p>only (3) 25:12,13;43:24</p> <p>on-the-fly (1) 45:15</p> <p>opine (1) 43:17</p> <p>opined (1) 34:8</p> <p>opinions (1) 47:16</p> <p>opposed (8) 9:9;17:21;19:2;22:15;39:3,3; 42:25;46:10</p> <p>optimal (1) 20:14</p> <p>order (5) 10:12;18:24;19:12;23:11; 54:3</p> <p>orders (1) 60:18</p> <p>ordinary (5) 31:3,16;33:7;51:16;54:4</p> <p>original (1) 11:18</p> <p>orthogonal (2) 30:13,13</p> <p>others (2) 27:17,20</p> <p>otherwise (3) 7:24;29:7;58:11</p> <p>out (7) 8:16;29:5;37:13,15;53:21; 54:3;55:25</p> <p>outside (1) 30:2</p> <p>over (2) 20:1;48:5</p> <p>overall (1) 17:11</p> <p>own (1) 12:8</p> <p>owned (1) 40:22</p>	<p>52:12,24;53:10,12;56:24;57:21; 60:8</p> <p>paragraphs (3) 21:18;34:20;56:16</p> <p>parsing (2) 49:2,4</p> <p>part (10) 15:11,12;16:23;17:17;35:6; 36:5;42:17;51:15;53:23;56:17</p> <p>particular (9) 15:4;18:11;32:6,7,9;40:11,14; 42:14;48:5</p> <p>parts (1) 8:20</p> <p>passage (1) 48:25</p> <p>passages (1) 8:25</p> <p>patent (57) 5:13,14,15;7:19;8:25;9:7; 10:1,1;11:17,19;12:14,15;13:6, 16,17,18,21;14:9,16,25;15:3,5, 20;18:7,9,18;19:1,17,24;20:1, 25;23:16;26:13;28:21;30:3,4; 31:20;32:23;35:1,3;42:19;43:4; 46:22;47:3,4,14;48:23;49:6; 51:25;54:11,20;56:12;59:6,10, 17,21;60:3</p> <p>patents (9) 4:10,15,17,25;5:5;23:12;26:6; 31:17;47:17</p> <p>pedantic (1) 44:12</p> <p>Pending (1) 49:25</p> <p>perfect (1) 55:10</p> <p>perform (3) 23:20,23;26:14</p> <p>perhaps (1) 11:15</p> <p>permits (1) 26:6</p> <p>person (3) 31:3;51:16,25</p> <p>personally (1) 61:13</p> <p>persons (1) 31:15</p> <p>PhD (1) 61:5</p> <p>phrase (2) 55:3;59:8</p> <p>phrased (1) 40:18</p> <p>piece (1) 40:3</p> <p>place (3) 9:7;42:14;51:24</p> <p>places (1) 13:8</p> <p>plan (3) 8:19;9:8,9</p>	<p>planned (7) 6:24;7:16;8:8,14;13:1;24:1, 14</p> <p>planning (10) 7:19,23;8:14,20;9:1,5;11:4, 12,14;13:3</p> <p>plans (1) 10:21</p> <p>please (2) 3:12;60:20</p> <p>point (45) 5:17;8:5;11:20;12:16;13:23; 14:18;16:25;17:6,13,21,22; 21:8;24:3;27:7,11,19;29:5;31:6; 32:10,17;34:24;35:8,9,14; 36:20;37:23;40:4,7,11,15,16,17, 19,22,25;41:3;46:9,10,20;49:19, 20;50:5;56:20;57:1,11</p> <p>points (29) 6:4;7:2;15:21;16:19;17:7,19; 19:8;21:14;22:3,12;27:19; 28:17;32:11;35:17;40:10,13; 49:7,17;50:13;51:12;52:3,5,19; 57:5,22;59:12,22;60:5,10</p> <p>poor (3) 16:22;17:18;18:23</p> <p>portions (3) 33:18;59:10,17</p> <p>position (18) 5:16;8:1;11:20;12:16;13:22; 14:17;16:19;46:19,20;50:5,22; 51:9;52:2,4,19;54:21;56:20; 58:15</p> <p>positions (3) 10:7;23:19;57:5</p> <p>possibility (3) 16:12,13,17</p> <p>possible (6) 6:10;7:2,3,8;17:8;57:22</p> <p>postman (2) 28:7,14</p> <p>practice (3) 7:18;18:12;32:5</p> <p>practicing (5) 10:22;11:6;15:7;32:7,8</p> <p>precise (3) 24:23;26:5;33:4</p> <p>precision (3) 23:16;44:14,17</p> <p>predefined (24) 31:25;32:12,20;34:6,7,10,13, 23,25;35:5,21;36:12;37:5,11, 21;39:12;40:1,20,24;43:24; 44:22;59:8,13;60:6</p> <p>prepare (1) 4:2</p> <p>preplanned (1) 8:15</p> <p>preplanning (1) 9:9</p> <p>present (1) 27:3</p> <p>presented (1)</p>	<p>13:7</p> <p>presumably (1) 32:20</p> <p>previously (3) 52:3,5,20</p> <p>prior (5) 4:14,24;34:11,14;52:23</p> <p>probable (1) 6:10</p> <p>probably (3) 15:16;17:3;57:9</p> <p>problem (6) 4:14;14:4;29:25;30:13;31:2,5</p> <p>problems (1) 14:6</p> <p>process (4) 8:21;17:25;49:2,4</p> <p>processing (1) 52:13</p> <p>produce (2) 6:18;57:18</p> <p>project (1) 7:12</p> <p>prone (6) 54:21,24;55:4,4;58:15,19</p> <p>prosecution (1) 5:5</p> <p>provide (2) 53:22;57:2</p> <p>provides (4) 47:5,6;53:23,24</p> <p>Public (1) 61:20</p> <p>purpose (1) 55:13</p> <p>put (1) 37:22</p> <p>putting (2) 34:13;58:6</p>
Q			
			<p>qualities (1) 24:22</p> <p>quality (9) 16:24;17:14;37:25;39:4,8,13, 20,24;55:5</p> <p>quantify (5) 23:13,14;26:11,14,17</p> <p>quantifying (1) 6:14</p> <p>quasi (1) 52:17</p> <p>question's (1) 54:10</p> <p>quick (3) 5:20;45:18;55:23</p> <p>quite (5) 17:20;40:18;45:19;47:15; 48:4</p>
R			
<p>P</p> <p>papers (1) 4:19</p> <p>paragraph (19) 21:16;24:9;26:2,2;28:5,7; 30:7,24;31:7;33:8;34:10;45:20;</p>			

radio (1) 25:12	59:16;60:3	57:12	48:25;53:11
raise (1) 48:4	reconciling (1) 22:19	relative (1) 55:2	route (9) 7:19,23;8:16;9:1,5,9;11:4; 24:1,15
random (16) 12:13,13,17,23;13:2,4,8,15; 14:19;19:7;20:1;26:24;27:1,5, 14;32:17	record (8) 3:2;27:24;28:2;49:21;50:3; 53:9;56:6,9	relies (2) 37:6,8	routes (3) 11:15;13:1;19:22
randomly (2) 6:15;19:9	recorded (36) 35:5,10,15;36:6,8,15,21,25; 37:8;38:6,13,16;39:2,4,8,14,25; 40:2,3,6,9,15;41:8;43:2,11,12, 17,22,23;44:9,20;51:13;57:11; 59:12;60:4,4	remember (5) 4:22;19:21,23;34:8;45:1	routine (1) 47:4
range (1) 25:13	recording (1) 16:19	reported (1) 46:20	routing (2) 28:8,14
rarely (1) 20:12	records (9) 49:16,18;50:12,13;52:15; 53:1,5;54:1,1	reporter (2) 3:11;60:18	rule (42) 32:18,22;33:7,12,20,25;34:6, 7,13,23,25;35:5,7,12,14,16,18, 21;36:5,12,16;37:11,11,12,21, 25;38:15,24;39:2,12;40:1,5,11, 20,21,24;41:6;43:24;44:19,22; 45:20,20
rather (3) 17:7;33:17;44:21	recross (1) 59:2	repositioned (1) 51:12	rules (8) 31:25;32:12;37:1,5;38:22; 59:8,13;60:6
reached (1) 55:18	redriving (1) 31:1	represent (3) 3:13,16,18	S
read (10) 20:7;33:16;36:24;38:21; 40:10;49:23,25;58:10;59:24; 61:1	reduce (9) 21:9,13;22:8;23:19;28:10,13, 18;29:3;31:8	require (2) 26:13;57:23	salt (1) 47:11
reading (9) 4:17;12:19;19:4;37:10;41:19, 20;42:5;55:1,7	reduced (9) 21:16,19,22;22:4;23:10,14, 15,21;24:8	requirement (2) 50:10;54:8	same (29) 4:6,6;6:9,13;7:14;8:9;10:2; 12:1,18,20,22;14:4,5,6,8,24; 16:16;17:23;18:8,17;22:23,25; 24:21,25;27:8;30:11;52:12; 53:8;60:18
readings (11) 5:17;7:25;8:4;11:21;12:17; 13:23;14:18;52:4,16;53:3;55:15	reducing (3) 29:9,12;30:15	rereading (2) 5:20;60:2	sample (1) 24:3
real (1) 44:13	reduction (3) 5:22;26:9,11	reserve (1) 59:2	Samuel (1) 3:17
really (3) 11:25;37:17;43:19	refer (14) 6:14;34:10;36:5,10,13,14,21; 39:16;47:14,19;50:3;52:6,7; 57:10	respect (4) 14:8,25;48:22;56:11	save (2) 50:18;51:1
Realtime (1) 59:21	reference (24) 5:12,22,24;6:5,7,18,21,22; 7:25;8:5,9;14,17;12:23;15:11, 14,19,23;16:10,21;18:20;25:19; 38:13;49:5,7	rest (2) 15:7;18:12	saved (1) 51:5
reason (2) 29:2;48:3	referenced (2) 49:18;51:8	restate (1) 37:17	saying (2) 26:10;47:24
reasonable (4) 33:10;45:23;46:5,11	referred (1) 4:20	result (12) 8:5;14:5;17:5,19;20:1;23:20; 33:3;34:16;36:17,18;45:21; 57:19	scan (3) 10:13;16:1;24:14
Reasonably (1) 8:13	referring (3) 9:17;28:21;53:10	resulting (1) 20:9	scanner (1) 31:1
reasons (9) 9:12,21;12:18,19,22;13:4; 14:8,11,24	refers (5) 49:15;54:20;57:8,19,20	results (2) 17:10;29:22	scanners (2) 13:8;51:13
recalculate (3) 50:22;51:9;52:19	reflection (1) 22:13	reverse (4) 52:13,25;53:14,24	scanning (21) 7:11,16;8:23;10:4;11:5,13; 12:5;17:6,20;18:3;20:9,10; 23:25;24:11,13,16,21,22;26:14; 27:5;30:8
recalculating (2) 52:2;57:4	refresh (1) 60:2	review (3) 42:19,22;45:3	science (2) 46:2;48:7
recalculation (2) 50:24;53:7	regarding (1) 59:7	reviewed (1) 31:22	scientist (1) 46:13
recall (10) 4:19;9:11;10:13;30:4;43:21; 45:5;47:6;55:13;59:7,13	regardless (2) 29:24;54:12	reviewing (1) 43:3	scientist's (1) 46:9
Recess (2) 27:25;56:7	relate (2) 24:7;39:13	rid (1) 29:25	scope (2) 43:14;58:7
recipe (1) 46:15	related (3) 7:16;29:21;47:16	right (38) 7:13;10:23;15:21;16:15; 17:24;19:15;20:5;23:2;24:9,10; 25:3;26:24;29:1;31:12,13; 32:19,21;33:21;34:17,21;37:4, 7;38:15;39:15;41:10;42:2;43:1, 4;45:9,9,22;49:9;50:9;54:7,9,9, 10;59:2	section (3) 59:24;60:2,8
recites (1) 58:14	relates (1) 12:1	River (1) 3:5	seem (1)
recollect (1) 59:17	relationship (1)	road (2) 20:21;25:18	
recollected (1) 59:10		roads (9) 20:3,4,14;22:11,25;25:4,6,11, 16	
recollection (2)		roughly (2)	

46:5 seems (3) 8:21;33:10,14 selective (1) 33:18 sense (1) 36:14 sentence (4) 20:7,11;28:11;51:23 sentences (2) 52:23,23 sequence (1) 56:23 series (1) 45:24 session (3) 3:24;10:10;12:11 set (9) 18:25;27:14,17;32:11;37:14, 15,23,24;40:13 sets (1) 57:9 seven (1) 55:18 Shakespeare (1) 6:16 short (2) 25:21;56:3 show (3) 21:18;22:21;23:7 showing (2) 21:23,23 shown (2) 22:7;26:21 shows (3) 20:3;21:21;22:2 side (4) 10:6;25:12,14,15 sides (1) 7:2 signal (5) 52:15,16;53:2,3;54:1 signals (1) 52:17 significance (1) 55:24 significant (1) 25:7 significantly (1) 25:3 silly (1) 44:21 similar (3) 11:17;33:3;45:19 similarly (1) 57:18 simple (1) 38:20 simply (13) 16:19;22:13,15;26:14;29:6; 30:7;35:13;38:20;39:1;44:19; 45:20;47:2;50:23 situation (4) 18:22;23:4;25:18;27:12 skill (5) 31:3,16;51:16;52:1;54:4 Skyhook (3) 3:7,18;15:2 Skyhook's (1) 26:4 sleep (1) 47:11 slightly (1) 37:20 small (1) 25:17 smaller (2) 20:4;25:10 software (3) 47:21;48:15,16 solution (1) 29:5 somehow (1) 15:17 someone (2) 11:5;46:12 somewhere (1) 52:10 sorry (5) 26:20;39:8;47:23;49:5;50:9 sort (4) 9:8;25:17;26:12;51:7 sounds (2) 9:3;33:3 sources (1) 5:4 sparse (1) 25:11 specific (3) 47:7;48:24;55:6 specifically (4) 30:5;34:9;52:1;58:3 specification (20) 13:7;21:15,17;41:18,22,25; 42:3,7,10,14,15,19;43:4;46:21; 51:15;52:9;53:17;55:13;59:11, 18 specified (2) 34:11,15 speculation (12) 5:19;6:1;7:7,21;9:16;10:19; 11:23;14:1,21;15:9;18:16;24:20 spell (2) 53:21;54:2 spend (1) 19:10 spent (1) 48:4 spot (1) 30:17 start (4) 8:15,16;20:16;56:10 starting (1) 19:25 starts (1) 51:8 state (2) 3:13;61:8 stated (1) 35:12 statement (1) 28:23 States (1) 3:8 stating (1) 46:18 Step (2) 32:1,8 steps (3) 45:24;46:15;56:23 still (7) 3:23;15:11;22:4,14,17;43:3,9 stored (3) 52:3,5,20 straight (3) 41:19,20;42:12 street (8) 19:2;28:9,12;29:3,22,24;30:8; 31:1 streets (26) 7:1,4;10:21;13:11;16:1,18,20; 20:10,11,13;21:2,4;22:24;23:1; 24:2,2,15;25:1;27:17;28:8,16, 25;29:6,11,15;30:25 strength (1) 22:12 strengths (4) 52:16;53:2,3;54:1 strike (6) 23:9;29:10,13;34:6;37:19; 40:20 stronger (1) 52:16 structure (1) 8:23 structured (1) 6:25 student (4) 46:21,22;47:1,10 students (1) 46:17 studying (1) 52:9 subject (1) 26:6 subscribed (1) 61:15 script (4) 57:8,8,19,20 subset (1) 11:14 substantially (3) 24:2,15;55:15 sued (1) 15:2 sufficient (2) 6:18;57:2 sufficiently (1) 54:4 suit (2) 4:15,25 supports (1) 41:18 suppose (1) 16:17 sure (12) 20:23,24;23:13,13;25:1,24; 27:2;39:9;45:17;55:23;56:13; 58:20 surprised (2) 41:22;42:15 surrounding (1) 20:4 Susan (1) 3:14 Suspect (1) 59:22 symmetry (20) 5:22,24;6:5,8,19,21,23;8:1,6; 9:14,17;12:24;15:11,14,19,23; 16:10,21;18:20;25:19 synonym (3) 21:5,6,9 synonymous (1) 38:10 systematically (2) 10:11;11:5	
T	
	talk (4) 8:25;12:8;40:18;41:23 talked (1) 12:11 talking (10) 24:24;27:12;30:5;33:4;40:11; 44:3;47:17;55:12;58:1,9 talks (2) 9:7;52:14 target (2) 15:24;25:4 targeted (1) 15:21 task (2) 45:16,25 taxis (1) 13:9 teach (1) 54:3 technique (3) 29:11,14;30:6 techniques (3) 29:9;30:24;31:8 technology (1) 30:17 tells (3) 49:11;51:16,25 tend (5) 10:3,7;13:10;19:10;28:18 term (16) 4:16;5:7;11:9;17:4;23:16; 24:8;26:13;38:9,18;45:6,7,13;

<p>47:13,16;48:20;50:20 terminology (1) 10:23 terms (2) 27:17;44:3 testify (1) 40:23 testimony (3) 15:18;33:25;39:11 therefore (1) 41:2 thinking (6) 12:22;22:16,17;25:10;28:15; 39:17 though (1) 59:1 thought (4) 15:17;40:14;43:19;45:22 thus (1) 10:5 titled (1) 59:21 Today (3) 3:2,13;12:8 together (4) 34:13;48:17;57:1,17 top (1) 30:22 touched (1) 26:8 toward (3) 10:7;22:18;25:16 town (1) 25:17 towns (1) 25:10 tracking (1) 19:9 trade (1) 4:20 trafficked (1) 19:22 transcript (1) 60:18 travel (1) 20:14 traverse (1) 10:12 traversed (2) 16:2;20:8 traversing (1) 27:5 triangulating (1) 56:19 triangulation (4) 52:13,25;53:15,24 true (4) 23:3;49:14;61:2,15 try (1) 40:5 trying (4) 8:12;34:8;36:18;40:12 turn (4)</p>	<p>30:7;36:1;41:7;59:6 turning (2) 30:25;39:4 twice (1) 29:6 two (11) 28:10,12;29:3;30:23,24;31:9, 10,14,15;56:2;57:1 typewriter (1) 6:16 typical (1) 55:5 typically (1) 55:9 typing (1) 6:15</p>	<p style="text-align: center;">V</p> <p>Vague (43) 5:18,25;7:6,20;9:10,15;10:18; 11:8,22;12:21;13:25;14:20; 15:8;16:3;17:1,16;18:14;20:22; 24:19;25:9;26:25;29:18;32:13, 24;33:15;35:2;36:3;37:16,18; 38:3;39:6,9;43:13;44:1;46:6,24; 47:23;49:13;50:19;53:19; 57:25;58:12,22 vaguely (1) 19:21 value (1) 56:25 values (2) 57:15,17 vans (1) 13:9 varies (2) 26:23;27:1 various (1) 39:2 vary (1) 27:7 vehicle (2) 16:1;17:21 vehicles (4) 7:11;13:10;19:9;20:9 Vermont (1) 3:5 versus (3) 3:7;11:5;28:24 video (1) 60:16 VIDEOGRAPHER (7) 3:2,10;27:23;28:1;56:5,8; 60:15 view (17) 9:13,23;10:10,15;15:19; 20:15;22:2;24:8;26:4;40:21,24; 46:9,10;48:14,19;53:14;54:12 views (1) 42:8 vita (1) 4:11 volunteers (1) 11:11</p>	<p>29:20;30:14;31:1,4,10,12; 57:22 weaker (2) 24:24;52:17 Wednesday (4) 4:3,7;8:24;15:18 weighted (4) 46:19;47:3,5;52:17 weighting (1) 53:2 weights (1) 52:16 welcome (2) 42:23;45:3 well-defined (1) 46:3 well-known (1) 33:10 weren't (2) 24:23;28:16 what's (8) 4:7;11:17;21:12;34:7;44:25; 48:19;54:6;57:12 WHEREUPON (1) 60:22 White (1) 3:5 whole (4) 27:13,14;33:17;58:10 WiFi (17) 32:11;34:24;35:8,9,13;36:19; 40:3,7,10,22;49:16;50:4,12; 52:2,5;59:12;60:5 Wireless (2) 3:7,18 withdrawn (1) 40:4 within (15) 9:25;15:21;18:25;23:11; 25:12;29:16;30:9;32:22;33:12; 34:25;35:3,21;44:23;58:7,17 without (7) 7:19,23;8:22;15:12;18:20; 26:21;47:2 WITNESS (4) 34:1;43:6;48:7;59:1 witness's (1) 43:14 word (6) 6:6;21:16;35:4;38:21;45:8; 47:18 words (2) 35:25;39:22 work (1) 51:4 worth (1) 47:10 write (1) 47:2 writes (1) 6:16</p>
	<p style="text-align: center;">U</p> <p>uncoordinated (1) 11:10 under (2) 3:23;38:18 undergraduate (1) 47:12 understood (1) 15:18 United (1) 3:8 unlike (1) 46:12 unlikely (2) 6:19;8:21 unplanned (2) 6:3;12:4 unpredictable (1) 27:15 unstructured (1) 6:3 up (5) 13:12;18:23;44:16;50:10; 55:19 upon (1) 28:23 use (26) 6:6;17:9;21:16;34:23;35:4,8, 13,16;37:4,23;38:16;39:24; 40:1,6,15,25;41:2,4;43:24;44:8, 8,9;45:7;48:20;60:4,9 used (9) 16:24;17:14;18:4;24:21;33:1; 38:22,24;39:18;56:25 user (1) 34:25 uses (1) 53:25 using (23) 12:8;13:24;23:25;24:14,25; 27:5;32:12;35:5,9,10;36:1,24; 37:2,13;38:7;40:9;42:15;44:20; 52:25;53:5;56:20;57:14;59:11 utilize (1) 52:3</p>	<p style="text-align: center;">W</p> <p>war (25) 5:17,21;6:2,7,23;7:5,12;9:13, 24;10:3,11,16,16,20,24;11:4,9, 21;12:1,3,9,12;13:15,24;14:4 way (29) 4:13,23;6:3,11,18;7:22;8:8; 16:7;18:19;19:11,11;21:1; 23:18;26:15;29:12,15;30:1,9; 32:21;36:24;37:9,20;38:16,21; 39:13,17;43:20;44:21;53:8 ways (7)</p>	

Y			
yesterday (1) 60:19			