No. 71348
IN THE SUPREME COURT OF THE STATE OF Electronjcally Filed Oct 152018 01:14 p.m.

EMILIA GARCIA,
Appellant,
v.

ANDREA AWERBACH,
Respondent.

Appellant's Appendix
Volume Xix, Bates Numbers 4501 to 4750
D. Lee Roberts, Jr., Esq.

Nevada Bar No. 8877
Jeremy R. Alberts, Esq.
Nevada Bar No. 10497
Marisa Rodriguez, Esq.
Nevada Bar No. 13234
Weinberg, Wheeler, Hudgins,
Gunn \& Dial, LLC.
6385 S. Rainbow Blvd., Suite 400
Las Vegas, Nevada 89118
Telephone: (702) 938-3838
lroberts@ wwhgd.com
jalberts@wwhgd.com
mrodriguez@wwhgd.com

Corey M. Eschweiler, Esq.
Nevada Bar No. 6635
Craig A. Henderson, Esq.
Nevada Bar No. 10077
Glen J. Lerner \& Associates
4795 South Durango Drive
Las Vegas, Nevada 89147
Telephone: (702) 877-1500 ceschweiler@glenlerner.com
chenderson@glenlerner.com

| Vol | Page Numbers | Description | Date Filed |
| :---: | :---: | :--- | :---: |
| I | $22-28$ | Amended Complaint | $01 / 14 / 2013$ |
| V | $1031-1282$ | $\begin{array}{l}\text { Appendix of Exhibits to Plaintiff's } \\ \text { Motion for New Trial or, in the } \\ \text { Alternative, for Additur }\end{array}$ | $05 / 26 / 2016$ |
| V, VI | $1304-1486$ | $\begin{array}{l}\text { Appendix of Exhibits to Plaintiff's } \\ \text { Renewed Motion for Judgment as a } \\ \text { Matter of Law }\end{array}$ | $05 / 26 / 2016$ |
| I | $1-6$ | Complaint | $03 / 25 / 2011$ |
| III | $642-646$ | $\begin{array}{l}\text { Decision and Order Denying Defendant }\end{array}$ | $04 / 27 / 2015$ |
| Andrea Awerbach's Motion for Relief |  |  |  |
| from Final Court Order |  |  |  |$]$| II |
| :--- |
| I |
| I |


| Vol | Page Numbers | Description | Date Filed |
| :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { XXVI, } \\ & \text { XXVII } \end{aligned}$ | 6441-6942 | Deposition of Jared Awerbach |  |
| III | 581-616 | Deposition of Teresa Meraz | 01/08/2015 |
| IV | 948-997 | Jury Instructions | 03/08/2016 |
| IV | 998-1000 | Jury Verdict | 03/10/2016 |
| VI, VII | 1499-1502 | Minute Order | 08/22/2016 |
| VII | 1513-1554 | Notice of Appeal | 09/19/2017 |
| III | 647-649 | Notice of Department Reassignment | 08/27/2015 |
| VII | 1508-1512 | Notice of Entry of Judgment Upon the Verdict | 08/21/2017 |
| III | 617-622 | Order Granting, in Part, and Denying, In Part, Plaintiff's Motion for Partial Summary Judgment that Defendant Jared Awerbach was Per Se Impaired Pursuant to NRS 484C.110(3); and Denying Defendant Jared Awerbach's Motion for Partial Summary Judgment on Punitive Damage Claims | 01/28/2015 |
| IV | 946-947 | Order Modifying Prior Order of Judge Allf | 02/12/2016 |
| VI | 1487-1498 | Order Re: Post-Trial Motions | 08/12/2016 |
| VII | 1503-1507 | Order Vacating Judgment as to Jared Awerbach only | 08/21/2017 |
| V | 1001-1030 | Plaintiff's Motion for New Trial or, in the Alternative, for Additur | 05/26/2016 |
| III, IV | 650-900 | Plaintiff's Motion to Disqualify <br> Defendant Jared Awerbach's Counsel <br> Randall Tindall and Motion For <br> Reassignment to Department 27 on <br> Order Shortening Time and Request for <br> Leave to File Extended Memorandum <br> of Points and Authorities | 09/08/2015 |
| II, III | $392-580$ | Plaintiff's Motion to Strike Defendant Andrea Awerbach's Answer | 12/02/2014 |
| V | 1283-1303 | Plaintiff's Renewed Motion for Judgment as a Matter of Law | 05/26/2016 |
| IV | 933-945 | Plaintiff's Trial Brief Regarding | 02/10/2016 |

ALPHABETICAL INDEX

| Vol | Page Numbers | Description | Date Filed |
| :---: | :---: | :---: | :---: |
|  |  | Permissive Use |  |
| IV | 901-932 | Reporter's Transcript of Proceedings | 09/15/2015 |
| $\begin{aligned} & \text { VII, } \\ & \text { VIII } \end{aligned}$ | 1555-1765 | Trial Transcript - 02/08/2016 | 11/10/2017 |
| VIII | 1766-1996 | Trial Transcript - 02/09/2016 | 11/10/2017 |
| $\begin{aligned} & \text { VIII, } \\ & \text { IX, X } \end{aligned}$ | 1997 - 2290 | Trial Transcript - 02/10/2016 | 11/10/2017 |
| X | 2291-2463 | Trial Transcript - 02/11/2016 | 11/10/2017 |
| X, XI | 2464-2698 | Trial Transcript - 02/12/2016 | 11/10/2017 |
| XI, XII | 2699-2924 | Trial Transcript - 02/16/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XII, } \\ & \text { XIII } \end{aligned}$ | 2925-3177 | Trial Transcript - 02/17/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XIII, } \\ & \text { XIV, } \end{aligned}$ | 3178-3439 | Trial Transcript - 02/18/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XIV, } \\ & \text { XV } \end{aligned}$ | $3440-3573$ | Trial Transcript - 02/19/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XV, } \\ & \text { XVI } \end{aligned}$ | 3574-3801 | Trial Transcript - 02/22/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XVI, } \\ & \text { XVII } \end{aligned}$ | 3802-4038 | Trial Transcript - 02/23/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XVII, } \\ & \text { XVIII } \end{aligned}$ | $4039-4346$ | Trial Transcript - 02/24/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XVIII, } \\ & \text { XIX } \end{aligned}$ | 4347 - 4586 | Trial Transcript - 02/25/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XIX, } \\ & \text { XX } \end{aligned}$ | 4578-4819 | Trial Transcript - 02/26/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XX, } \\ & \text { XXI } \end{aligned}$ | $4820-5045$ | Trial Transcript - 03/01/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XXI, } \\ & \text { XXII } \end{aligned}$ | $5046-5361$ | Trial Transcript - 03/02/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XXII, } \\ & \text { XXIII } \end{aligned}$ | 5362-5559 | Trial Transcript - 03/03/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XXIII, } \\ & \text { XXIV } \end{aligned}$ | $5560-5802$ | Trial Transcript - 03/04/2016 | 11/10/2017 |

ALPHABETICAL INDEX

| Vol | Page Numbers | Description | Date Filed |
| :---: | :---: | :--- | :---: |
| XXIV | $5803-5977$ | Trial Transcript -03/07/2016 | $11 / 10 / 2017$ |
| XXIV, <br> XXV | $5978-6203$ | Trial Transcript -03/08/2016 | $08 / 23 / 2018$ |
| XXV, <br> XXVI | $6204-6422$ | Trial Transcript -03/09/2016 | $08 / 23 / 2018$ |
| XXVI | $6423-6440$ | Trial Transcript $-03 / 10 / 2016$ | $08 / 23 / 2018$ |


| Vol | Page Numbers | Description | Date Filed |
| :---: | :---: | :--- | :---: |
| I | $22-28$ | Amended Complaint | $01 / 14 / 2013$ |
| V | $1031-1282$ | $\begin{array}{l}\text { Appendix of Exhibits to Plaintiff's } \\ \text { Motion for New Trial or, in the } \\ \text { Alternative, for Additur }\end{array}$ | $05 / 26 / 2016$ |
| V, VI | $1304-1486$ | $\begin{array}{l}\text { Appendix of Exhibits to Plaintiff's } \\ \text { Renewed Motion for Judgment as a } \\ \text { Matter of Law }\end{array}$ | $05 / 26 / 2016$ |
| I | $1-6$ | Complaint | $03 / 25 / 2011$ |
| III | $642-646$ | $\begin{array}{l}\text { Decision and Order Denying Defendant }\end{array}$ | $04 / 27 / 2015$ |
| Andrea Awerbach's Motion for Relief |  |  |  |
| from Final Court Order |  |  |  |$]$| II |
| :--- |
| I |
| I |


| Vol | Page Numbers | Description | Date Filed |
| :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { XXVI, } \\ & \text { XXVII } \end{aligned}$ | 6441-6942 | Deposition of Jared Awerbach |  |
| III | 581-616 | Deposition of Teresa Meraz | 01/08/2015 |
| IV | 948-997 | Jury Instructions | 03/08/2016 |
| IV | 998-1000 | Jury Verdict | 03/10/2016 |
| VI, VII | 1499-1502 | Minute Order | 08/22/2016 |
| VII | 1513-1554 | Notice of Appeal | 09/19/2017 |
| III | 647-649 | Notice of Department Reassignment | 08/27/2015 |
| VII | 1508-1512 | Notice of Entry of Judgment Upon the Verdict | 08/21/2017 |
| III | 617-622 | Order Granting, in Part, and Denying, In Part, Plaintiff's Motion for Partial Summary Judgment that Defendant Jared Awerbach was Per Se Impaired Pursuant to NRS 484C.110(3); and Denying Defendant Jared Awerbach's Motion for Partial Summary Judgment on Punitive Damage Claims | 01/28/2015 |
| IV | 946-947 | Order Modifying Prior Order of Judge Allf | 02/12/2016 |
| VI | 1487-1498 | Order Re: Post-Trial Motions | 08/12/2016 |
| VII | 1503-1507 | Order Vacating Judgment as to Jared Awerbach only | 08/21/2017 |
| V | 1001-1030 | Plaintiff's Motion for New Trial or, in the Alternative, for Additur | 05/26/2016 |
| III, IV | 650-900 | Plaintiff's Motion to Disqualify <br> Defendant Jared Awerbach's Counsel <br> Randall Tindall and Motion For <br> Reassignment to Department 27 on <br> Order Shortening Time and Request for <br> Leave to File Extended Memorandum <br> of Points and Authorities | 09/08/2015 |
| II, III | $392-580$ | Plaintiff's Motion to Strike Defendant Andrea Awerbach's Answer | 12/02/2014 |
| V | 1283-1303 | Plaintiff's Renewed Motion for Judgment as a Matter of Law | 05/26/2016 |
| IV | 933-945 | Plaintiff's Trial Brief Regarding | 02/10/2016 |

ALPHABETICAL INDEX

| Vol | Page Numbers | Description | Date Filed |
| :---: | :---: | :---: | :---: |
|  |  | Permissive Use |  |
| IV | 901-932 | Reporter's Transcript of Proceedings | 09/15/2015 |
| $\begin{aligned} & \text { VII, } \\ & \text { VIII } \end{aligned}$ | 1555-1765 | Trial Transcript - 02/08/2016 | 11/10/2017 |
| VIII | 1766-1996 | Trial Transcript - 02/09/2016 | 11/10/2017 |
| $\begin{aligned} & \text { VIII, } \\ & \text { IX, X } \end{aligned}$ | 1997 - 2290 | Trial Transcript - 02/10/2016 | 11/10/2017 |
| X | 2291-2463 | Trial Transcript - 02/11/2016 | 11/10/2017 |
| X, XI | 2464-2698 | Trial Transcript - 02/12/2016 | 11/10/2017 |
| XI, XII | 2699-2924 | Trial Transcript - 02/16/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XII, } \\ & \text { XIII } \end{aligned}$ | 2925-3177 | Trial Transcript - 02/17/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XIII, } \\ & \text { XIV, } \end{aligned}$ | 3178-3439 | Trial Transcript - 02/18/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XIV, } \\ & \text { XV } \end{aligned}$ | $3440-3573$ | Trial Transcript - 02/19/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XV, } \\ & \text { XVI } \end{aligned}$ | 3574-3801 | Trial Transcript - 02/22/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XVI, } \\ & \text { XVII } \end{aligned}$ | 3802-4038 | Trial Transcript - 02/23/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XVII, } \\ & \text { XVIII } \end{aligned}$ | $4039-4346$ | Trial Transcript - 02/24/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XVIII, } \\ & \text { XIX } \end{aligned}$ | 4347 - 4586 | Trial Transcript - 02/25/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XIX, } \\ & \text { XX } \end{aligned}$ | 4578-4819 | Trial Transcript - 02/26/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XX, } \\ & \text { XXI } \end{aligned}$ | $4820-5045$ | Trial Transcript - 03/01/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XXI, } \\ & \text { XXII } \end{aligned}$ | $5046-5361$ | Trial Transcript - 03/02/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XXII, } \\ & \text { XXIII } \end{aligned}$ | 5362-5559 | Trial Transcript - 03/03/2016 | 11/10/2017 |
| $\begin{aligned} & \text { XXIII, } \\ & \text { XXIV } \end{aligned}$ | $5560-5802$ | Trial Transcript - 03/04/2016 | 11/10/2017 |

ALPHABETICAL INDEX

| Vol | Page Numbers | Description | Date Filed |
| :---: | :---: | :--- | :---: |
| XXIV | $5803-5977$ | Trial Transcript -03/07/2016 | $11 / 10 / 2017$ |
| XXIV, <br> XXV | $5978-6203$ | Trial Transcript -03/08/2016 | $08 / 23 / 2018$ |
| XXV, <br> XXVI | $6204-6422$ | Trial Transcript -03/09/2016 | $08 / 23 / 2018$ |
| XXVI | $6423-6440$ | Trial Transcript $-03 / 10 / 2016$ | $08 / 23 / 2018$ |

A. I do. It's not quite right, but it's close.
Q. All right. To derive the force and motion inputs that you need for the MADYMO biomechanical analysis, did you need anything more than just what I've drawn here?

Do you want to come down here and show it?
A. No. That's all right. No. I think the -I'd just change your moment arm because you have it at an angle. And the way you've drawn it there, it should be perpendicular.
Q. Here. Let's get it right.
A. Okay. To answer your other question, again, vehicle-specific parameters are important. So it's more like that (witness indicating). The moment arm is going to be perpendicular to the force.
Q. All right. Let's do it -- Doctor, here. Let's do it -- let me get this right. Okay.

Is this -- this would be the center
rotation --
A. Sure.
Q. -- of the vehicle?

And that's important; right?
A. That is.
Q. Okay. And then the location impact would be, like, here?
A. Sure. I would put it here, but yeah.
Q. Okay. And that's the location of impact on the vehicle.

And then the moment arm, how would that be?
A. You draw that -- so if this is the force applied to the vehicle, then it would be like that.
Q. Okay. And the vehicle has a speed vector; right?
A. Right.
Q. And it has a motion, this 180 degrees to where it stopped; right?
A. That's right.
Q. Is there anything else that you needed to derive the inputs for force and motion that you needed for your biomechanical analysis?
A. Besides the vehicle-specific parameters and friction?
Q. Put them here. Write them down.

As to just her vehicle, what did you need?
Write big.
A. Mass --
Q. Bigger. Okay. Go ahead.
A. -- moment of inertia, friction --
Q. That's the coefficient of friction?
A. Uh-huh.
-- wheel base.
Q. Anything else?
A. Actually, the location of -- and the size of the vehicle, tire-track width. All the vehicle-specific information is important to this.
Q. Did you have that too?
A. Yes.
Q. All right. And you had the -- the calculation of the exact moment of rotation; right -or the center of rotation?
A. Correct.
Q. And is there anything else that you needed to perform this PC-Crash calculation of force and motion?
A. In what I did, I also included occupant weight in the location of the driver's seat. So that's included there too.
Q. Anything else that you need -- you absolutely had to have for your calculation?
A. Not that I can think of, no.
Q. All right. And so what you're calculating here is the force and the motion of the vehicle, and then you input that into your biomechanical analysis to calculate the force and the motion on her spine; right?
A. That's correct.
Q. Okay. Now, did the -- why is it that it
didn't matter to you whether the resting location of the vehicle was where the witnesses said?

MR. ROBERTS: Objection. Inconsistent with his report.

BY MR. STRASSBURG:
Q. Well, did it matter?
A. Did it matter that the vehicle was not in the lane?
Q. Yeah.
A. It wouldn't matter to my analysis, no.
Q. Why not?
A. Because I'm interested in the rotation and lateral motion during the impact. And the portion when the car is further down the street at a slow speed, there's not much acceleration, it doesn't matter to the loads on the lumbar spine.
Q. Would it matter how fast that Awerbach was going when he hit her if you assume that her vehicle only spun 180 degrees and stopped?
A. So his speed is only important in the sense that it applies a force -- his vehicle contact applies a force to her vehicle. Her vehicle motion wouldn't matter if he, you know, was going 20 miles an hour or 10 miles an hour if the force were the same. The force is what's important.
Q. And --
A. That's from -- sorry.
Q. And how do you derive that force?
A. That's the iterative process. Because if you have a force that's too large in the location of impact, then it's going to spin the vehicle more than 180. If you have a force that's too small at the location of impact, it's not going to rotate far enough.
Q. And does the amount of deformation of her vehicle have anything to do with calculating that force exerted by his?
A. It's a check.
Q. Explain.
A. Well -- so it's not necessary for calculating the motions of her vehicle, but I want to make sure that it's consistent with the facts that we have. And so the damage to the vehicle is -- it would require a force that is ten times larger, because there's that much more crush, then it would tell me I'm wrong.

In this particular case, the crush energy, the amount of force it takes to crush her vehicle, matches up well with the vehicle spinning the 180-degrees.

THE COURT: Tom, would you go talk to the
jurors and make sure that they know that we're still in here. It's going to be a little bit.

THE MARSHAL: All right.
THE COURT: Thank you.
Sorry to interrupt.
BY MR. STRASSBURG:
Q. All right. So is your utilization of these physical principles and the data regarding the 180-degree spin, the vehicle-specific data of her car, the crush deformation that you had, was that sufficient under the generally accepted principles of biomechanical engineering and accident reconstruction to determine the two parameters, force and motion, for this accident that you needed to input into your biomechanical analysis to figure it out on a spinal level?

MR. ROBERTS: Objection. Inconsistent with his report.

THE COURT: I'm going to let him say it.
THE WITNESS: So the one thing I would
correct is it's the motion of the vehicle that goes into the biomechanical analysis, not even the force. It's the motion that's created.

Yes. Thank you.

BY MR. STRASSBURG:
Q. All right. And what determines that motion?
A. Everything that we've been talking about.
Q. All right. So it's just -- the main factor is this spin of 180 degrees; right?
A. That's right.
Q. If it had been 360 degrees, that would have been totally different?
A. That's correct.
Q. If it would have been 480 degrees, that would have been totally different?
A. That's true.
Q. All right. So it sounds like you knew everything that you absolutely needed to calculate motion; right?
A. I believe so, yes.
Q. And --
A. I should say within a range.
Q. And what was your margin of error for what you -- what you actually knew to put into this calculation?

MR. ROBERTS: Objection. Beyond the scope of his report.

THE COURT: I'm going to let him say it for now.

THE WITNESS: So what I did was actually gave the upper bound in my report. But if you look at it and you look at my file, I think that I gave a particular analysis and then a plus-or-minus range on that.

And so, for example, for Jared's vehicle, Mr. Awerbach's vehicle, it's probably around 20 miles an hour, maybe down to 18, maybe up to 22.

BY MR. STRASSBURG:
Q. Does it matter?
A. It does not.
Q. Why not?
A. Again, what matters is the motion of the Santa Fe.
Q. Because that determines the motion of the vehicle that goes into the biomechanical analysis; right?
A. That's correct.
Q. Okay. And so what -- it sounds like what you're saying is is that this impact had a rotational component and a magnitude component, right, a lateral component?
A. That's true.
Q. And they tended to counteract each other?
A. That's true, with the occupant motion.
Q. All right. And that's all that you calculated for PC-Crash purposes, right, this motion?
A. That's right.
Q. And it didn't matter where the cars ended up?
A. That's true.
Q. Didn't matter where Awerbach started from?
A. May I explain why it doesn't matter?
Q. Yeah, I wish you would.
A. Okay. So when you have the vehicle rotating 180 degrees, if you have a small steering input on the Santa Fe , at the end of the accident when the forces, the motions are slow -- on the vehicle, the forces were low on her vehicle -- it will drift back into her lane. And that was in my file. I think it's in "analysis," the "PC-Crash folder" under "4" -- and there's a dash or an underscore or, like "steering input" or something like that.

And basically it shows that, with a small steering input, the motions -- the vehicle motions overall that are important for MADYMO are the same. It's just, at the very end, her car drifts back into her original lane as opposed to staying on the other side of the street.
Q. Okay. So the steering inputs, when -- when the vehicle responds to -- under control of the
steering wheel, right, that is not important for your analysis?
A. Not at the end of this accident. That's right.
Q. And those are -- those are what determine where the vehicles end up in their rest location. Yes?
A. That's correct.
Q. What you're interested in calculating is the motion while the vehicle is out of control; right?
A. The impact portion. That's right.
Q. And that's determined by the laws of physics based on the fact that a vehicle of this weight and mass described this motion of 180 degrees; right?
A. That's right.
Q. Now, why doesn't it matter where our back started out?
A. Again, it's whatever force at the impact location on the Santa Fe is necessary to rotate her vehicle around.
Q. And how did you -- and you back-figured that force based upon what force would be required to deform Garcia's vehicle in the way you observed; right?
A. No. That was a check.
Q. Okay. How did you calculate it?
A. So it's, again, based on the vehicle
parameters, the laws of physics, and the damage location on her vehicle. That gives what the force has to be to rotate her vehicle around during the impact.
Q. So that's what describes this moment arm?
A. The damage location describes this moment arm. That's right.
Q. All right. And that -- the moment arm is like a lever that it takes to rotate this mass 180 degrees to this location; right?
A. The moment arm is what creates the torque about the center of mass from the force that's applied at the damage location to the Santa Fe.
Q. All right. Did you have objective, reliable evidence for every factor shown on this board that you needed to calculate the motion of the vehicle that you would input into your biomechanical analysis?
A. I believe so, yes.
Q. You didn't have to guess at any of it?
A. No.
Q. You didn't have to extrapolate any of it?
A. No. I did have to solve equations through an iterative process.
Q. An iterative process determined by the laws of physics?
A. That's correct.
Q. Okay. Let me just make sure that I ... In -- in -- in biomechanical engineering, which is deemed more reliable proof, eyewitness statements of people involved in a hair-raising accident or the product of the analysis of physical forces applied to known parameters?
A. I always rely on objective evidence with more weight than testimony, but both are important.
Q. Now, there's a concern that you had no way of knowing from the photographs the amount of damage that's underneath the sheet metal.

Was that important for your purposes?
A. No. The crush analysis portion, again, is a check on the vehicle motion that we just talked about through PC-Crash. But it is very interesting that it's consistent. If you look at the force it takes at the damage location to rotate the Santa Fe through 180 degrees and then you do the crush analysis, they match up very well.
Q. For the purposes of the analysis shown on this board, was -- the angle of impact, was that important and determinative of what you were calculating here?
A. The general angle is important but not the specific angle.
Q. What do you mean by that?
A. Well, again, a range of reasonable angles. It can't be, in your drawing, straight up and down on the passenger side. It's not a sideswipe. There's going to be a component into the vehicle and a component rearward on the vehicle because of the nature of the accident.
Q. But what determines your calculations is the fact that this vehicle describes this half circle of motion and comes to a rest; right?
A. That's right.
Q. So really whether the repair records show, you know, $\$ 1,000$ of damage or $\$ 1,500$ worth of damage, it's not really relevant to your calculation so long as they don't show $\$ 10,000$ worth of damage that's grossly out of the line; right?
A. So I wouldn't use dollar values, but I would use crush energy or force. But yes, that's the right idea.
Q. So for purposes of assisting the Court in determining whether your calculations are reliable, for purposes of what you needed to calculate this motion input for the biomechanical, were your calculations under the standards applicable in accident reconstruction generally accepted and peer reviewed?

Were your calculations proper?
A. They were.
Q. Were they reliable?
A. Yes.

MR. ROBERTS: Objection to the peer review of his calculations. That's certainly not in his report. BY MR. STRASSBURG:
Q. No, no, no. It's peer review of the method that you used for your calculations.

Did you use a peer-reviewed valid method for calculating this motion that you inputted into your biomechanical analysis?
A. Yes.
Q. And was that calculation based upon objective information that was particularized to this particular motion by this particular vehicle?
A. Yes.
Q. And for the motion that you utilize, does your methodology result in a value that has a recognized, tested, validated margin of error in the scientific literature?
A. I'm sorry. One more time?

MR. ROBERTS: Objection. Incomplete hypothetical. No foundation.

THE COURT: Ask it again.

MR. STRASSBURG: What?
THE COURT: Try again.
BY MR. STRASSBURG:
Q. Okay. Does this method that you utilized here to -- to calculate the motion involved here and what it implied, does that employ -- did you employ a method that is recognized as scientifically valid in your discipline of biomechanics?
A. Yes.
Q. Based upon peer-reviewed studies validating this calculation?

MR. ROBERTS: Objection.
BY MR. STRASSBURG:
Q. I'm sorry. Peer-reviewed studies validating the method that you utilized to calculate this particular motion for this particular vehicular motion.
A. Yes.
Q. All right. Now, delta-v -- was delta-v critical for your -- your calculation of this motion input for the MADYMO?

MR. ROBERTS: Objection to form.
Incomprehensible.
THE COURT: I'm going to allow it.
THE WITNESS: The actual calculation of
delta-v is not critical.

BY MR. STRASSBURG:
Q. Explain.
A. Well, the delta-v does not go into the biomechanical analysis section. What we're interested in is the motion of the vehicle. We happen to get that as a byproduct, but it's not critical.
Q. Okay. Has this methodology to calculate the motion involved in an accident of this movement, has it been tested in scientific literature?
A. That is the balance of linear and angular momentum, conservation of energy, yes.

MR. STRASSBURG: Judge, based upon his -again, his explanation of his testimony, I'd again plead with you to reconsider your ruling on -- that this does comport with Hallmark. Once you understand that -- that this calculation that he performed is -it's maybe not what you're used to from other cases. It doesn't depend upon rest locations and witness statements because its purpose is limited. It's more -- it's different.

It's to calculate an input into the next step in the analysis, an input that is determined by a -- a half-circular rotation of a vehicle of this size and weight.

MR. MAZZEO: Excuse me. I have a couple of
questions of the doctor.
THE COURT: I'm sure you do. I'm sure he does too.

Tom, can you take this -- go admonish the jurors and tell them to come back at 8:30 tomorrow morning.

Go ahead, Mr. Mazzeo.
MR. STRASSBURG: Judge, can I mark this as an exhibit, what we've been looking at?

THE COURT: What's next in order?
THE CLERK: You want it as a court's exhibit
or --
THE COURT: A court exhibit. It's not going to go to the jury.

THE CLERK: It will be 8.
THE COURT: Go ahead, Mr. Mazzeo.
MR. MAZZEO: Thank you, Judge.

## VOIR DIRE EXAMINATION

BY MR. MAZZEO:
Q. Dr. Scher, how many PC-Crash analysis evaluations have you performed in your career?
A. I don't know. Maybe in the ballpark of 250 .
Q. And have you ever been -- have any of your PC-Crash analysis tests been deemed inadequate in any
A. Not that I know of, no.
Q. Okay. And in this case, did you have all the necessary data to perform the PC-Crash analysis test?
A. I believe so.
Q. And so I just want to ask you some questions about the relative importance or the significance of certain information that's been discussed.

What was -- what is the significance of the vehicle specifications with respect to the PC-Crash analysis testing?
A. The vehicle specifications will determine the dynamics of the motion of the vehicle upon impact.
Q. So and -- you had those -- and that's -- so that's something -- that's -- that's -- that's data that is important with respect to the analysis?
A. I believe so.
Q. Okay. Well, more than just your belief, is it something that's used in your -- in accident reconstruction to -- for this PC-Crash analysis?
A. Yes.
Q. Okay. And what is the significance of the area of initial contact for the PC-Crash analysis?
A. It gives us, again, the moment arm for rotation about the center of mass from the force of the
department.
Q. And there is -- has been some discussion about the -- about the -- your diverting from the AIC, or the area of initial contact, that was identified in the traffic accident report which -- it's on Plaintiff's Exhibit 2, page 1 -- or page 2, where the investigating officer had noted 100 N/S, 27 W/E.

Why did you diverge from the -- from the notation indicated by the investigating officer?
A. If I may, the accident report that I'm looking at says, "The accident occurred" -- there's a little check box next to No. 2. It says "or," and then it has a check box next to 3 . It says "feet," and then a check box next to No. 5 that says "approximate" along that line. So it says "north of Peak Drive," and it does say "approximate."

What was more important to me was the testimony that Mr. Garcia -- I'm sorry. Mr. Awerbach was coming out of Villa Del Sol, and that driveway or exit from the parking lot is 200 or so feet from the intersection. The police officer put 100. It was probably closer to 200. But it's the right area.
Q. And how did you determine that it was 200 rather than 100?
A. From Google Earth, so satellite imagery.
Q. Okay. And -- now, what is the significance of the angle of impact between the relative vehicles involved in this accident?

And, secondly, do you need to know the precise angles or the general angle?

MR. ROBERTS: Objection. Asked and answered.
THE COURT: I'm going to let him go.
THE WITNESS: We need the general angle within a range, which we had. We don't need the precise angle.

BY MR. MAZZEO:
Q. And how did you know the general angle?
A. From the damage to the vehicles and descriptions of the accident.
Q. Okay. Now, is -- can you tell us something about how photogrammetry has an impact on -- or any relevance of photogrammetry with respect to PC-Crash analysis?
A. It doesn't.
Q. Okay. Thank you. And what is the significance of the resting position for your PC-Crash analysis?
A. As I mentioned earlier, it's variable depending on the steering input after the main part of the impact. So it's immaterial for my analysis.

What's most important is the rotation of Ms. Garcia's vehicle.
Q. Okay. And -- and also, Dr. Scher, with respect to the area of initial contact, what we're talking about when -- when -- and you cited that, and it's -- I don't have the -- it's okay. I don't need it.

THE COURT: I can give it to you if you want.
BY MR. MAZZEO:
Q. Okay. So this is Plaintiff's 1, page -Exhibit 2, page 1. And I think what you were referring to, Doctor, is the traffic accident report in the box under "occurred on."

Do you see that?
A. I do.
Q. And this is what you were citing?
A. That is.
Q. The --
A. That's correct.
Q. Okay. 100 feet approximately north of Peak Drive; right?
A. That's right.
Q. Okay. So when we're talking about the area of initial contact, just so there's no confusion, we're not talking about the points of contact between the two
vehicles; we're talking about the contact in the roadway between the two vehicles?
A. The location on the roadway where the accident occurred.
Q. Okay. With respect to the points of contact, that's important for your PC analysis; correct?
A. Where the vehicles touched, do you mean?
Q. Yes.
A. Yes, it is.
Q. And how did you determine that?
A. From the damage to the vehicles that was apparent in the pictures and the repair estimate.
Q. Okay. Thank you.

MR. MAZZEO: And then, Judge, I also want to -- I mean, I can wait until the end, but I want to cite -- refer you to the case of Provence v. Cunningham, 95 Nev. 4, where photographs per se are not invalid as a basis for expert testimony in accident reconstruction cases.

And I'll wait. I guess there's going to be an argument at the end?

THE COURT: I can't go past 5:00 today. So you guys are a little limited on time.

MR. MAZZEO: Okay.
THE COURT: Mr. Roberts?

MR. ROBERTS: Thank you, Your Honor.

## VOIR DIRE EXAMINATION

BY MR. ROBERTS:
Q. Dr. Scher, could you direct us to the place in either one of your reports where you say that the only thing that matters is the rotation of Ms. Garcia's vehicle?
A. I don't say the only thing that matters is the rotation of the vehicle.
Q. And just so we're totally clear for the Court on the conclusions that you would like to offer to the jury, the first thing you said you did was the PC-Crash analysis; right?
A. The first thing is the accident reconstruction analysis overall.
Q. Right. Okay. Using PC-Crash.
A. PC-Crash is part of that, yes.
Q. And -- and here -- here are the notes that your counsel wrote down when he was asking you what had to go into PC-Crash in order to get delta-v.

MR. STRASSBURG: Objection.
BY MR. ROBERTS:
Q. And you told --

MR. STRASSBURG: I don't represent him.

BY MR. ROBERTS:
Q. You told him speed --

MR. ROBERTS: I'm sorry, Your Honor.
THE COURT: Yeah, you said "your counsel," so
that's true.
BY MR. ROBERTS:
Q. Okay. This is what you told --

THE COURT: Just say, these are the answers
that you gave to Mr. Strassburg.
MR. ROBERTS: Yes.
BY MR. ROBERTS:
Q. Who hired you in this matter?
A. Mr. Strassburg.
Q. Who do you send your bills to?
A. Mr. Strassburg.
Q. Who pays it?

MR. MAZZEO: Beyond the scope of voir dire.
BY MR. ROBERTS:
Q. So Mr. Strassburg asked you what had to go into PC-Crash, what was important. You told him speed; correct?
A. I did.
Q. And you told him angles; correct?
A. That's right.
Q. And you told him vehicle specs; right?
A. That's right.
Q. And you want to know the mass of the vehicle; right? And the wheel base and the center of gravity, all that stuff?
A. That's right.
Q. So you plugged all this into PC-Crash, and one of the things you get out of PC-Crash is delta-v; right?
A. That is a result, yes.
Q. And this is delta-v of Ms. Garcia's vehicle; correct?
A. Actually both vehicles, but yes.
Q. But what -- what you used in your conclusion was the delta-v of Ms. Garcia's vehicle; right?
A. That is one of my conclusions, yes.
Q. Okay. And you concluded it could be no greater than 9; right?
A. That was the upper bound, correct.
Q. Okay. So another one of the drawings. Okay. So Ms. Garcia's vehicle is traveling along.
A. I think there's a newer version.
Q. Is there? Okay.

MR. STRASSBURG: That's Court Exhibit 8.
MR. ROBERTS: Oh, did you tear it off?
MR. STRASSBURG: Yeah, I gave it to the

THE COURT: I have clips for you.
MR. ROBERTS: Got two, Your Honor. Audra beat you.

THE COURT: You got some?
MR. ROBERTS: Yes.
BY MR. ROBERTS:
Q. Okay. I have got now Court's Exhibit 8. Is that right? So Ms. Garcia's vehicle is traveling this way; right?
A. Down on the page, that's right.
Q. Okay. She's traveling southbound. And if she's going 30 miles an hour, that's her velocity. But there's no delta-v at this point as long as she's not accelerating or decelerating or moving laterally; right?
A. That's right.
Q. So now Mr. Garcia's -- excuse me.

Mr. Awerbach's vehicle hits her. And the delta-v that you're calculating is caused by Mr. Awerbach's vehicle; right?
A. By the contact with it, yes.
Q. By the contact with it. Energy from Mr. Awerbach's vehicle is transferring to Ms. Garcia's vehicle and causing it to accelerate.
A. I would agree with that.
Q. Okay. And the reason you need to know the mass is the amount of energy Mr. Awerbach's vehicle has, one component is mass and another component is velocity; right?
A. That's true.
Q. So the more -- assuming the exact same angle of impact, the greater the speed, the higher the delta-v; right?
A. In general, yes.
Q. Assuming the same speed, the higher the angle, the less delta-v; right?
A. The delta-v direction will change, but maybe not the magnitude.
Q. Okay. Thank you. That is more accurate.

So in this case, before you even get to -- to MADYMO -- did I say that correctly?
A. I believe so.
Q. Okay. And that's Mathematical --
A. Dynamic Model.
Q. Thank you. Mathematical dynamic model.

In your report of August 21st of 2014, you provide national weighted estimates and percent of restraint far-sided occupants injured in lateral impacts with a delta-v between 5 and 10 miles an hour,
characterized by severity; right?
A. Let me pull that up. You're looking at which?
Q. I'm looking page 17 of your

August 21st, 2014, report.
A. Page 17. Bear with me. I'm there.
Q. Okay. So you look at some data from recognized sources, and you determine that, for delta-v's between 5 and 10, here are the reported injuries and reported injuries to the lumbar spine of two severities; right?
A. Yeah. There's more to it. So these are lateral impacts, single collisions. There's not multiple collision. These are far-side occupants. So there's more to it than just that. But, yes, the tables in here and the text describes it.
Q. And then you give the conclusion that "Based on the NASS/CDS data, it is unlikely that an individual would sustain AIS 2+ lumbar spine pathologies from an accident similar to the subject accident."

And the things that make it similar are
lateral impact; right? Which is undisputed?
A. That's right.
Q. Far-sided, which undisputed, and delta-v;
A. Those are all true.
Q. So one of the fundamental opinions you want to give is solely based from -- at least from a disputed standpoint, on delta-v; right?
A. No. So this is a check on the biomechanical and engineering analysis portion. And this actually comes in as a way of looking at delta-v's overall and injury likelihood. And so some of these may be pure lateral impacts and no rotation; some may have rotation. But the point being that, with or without it, we have zero cases with lumbar spine AIS 2+ injuries.
Q. Right. And the database you used is delta-v between 5 and 10.
A. That's part of the query.
Q. And in this case you've calculated a delta-v of 9 using PC-Crash; correct?
A. 9 is the upper bound.
Q. Right. So let's assume that we changed a few of these things around a little bit and we got an upper bound of 11. Then this table would no longer apply; right? We'd have to look at different data.
A. I could do that, sure. Yes.
Q. So then what you told the Court is that you
took other data from your PC-Crash simulation and put it into MADYMO?
A. The output of PC-Crash into MADYMO.
Q. Right. And so this is very detailed output from PC-Crash that goes into your biomechanical program; right? And let's take a look at it. We don't have to -- to argue about semantics.

What you put into MADYMO was $\mathrm{X}, \mathrm{Y}$, and Z position and yaw, pitch, and roll rotation of the vehicles during the duration of the accident; right?
A. That's correct.
Q. And so it's not just the rotation of the vehicle that's important to you and that you entered into MADYMO; it's how fast the vehicle rotates around; right? Rotation by time.
A. Sure. All of these are time histories, of course.
Q. And this is your Attachment D. And all of this information that you put into MADYMO is the output from PC-Crash after you enter speed, angle, and all of the other things that you told Mr. Strassburg.
A. This is output, that's correct.
Q. Okay. And then MADYMO calculates sheer forces on the spine; right?
A. It does.
Q. Okay. And you calculated an axial force or compressive force; right?
A. Right. So let's be clear there is a force that has components in different directions.
Q. And the two you mentioned in your report as, in your words, most significant were the compressive axial force and the shear force.
A. That's right.
Q. And in your report you show the shear force going perpendicular to the -- to the body; right?
A. I show an anterior-posterior force.
Q. Right. And the force of the accident being balanced by the force of the ligaments in the muscles and the skeleton?
A. Not sure what you mean. Sorry.
Q. Force from the accident, resistive force of spine, ligaments, and muscles.

You prepared this; right? It's part of what you want to tell the jury?
A. I did, yes.
Q. And then what you want to tell the jury is -and this is page 65 of the PowerPoint that's been provided -- here is your occupant motion rotation only, and it shows that the occupant would experience a force making it go over toward the door of the vehicle;
A. That's right. A rotational motion of the vehicle creates an outward motion for the occupant.
Q. Okay. And that would be a different type of force than you think happened in this case; right?
A. No, I think that's present in this case.
Q. The force from side to side?
A. There is some small shear force laterally. It's provided in my file. But as you can see, it's very small.
Q. Right. And reason that you say it's small and are going to tell the jury it's small is because in this case we've got rotational force which counteracts the lateral -- the -- the lateral force counteracts the rotational force; right?
A. It's close enough, yes. It's not quite how I would say it, but sure.
Q. Okay. And -- and then I think there's some slides in here where you actually show those two forces as counteracting in addition to the slide $I$ just showed.
A. That's right.
Q. Now, in your reconstruction from your PC-Crash input, you have Ms. Garcia's vehicle going from the No. 1 travel lane going south, across the
median, and over into the No. 1 northbound lane; right?
A. In the animation that I showed, yes.
Q. Okay. And you would agree that it takes lateral force to move the vehicle from one side of the road over to the other side of the road.
A. Sure.
Q. And if the vehicle is staying in its lane, you've got more rotational force, and it's not being offset by the lateral force the way your calculations show.
A. Yeah. That would be physically impossible from what you described. It has to move laterally. And the only way it could get back into its original lane would be with the steering input that I mentioned earlier at the end of the accident sequence.
Q. So based on your calculations and the assumptions you've made about angles of impact, it has to move laterally?
A. Based on the laws of physics.
Q. Let's talk about crush for a minute. You would agree that there are no pictures or photographs you reviewed looking down from the top of the vehicle; right?
A. That's true.
Q. And so you attempted to use photogrammetry to
estimate crush; is that right?
A. That's right.
Q. And in your report you said that, since you couldn't actually go out and measure the crush, you had to come up with a range?
A. That's right.
Q. And you overstated that range; correct? You overestimated crush as a conservative measure?
A. That's right.
Q. Would you agree with me that, in order to conserve energy, as you have talked about doing in the laws of physics, that you've got a certain amount of energy that goes into an accident -- a collision, and those energies on one side have to equal the total energies on the other side?
A. You mean before and after the impact?
Q. Correct.
A. That's correct.
Q. So if there's more crush, there's less delta-v of Ms. Garcia's vehicle, because more of the energy, holding speed constant, angles constant, more crush equals less delta-v?
A. In general that's the right idea. In the number ranges that we're talking about, it makes a very minor impact. No pun intended.
Q. Mr. Garcia's vehicle was damaged on the passenger side; correct?

THE COURT: Ms. Garcia or Mr. Awerbach's?
MR. ROBERTS: I'm sorry, Your Honor. It gets
that time of day; I start misstating everything. BY MR. ROBERTS:
Q. Mr. Awerbach's vehicle was damaged on the passenger side; right?
A. That's correct. The passenger side of the front -- I'm sorry. It's front damage, more on the passenger side.
Q. Okay. So -- so you've got his vehicle. The angle goes like this; right?
A. Not sure which way is front on your paper for the vehicle.
Q. Okay. If this is Mr. Garcia's vehicle --
A. Why don't we use -- can we use something else where -- something that's more directional?

THE WITNESS: Can we use the tissue box, Your
Honor?
THE COURT: How about this?
MR. ROBERTS: Okay.
THE WITNESS: Thanks.
MR. ROBERTS: Thank you.

BY MR. ROBERTS:
Q. All right. So the spine is the front of the vehicle. You got Mr. Awerbach coming in like this, and then you got him turning left; right?
A. Correct.
Q. Assuming Ms. Garcia's going straight down the road, the vehicle -- the damage to Mr. Garcia's vehicle would be on the driver's side; right?

MR. SMITH: Mr. Awerbach.
BY MR. ROBERTS:
Q. Mr. Awerbach's vehicle would be on the driver's side. So if Mr. Awerbach turns left as you state, the -- and Ms. Garcia's parallel, the damage is going to be on the driver's side; right?
A. If you angle it in like that, sure. But if you have the contact -- may I?
Q. Sure.
A. Okay.

If you have the contact coming in like this, and she's swerving this way (witness indicating) -- and I am pointing -- she is driving down the street swerved to the left. So on the paper she's going to the right. He's coming in this way, to the right on the paper. And, remember, there's contact with the wheel. And that's contacting the driver's side of his vehicle.

The wheel rotates around as she's moving out this direction. That would account for the scuffs, the marks that we see on the bumper of the Forenza, and it matches up well with how the impact that actually created the force on both vehicles.
Q. But in order to make that work, you've got to turn Ms. Garcia's vehicle at an angle heading over into the northbound lanes; right?
A. A slight degree, which is what she testifies to.
Q. Does she testify to what the angle was or did you have to guess at that?
A. I wouldn't say it's a guess. I would say we'd --

MR. MAZZEO: Objection, Judge. There's nothing in -- in -- in the -- the amount of angle by Ms. Garcia. There's no testimony regarding that.

THE COURT: So you didn't want him to testify about it?

MR. MAZZEO: Withdrawn.
THE COURT: The question was did she testify to what the angle was, or did you have to guess; right?

MR. ROBERTS: That was the question.
MR. TINDALL: The objection, then, would be vagueness, whether he was guessing about the testimony
or guessing about the angle.
THE COURT: I'm going to let him answer.
THE WITNESS: I used what I thought were reasonable estimates of what it could be. BY MR. ROBERTS:
Q. And the reason that you felt your estimates are reasonable is that's the angles that you had to use in order for the rest of your calculations to come up the way you wanted them to; right?
A. Well, I wouldn't quite say it like that because I didn't have any way that I wanted them to come up with. What I would say is that, in order for everything to be consistent, it had a very narrow range of angles that she could have turned at. She can't turn 45 degrees and then have the damage to her vehicle, the damage to Awerbach's vehicle, her rotation of 180 degrees match up. It wouldn't work.
Q. And -- and, actually, if you read her whole testimony, she says she saw something coming really fast at the corner of her eye and tried to swerve. But as a reconstructionist, you know about perception-reaction time, and you know that she probably didn't have time to turn at all. In the time where she barely saw him out of the corner of her eye, she didn't have 2.5 seconds to perceive and react and
input steering motion, did she?
MR. MAZZEO: Objection, Judge. Relevance to
the scope of inquiry for -- for establishing his credibility for doing the PC-Crash analysis. This --

THE COURT: Overruled.
THE WITNESS: I think it is possible for her to have initiated a swerving motion.

THE COURT: Finish up, Mr. Roberts.
MR. ROBERTS: Thank you.
BY MR. ROBERTS:
Q. And, in fact, her quote from her deposition was, "I thought I could swerve because I did see him coming really fast."

MR. STRASSBURG: Page 22.
BY MR. ROBERTS:
Q. And, finally, you're not telling us that your report is incorrect when it says in two places that you tried to validate your PC-Crash inputs and your simulation by verifying that the final resting place of the vehicle matched the location set forth by the witnesses; right?
A. I probably should have been more precise in my language in terms of what I meant by that, and, specifically, it's Ms. Garcia's vehicle rotating 180 degrees.

Sorry. I'm not a lawyer. I'm an engineer. I don't use words as well as you guys.
Q. Okay. So when you said "final resting place," you didn't mean final resting place; you meant the rotation and motion of the vehicle before it ended up in the resting place.
A. No. I mean the final orientation of the vehicle.

MR. ROBERTS: Okay. Your Honor, I'm sorry.
Thank you for your indulgence.
THE COURT: You guys done?
MR. MAZZEO: Yes.
MR. STRASSBURG: Sure.
MR. MAZZEO: Judge, I'd just like to make one -- not for the witness. I'm done with the witness. But I -- I -- you cited Hallmark earlier, and I just wanted to distinguish that from this case.

THE COURT: Okay.
MR. MAZZEO: All right. So Hallmark is the distinguishable, as you -- as you put into the record, you had stated that Tradewinds did not introduce any evidence; that Dr. Bowles attempted to recreate the collision by performing an experiment.

Well, in this case Dr. Scher did recreate the collision by -- by -- he performed a check and actual
reconstruction that focused on the -- obtaining the 180-degree spin, and he used all those factors -- I don't need to go through all of them again, but the vehicle specs, the points of impact, the area of contact, or the -- in the roadway, which really wasn't relevant for the analysis. But he used -- he used the actual area of initial contact in the roadway.

And -- and I cited earlier the reference to Provence v. Cunningham which is a case after the -that 1968 case you had cited.

THE COURT: Choat, Levine?
MR. MAZZEO: Yeah, regarding photographs.
And this is -- this case, the Provence case,
is 95 Nev. 4 and 588 P.2d 1020. And that's a 1979 case, and -- where the Court ruled that photographs are not per se invalid as a basis for expert testimony in accident reconstruction cases.

So I just wanted to add that to the arguments that we cited earlier.

And also, Judge -- oh, that's right. And in the Provence case, the Court noted that expert testimony further -- the expert witness further testified that the precise area of impact could not be determined on the basis of the available information since the angle of impact and the speed of the vehicles
were unknown and no marks were made by the motorcycle upon the pavement at the time that the impact occurred.

He did testify as to -- the expert did -testify as to the range of probabilities, which included the possibility that the accident had occurred in the northbound lane.

So based on the cases that we cited and the testimony of Dr. Scher, as to all the data that he replied upon and the fact that it satisfies the requirements of the PC-Crash analysis, I would encourage the Court to change its prior decision or ruling in excluding him as an expert with respect to the accident -- the PC-Crash analysis.

MR. ROBERTS: And in Provence, it was rebuttal evidence that was deemed admissible and the court said, "You just put on a witness that had no greater foundation than him. You can't now be heard to say that their rebuttal expert can't give opinions on the same level of information. So it's not in evidence."

THE COURT: Okay, guys. I understand the distinction that you have tried to draw.

Unfortunately, I think his calculations in MADYMO are still based on the output from the PC-Crash. The PC-Crash analysis is based on speed, angles -- I mean,
that's where you get the delta-v from. And I think all of the information that went into that is, unfortunately, more assumption, conjecture, and generalization.

I don't take any pleasure in not allowing you to put him on. That's -- I think that's what I have to do in the case. You haven't changed my mind. I'm sorry.

So thanks for being here, Dr. Scher. I don't think we're going to need you any further. Appreciate your time.

When we start tomorrow morning, I'm guessing that you guys have more witnesses.

MR. ROBERTS: Well, they had originally asked to take Poindexter, I believe, out of order tomorrow because of his schedule. We're still willing to accommodate that, but we're also ready to go if they don't need that anymore.

MR. MAZZEO: Yeah. No, we didn't ask to take him out order. We had scheduled Dr. Poindexter for the defense case, which we anticipated starting days before Friday. So he's been scheduled for Friday for several weeks now. And so we -- yeah, we do plan on calling him tomorrow morning. That's his only --

THE COURT: Okay.

MR. MAZZEO: -- availability. THE COURT: Okay. All right. Start at 8:30, get through as much as we can.

Thanks, guys. Off the record.
(Thereupon, the proceedings
concluded at 5:05 p.m.)

STATE OF NEVADA ) COUNTY OF CLARK )

I, Kristy L. Clark, a duly commissioned Notary Public, Clark County, State of Nevada, do hereby certify: That I reported the proceedings commencing on Thursday, February 25, 2016, at 10:50 o'clock abm.

That I thereafter transcribed my said shorthand notes into typewriting and that the typewritten transcript is a complete, true and accurate transcription of my said shorthand notes.

I further certify that $I$ am not a relative or employee of counsel of any of the parties, nor a relative or employee of the parties involved in said action, nor a person financially interested in the action.

IN WITNESS WHEREOF, I have set my hand in my office in the County of Clark, State of Nevada, this 25th day of February, 2016.


|  | 37/3 39/9 39/25 40/21 | 160/2 |
| :---: | :---: | :---: |
| BY MR. MAZZEO: [3] | 43/9 $43 / 1446 / 22 \quad 46 / 25$ | THE WITNESS: [31] 5/14 |
| 171/19 174/10 175/8 | $\begin{array}{llllll}52 / 7 & 53 / 25 & 54 / 15 & 55 / 22\end{array}$ | 5/17 54/23 54/25 55/3 |
| BY MR. ROBERTS: [16] | 56/3 56/7 56/12 56/15 | $\begin{array}{lllll}55 / 8 & 55 / 12 & 56 / 1 & 57 / 15\end{array}$ |
| 67/23 $71 / 15$ 72/4 177/3 | $\begin{array}{lllll}57 / 13 & 60 / 10 & 62 / 1 & 62 / 3\end{array}$ | $\begin{array}{llll}63 / 18 & 71 / 1 & 71 / 3 & 71 / 5 \\ 71 / 8 & 71 / 12 & 71 / 25 & 85 / 19\end{array}$ |
| 177/22 177/25 178/5 | $\begin{array}{llll} 63 / 5 & 63 / 15 & 64 / 3 & 65 / 3 \\ 65 / 25 & 70 / 3 & 70 / 6 & 70 / 9 \end{array}$ | $\begin{array}{llll} 71 / 8 & 71 / 12 & 71 / 25 & 85 / 19 \\ 94 / 1 & 104 / 17 & 105 / 6 & 111 / 22 \end{array}$ |
| 178/10 $178 / 17180 / 6$ | $\begin{array}{lllll}70 / 15 & 70 / 23 & 71 / 2 & 71 / 4\end{array}$ | 112/9 148/20 160/19 |
| 189/5 189/24 190/9 192/4 | 71/10 $71 / 13$ 71/23 81/1 | $\begin{array}{llll}161 / 25 & 169 / 23 & 174 / 7\end{array}$ |
| 193/9 193/14 | 88/9 90/2 90/22 93/3 | 189/18 189/22 192/2 |
| BY MR. STRASSBURG: [50] $5 / 23$ (13 $11 / 1420 / 17$ | 93/23 95/1 $96 / 25 \quad 97 / 25$ | 193/5 192/2 |
| $\begin{array}{lllll}5 / 23 & 8 / 13 & 11 / 14 & 20 / 17 \\ 23 / 5 & 26 / 19 & 28 / 15 & 31 / 25\end{array}$ | 99/6 122/10 122/21 |  |
| $\begin{array}{llll}23 / 5 & 26 / 19 & 28 / 15 & 31 / 25 \\ 32 / 16 & 34 / 17 & 35 / 8 & 35 / 25\end{array}$ | 132/23 140/6 140/19 | \$ |
| $\begin{array}{lllll} 32 / 16 & 34 / 17 & 35 / 8 & 35 / 25 \\ 37 / 7 & 39 / 12 & 40 / 4 & 40 / 24 \end{array}$ | 141/1 141/25 143/22 | \$1,000 [1] 167/13 |
| $\begin{array}{llll}\text { 43/16 } & 59 / 2 & 60 / 16 & 62 / 6\end{array}$ | 143/25 168/25 170/11 | \$1,500 [1] 167/13 |
| 63/9 64/12 65/6 66/3 | 171/7 177/21 177/24 | \$10,000 [1] 167/15 |
| 80/4 81/2 85/21 88/13 | 179/22 179/24 193/13 | ' |
| $\begin{array}{ll}90 / 5 & 90 / 25 \\ 95 / 4 & 93 / 6\end{array}$ | MR. TINDALL: [1] 191/23 | '2007 [1] 50/3 |
| 95/4 97/2 98/3 99/9 | MS. ESTANISLAO: [4] | 2007 [1] 50/3 |
| 104/19 105/12 111/24 | 57/2 57/4 58/10 58/21 | . |
| $\begin{array}{lll}112 / 10 & 148 / 14 & 149 / 5\end{array}$ | THE CLERK: [4] 5/10 | . 7 [2] 103/8 138/9 |
| 158/4 160/5 160/24 $162 / 8$ | 5/15 171/10 171/14 | . 8 [2] 103/7 138/7 |
| 168/6 169/2 169/12 | THE COURT: [147] 4/4 | . 9 [2] 103/8 138/9 |
| 169/25 | $\begin{array}{llllll}\text { 4/11 } & 4 / 19 & 5 / 6 & 5 / 19 & 8 / 12\end{array}$ |  |
| MR. MAZZEO: [27] 4/16 | $\begin{array}{lllll}11 / 13 & 20 / 12 & 20 / 15 & 22 / 21\end{array}$ | 0 |
| $\begin{array}{llll}79 / 21 & 127 / 20 & 128 / 3 & 132 / 4\end{array}$ | $\begin{array}{llll}11 / 3 / 3 & 26 / 18 & 28 / 10 & 31 / 23\end{array}$ | 0 inches [1] 94/21 |
| $\begin{array}{lllll}133 / 6 & 134 / 5 & 139 / 14 & 140 / 5\end{array}$ | $\begin{array}{lllll} & 32 / 15 & 34 / 16 & 35 / 4 & 35 / 21\end{array}$ | 0 miles [1] 84/17 |
| 144/1 144/7 144/19 | $\begin{array}{lllll}36 / 18 & 36 / 22 & 37 / 2 & 37 / 6\end{array}$ | 0.8 [1] 75/4 |
| 144/25 170/24 171/16 | $\begin{array}{lllll}39 / 11 & 40 / 3 & 40 / 23 & 43 / 15\end{array}$ |  |
| 176/13 176/23 178/16 | $\begin{array}{lllll}46 / 20 & 46 / 24 & 47 / 2 & 48 / 13\end{array}$ | 1 |
| $\begin{array}{lll}191 / 14 & 191 / 19 & 193 / 1 \\ 194 / 11 & 194 / 13 & 194 / 18\end{array}$ | $\begin{array}{lllll} \\ 48 / 19 & 48 / 23 & 49 / 3 & 54 / 16\end{array}$ | 10 [4] 17/3 55/7 182/10 |
| 194/11 194/13 $194 / 18$ | 54/24 55/2 55/6 55/10 | 183/15 |
| $\begin{array}{ll}\text { 195/11 197/18 } & 197 / 25 \\ \end{array}$ | 55/13 56/2 56/4 56/9 | 10 degrees [1] 74/1 |
| MR. ROBERTS: [85] 4/18 | 56/14 56/16 56/18 56/23 | 10 miles [3] 153/23 |
| $\begin{array}{lllll}8 / 11 & 11 / 12 & 20 / 10 & 22 / 20\end{array}$ | 56/25 57/3 57/5 57/12 | 158/24 181/25 |
| $\begin{array}{llllll}23 / 2 & 26 / 17 & 28 / 7 & 31 / 22\end{array}$ | 58/3 58/6 58/8 58/11 | 10,000 [1] 14/8 |
| $\begin{array}{lllll}32 / 14 & 34 / 13 & 35 / 2 & 35 / 20\end{array}$ | 58/16 58/23 60/11 60/15 | $10,000 \text { pounds [1] } 14 / 10$ |
| $\begin{array}{lllll}36 / 16 & 37 / 5 & 39 / 10 & 40 / 2\end{array}$ | 62/5 63/6 63/8 63/17 | 100 [3] 173/7 173/21 |
| $\begin{array}{llll}\text { 40/22 } & 43 / 10 & 58 / 22 & 60 / 12\end{array}$ | $\begin{array}{llll}64 / 4 & 64 / 7 & 64 / 10 & 65 / 5\end{array}$ | 173/24 |
| 62/2 62/4 63/7 63/16 | 66/2 67/15 67/18 70/7 | 100 feet [7] 38/14 68/17 |
| $\begin{array}{llll}64 / 5 & 65 / 4 & 66 / 1 & 67 / 12\end{array}$ | 70/22 79/23 80/2 80/24 | 68/25 69/13 72/14 116/11 |
| $\begin{array}{llll}67 / 20 & 70 / 5 & 70 / 8 & 70 / 12 \\ 70 / 19 & 71 / 7 & 80 / 21 & 85 / 18\end{array}$ | 85/20 88/12 90/4 90/24 | 175/20 |
| $\begin{array}{llll}70 / 19 & 71 / 7 & 80 / 21 & 85 / 18 \\ 88 / 10 & 90 / 3 & 90 / 23 & 93 / 4\end{array}$ | 93/5 93/25 95/3 97/1 | 1020 [1] 195/14 |
| $\begin{array}{llll}\text { 88/10 } & 90 / 3 & 90 / 23 & 93 / 4 \\ 93 / 24 & 95 / 2 & 98 / 1 & 99 / 7\end{array}$ | 98/2 99/8 104/18 104/25 | 10:00 [1] 48/5 |
| 104/16 104/23 105/2 | 105/5 111/20 112/7 | 10:30 [1] 48/5 |
| $\begin{array}{llll}111 / 18 & 112 / 6 & 112 / 17\end{array}$ | 112/20 112/23 113/21 | 10:50 [2] 4/2 199/7 |
| $\begin{array}{llll}113 / 24 & 114 / 13 & 114 / 21\end{array}$ | 114/6 114/18 114/23 | 10th [2] 2/15 115/25 |
| 114/24 127/17 127/19 | 122/16 127/18 128/1 | 11 [4] 17/3 49/13 49/18 |
| $\begin{array}{lll}130 / 9 & 132 / 19 & 134 / 2\end{array}$ | 130/7 132/22 132/24 | 183/22 |
| 143/24 146/10 148/18 | 133/2 134/10 139/18 | 12 [1] 37/5 |
| $\begin{array}{llll}158 / 2 & 160 / 16 & 161 / 21\end{array}$ | 140/8 140/20 140/22 | 129 [1] 127/25 |
| 168/4 168/22 169/11 | 141/23 143/20 143/23 | 13 [2] 39/10 39/14 |
| 169/20 174/5 176/25 | 144/6 144/18 144/22 | 13529 [1] 1/24 |
| 178/2 178/9 179/23 180/2 | 148/6 148/19 159/24 | 14 [5] 40/2 40/6 76/19 |
| 180/5 189/3 189/21 | 160/3 160/18 161/23 | 116/19 136/24 |
| 189/23 191/22 193/8 | 168/24 169/1 169/22 | 14 miles [2] 76/9 116/3 |
| 194/8 196/13 197/13 | 171/1 171/9 171/12 | 148 [1] 3/6 |
| MR. SMITH: [13] 48/17 | 171/15 174/6 175/7 | 15 [2] 40/22 41/2 |
|  | 176/21 176/24 178/3 | 15-minute [2] 48/5 48/6 |
| 54/4 56/17 56/24 57/9 | $\begin{array}{lllll}178 / 7 & 180 / 1 & 180 / 4 & 189 / 2\end{array}$ | 1500 [1] 2/5 |
| 57/21 58/5 58/7 190/8 | 189/20 191/17 191/20 | 16 [2] $43 / 10$ 43/18 |
| MR. STRASSBURG: [80] | $\begin{array}{lllll}192 / 1 & 193 / 4 & 193 / 7 & 194 / 10 \\ 194 / 17 & 195 / 10 & 196 / 20\end{array}$ | $\begin{array}{lccc} 17 & {[2]} & 182 / 4 & 182 / 6 \\ 171 & {[1]} & 3 / 7 & \end{array}$ |
|  | 197/24 198/1 | 177 [1] 3/5 |
|  | THE MARSHAL: [6] 4/7 | 18 [2] 76/24 162/8 |
| $\begin{array}{llll}28 / 13 & 32 / 13 & 34 / 12 & 35 / 3 \\ 35 / 6 & 35 / 18 & 35 / 24 & 36 / 20\end{array}$ | 4/10 56/22 58/12 58/15 | 180 [5] 75/17 86/24 |


| 1 | 3 | 6:00 p.m [1] 38/14 |
| :---: | :---: | :---: |
| 180... [3] 150/20 159/7 | 3.58 [2] 7/10 7/12 | 7 |
| 164/13 $78 / 16$ | 3.71 [1] 7/22 | 702 [4] 2/5 2/11 2/16 |
| $\begin{aligned} & 180 \\ & 78 / 18 \text { degrees [15] 78/16 }\end{aligned}$ | $\begin{array}{ccrrr}30 & {[16]} & 1 / 2 & 15 / 20 & 34 / 21 \\ 60 / 11 & 60 / 12 & 60 / 19 & 76 / 14\end{array}$ | $2 / 21$ |
| $78 / 18$ $142 / 2 / 21$ $154 / 2$ $152 / 8$ $156 / 10$ | $\begin{array}{llll}\text { 60/11 } & 60 / 12 & 60 / 19 & 76 / 14 \\ 76 / 21 & 76 / 22 & 77 / 1 & 83 / 25\end{array}$ | 708 [2] 1/24 199/22 |
| 158/19 161/5 163/10 | 115/15 115/19 115/22 | 8 |
| 165/9 166/18 192/17 | 116/6 116/19 |  |
| 193/25 | 30 miles [9] 38/16 83/19 | 80 miles [1] $84 / 16$ 81 [1] 128/1 |
| 180-degree [6] 142/7 | 84/15 115/14 115/18 | $\text { 89-page [1] } 51 / 2$ |
| 143/14 153/19 154/24 | 136/25 142/23 143/16 | $\begin{aligned} & 89-\text { page }[1] \quad 51 / 2 \\ & 89101[1] \quad 2 / 16 \end{aligned}$ |
| 160/9 195/2 ${ }^{\text {180-degrees [1] }} 159 / 24$ | 180/13 ${ }^{10}$ [1] $141 / 18$ | 89118 [2] $2 / 10$ 2/21 |
| 180-degrees [1] 159/24 | 30 years [1] 141/18 | 89147 [1] 2/4 |
| 19 [2] 97/1 97/4 | 30,000 [1] 106/3 |  |
| 1968 [1] 195/10 | 30-mile-per-hour [1] | 171/5 198/2 |
| $\begin{array}{llll}1979 & {[1]} & 195 / 14 \\ 1: 15 & {[2]} & 47 / 4 & 48 / 11\end{array}$ | $136 / 22$ 30 -year-old [1] |  |
| 1B [1] 29/17 | 312 [1] 128/1 |  |
| 2 | 32 [2] 62/2 62/4 | $\text { 938-3838 [1] } 2 / 1$ |
| 2 inches [2] 88/25 89/1 | 33 [2] 63/6 63/7 | 95 [2] 176/17 195/14 |
| 2,000 pounds [1] 14/9 | 35 [1] 115/15 | 977-1500 [1] 2/5 |
| 2-mile-an-hour [1] 84/19 | 36 [4] $64 / 4 \quad 64 / 5 \quad 65 / 4$ | page [1] 49/7 |
| 2.5 [1] 192/25 | 65/8 | 997-3800 [1] 2/21 |
| 20 [12] 76/17 76/19 | 360 degrees [2] 86/23 | A |
| 76/24 83/25 98/1 98/5 | 161/7 | A-11-637772-C [1] 1/1 |
| 115/18 115/19 115/22 | 3636 [1] 2/16 | a.m [2] 4/2 199/7 |
| 115/22 116/6 136/24 | 37 [2] 66/1 121/18 | $\begin{array}{llllll}\text { A637772 [3] } & 4 / 14 & 58 / 19\end{array}$ |
| 20 inches [2] 104/6 $105 / 19$ | $\begin{array}{lll} 3800 & {[1]} & 2 / 21 \\ 382-3636 & {[1]} & 2 / 16 \end{array}$ | A63/4 13314 |
| 20 miles [4] 76/8 118/23 | 3838 [1] 2/11 | abilities [1] 21/17 |
| 158/23 162/7 | 3D [1] 30/11 | able [15] $24 / 2124 / 25$ |
| 20-pound [1] 25/16 200 | 4 | $\begin{array}{llll}\text { 42/19 } & 57 / 18 & 70 / 16 & 71 / 10\end{array}$ |
| 200 [4] $69 / 12$ $173 / 20$ <br> $173 / 22$ $173 / 23$  | 4 inches [4] 50/9 91/20 | $\begin{array}{llll} 126 / 23 & 128 / 18 & 130 / 11 \end{array}$ |
| 200 feet [2] $72 / 13$ $145 / 20$ | $94 / 22$ 95/11 0 percent [1] $15 / 20$ | $\text { about [100] } 5 / 12 \text { 17/3 }$ |
| 2001 [2] 36/8 63/1 | 40 percent [1] 15/20 400 [1] 2/10 | 22/16 25/10 30/8 32/5 |
| 2002 [1] 63/1 | 42 [3] 6/7 52/9 121/18 | $\begin{array}{llllll}36 / 19 & 38 / 11 & 38 / 14 & 38 / 14\end{array}$ |
| 2003 [1] 63/1 | 44 [1] 95/2 | 39/3 $44 / 11$ 44/17 $46 / 19$ |
| 2004 [1] 17/21 | 45 degrees [1] 192/15 | 47/7 48/5 48/19 49/14 <br> $49 / 19$ 50/18 50/20 50/22 |
| 2007 [1] 36/8 | 46 [1] 70/9 | $49 / 19$ 50/18 50/20 50/22 <br> 51/10 52/3 52/17 53/11 |
| 2011 [2] 22/4 38/13 | 4795 [1] 2/4 | $53 / 13 \quad 56 / 6 \quad 56 / 25 \quad 61 / 7$ |
| 2013 [2] 127/24 128/1 | 480 degrees [1] 161/10 | 61/20 61/24 66/12 66/15 |
| 2014 [5] 54/18 55/8 | 49 [1] 70/11 | 67/10 68/1 68/3 69/9 |
| $\begin{array}{\|ll} \text { 115/25 } & 181 / 22 \\ 2015[1] & 182 / 5 \end{array}$ | 5 | 69/10 $72 / 13$ 76/17 77/23 |
| 2016 [4] 1/22 4/1 199/7 | 50 inches [7] 64/1 64/16 | 81/4 82/17 83/19 92/2 |
| 199/19 | 65/13 65/16 66/15 91/18 | 97/14 100/12 102/13 |
| 21 [2] 54/18 99/7 | 91/24 | $\begin{array}{lllll}103 / 7 & 105 / 1 & 110 / 5 & 110 / 6\end{array}$ |
| 21st [1] 181/22 | 50,000 [1] 106/1 | 110/9 113/2 115/1 115/3 |
| 22 [2] 162/8 193/14 | 503 [1] 128/1 | $\begin{array}{lll}115 / 17 & 118 / 1 & 120 / 14\end{array}$ |
| 25 [5] 1/22 4/1 88/10 | 55 [1] 121/19 | 121/4 121/6 121/6 124/6 <br> 124/11 132/25 137/2 |
| 88/16 199/7 | 56 [3] 49/13 49/18 49/22 | $137 / 16 \text { 138/6 140/1 } 140 / 2$ |
| 25-pound [1] 25/17 | 588 [1] 195/14 | 140/10 140/11 141/6 |
| 250 [1] 171/23 | 5940 [1] 2/20 | 141/25 142/1 146/20 |
| 25th [1] 199/19 | 5:00 [1] 176/22 | 149/8 161/3 165/11 |
| 26 [1] 90/3 | 5:05 [1] 198/6 | 166/14 172/7 172/25 |
| 27 $[2]$ $90 / 23$ $173 / 7$ <br> 28 $[3]$ $93 / 4$ $93 / 8$ <br> $116 / 19$    | 6 | 173/3 173/3 174/16 175/5 |
| 29 [1] 93/24 | 60 [1] 121/19 | 175/23 175/25 176/1 |
| 2:00 [1] 48/7 | 631 [1] 2/15 | $\begin{array}{lllll}184 / 7 & 187 / 17 & 187 / 20\end{array}$ |
| 2:00 o'clock [1] 48/3 | 6385 [1] 2/9 | 188/11 188/24 189/21 |
| 2D [1] 31/15 | 65 [1] 185/22 | $\begin{array}{lll} 191 / 19 & 191 / 25 & 192 / 1 \\ 192 / 21 \end{array}$ |
| 2nd [2] 22/4 38/13 | 652 [1] 135/2 | above [2] 10/11 65/16 |
|  | $\begin{aligned} & 653 \text { [1] } 135 / 2 \\ & 68[1] \\ & 3 / 5 \end{aligned}$ | absolutely [3] 51/5 |


| A | 125/1 191/2 | 127/17 196 |
| :---: | :---: | :---: |
| lutely... [2] 157/17 | accounts [2] 118/5 | admonish [1] 171 |
| 61/14 |  |  |
| absorbed [4] 93/19 98/25 | $68 / 9$ | affirmed [1] 130/11 |
| 93/19 98/25 abused [1] 130/16 | accurate [8] 39/14 79/14 | after [31] 6/24 21/23 |
| accelerate [3] 44/1 | 83/12 85/7 103/3 145/18 | 30/18 30/22 40/12 42/ |
| 149/15 180/25 |  | /3 44/1 44/9 44/19 |
| accelerating [1] 180/15 | accurately [3] 40/6 41/2 $81 / 5$ | 44/20 44/24 45/1 54/13 $55 / 4 \text { 55/8 55/9 55/11 }$ |
| acceleration [11] 44/10 | achieve [1] 119/8 | 59/11 77/14 97 |
| $\begin{array}{llll}44 / 12 & 44 / 13 & 44 / 14 & 44 / 15\end{array}$ | across [9] 65/13 69/16 | 101/6 129/11 135/23 |
| 44/16 116/1 154/13 | 69/20 69/22 71/21 74/25 | $\begin{array}{llll}135 / 25 & 146 / 17 & 174 / 24\end{array}$ |
| 154/17 154/18 158/15 | $\begin{array}{llll}79 / 5 & 116 / 13 & 186 / 25\end{array}$ | 184/20 188/16 195/9 |
| accelerations [3] 150/8 151/12 154/3 | action [3] 5/12 199/15 | afterward [1] 101/15 |
| accelerator [1] 128/14 | 199/16 | afterwards [3] 12/25 |
| accelerometer [1] 128/14 | actions [1] 21/8 activities [13] 14/1 | $\left\lvert\, \begin{array}{ccc} 39 / 25 ~ 44 / 3 \\ \text { again [27] } & 32 / 5 & 44 / 6 \end{array}\right.$ |
| accept [1] 125/24 | $\begin{array}{rlll}15 / 19 & 25 / 13 & 25 / 15 & 30 / 6\end{array}$ | 45/4 $45 / 21 \quad 49 / 22 \quad 52 / 3$ |
| accepted [5] 84/11 | 30/16 30/19 30/25 31/5 | 78/1 95/7 101/5 103/8 |
| 134/17 135/5 160/11 | $\begin{array}{llllll}32 / 25 & 34 / 3 & 34 / 25 & 140 / 12\end{array}$ | 106/5 112/13 119/7 |
| accident [132] 6/1 6/3 | activity [2] 8/8 14/22 | 125/20 144/25 155/12 |
| 6/5 16/23 17/8 21/4 22/3 | actual [27] 28/3 28/3 | 162/13 164/17 164/25 |
| 22/16 23/14 24/4 24/23 | $\begin{array}{llll}36 / 11 & 36 / 12 & 43 / 12 & 59 / 22\end{array}$ | 166/13 167/2 168/25 |
| $\begin{array}{lllll}25 / 5 & 25 / 12 & 26 / 3 & 27 / 4\end{array}$ | 63/21 68/20 77/9 83/15 | 169/2 170/13 170/13 |
| 27/21 28/20 $30 / 1 \quad 30 / 17$ | 86/11 91/12 106/2 110/24 | 172/24 195/3 |
| $\begin{array}{lllll}30 / 17 & 30 / 24 & 30 / 25 & 31 / 8\end{array}$ | $\text { 124/2 } 124 / 3 \quad 129 / 15$ | against $[2]$ $57 / 18$ $125 / 23$ <br> ago [4] $25 / 25$ $49 / 8$ $52 / 4$ |
| $\begin{array}{lllll}31 / 17 & 33 / 6 & 34 / 4 & 34 / 9\end{array}$ | $\begin{array}{llll}131 / 17 & 145 / 11 & 145 / 24\end{array}$ | $65 / 14$ |
| $\begin{array}{lllll}34 / 10 & 35 / 13 & 35 / 16 & 35 / 23\end{array}$ | 169/24 194/25 195/7 | agree [8] 43/15 71/17 |
| $\begin{array}{llll}36 / 3 & 36 / 11 & 36 / 13 & 37 / 24 \\ 38 / 11 & 38 / 13 & 40 / 14 & 43 / 5\end{array}$ | actuality [1] 79/8 | 78/25 127/22 181/1 187/3 |
| 38/11 38/13 40/14 43/5 $44 / 7$ 45/5 45/7 46/11 | $\begin{array}{llll}\text { actually [46] } & 12 / 21 & 13 / 1\end{array}$ | 187/21 188/10 |
| 52/18 $53 / 1 \quad 59 / 8 \quad 59 / 15$ | 23/22 25/10 27/21 28/22 | agreed [1] 136/20 |
| 59/20 59/22 59/25 61/22 | $\begin{array}{llll}41 / 24 & 52 / 13 & 53 / 16 & 63 / 19\end{array}$ | agreement [1] 130/4 |
| 63/1 63/22 63/24 64/24 | 66/14 66/21 67/3 67/5 | ahead [25] 4/12 5/21 |
| 65/18 $66 / 8 \quad 67 / 7 \quad 67 / 10$ | $\begin{array}{lllll}68 / 20 & 69 / 20 & 72 / 18 & 76 / 10\end{array}$ | $\begin{array}{lllll}12 / 1 & 46 / 24 & 47 / 3 & 58 / 18\end{array}$ |
| 68/19 69/9 72/20 74/17 | (1)21 78/10 $79 / 12$ 91/23 | $\begin{array}{lllll}59 / 2 & 60 / 16 & 63 / 9 & 65 / 6\end{array}$ |
| 75/15 75/15 $76 / 1 \quad 76 / 17$ | 92/2 92/14 101/13 106/11 | 66/3 80/4 88/13 90/25 |
| 77/14 81/6 82/25 84/24 | 16 111/4 | $\begin{array}{llll}93 / 6 & 94 / 1 & 95 / 4 & 97 / 2 \\ 98 / 9\end{array}$ |
| 86/3 86/11 89/6 90/1 | 133/21 145/10 145/19 | 99/9 114/21 146/ |
| 95/24 97/7 97/21 99/4 | 149/25 151/11 157/3 |  |
| 100/1 103/9 103/12 | 161/20 162/1 179/12 | aid [1] 64/22 |
| 103/13 104/6 106/19 | 183/7 186/19 188/4 191/4 | air [1] 84/11 |
| 106/20 107/10 109/12 | 192/18 | airbag [1] 128/14 |
| 109/24 110/4 111/7 116/4 | ADAM [1] $2 / 3$ | airbags [1] 19/7 |
| 120/12 124/15 125/17 | $\begin{array}{llll}\text { add [4] } & 102 / 10 & 102 / 18\end{array}$ | airplane [1] 143/18 |
| 126/9 129/11 $139 / 25$ | 146/14 195/18 | AIS [2] 182/20 183/12 |
| $\begin{array}{lll}140 / 14 & 141 / 14 & 143 / 5 \\ 145 / 14 & 149 / 23 & 151 / 20\end{array}$ | added [1] 98/9 | AIS 2 [2] 182/20 183/1 |
| $\begin{array}{lll}145 / 14 & 149 / 23 & 151 / 20 \\ 160 / 12 & 160 / 14 & 163 / 11\end{array}$ | addition [1] 186/20 | akin [2] 100/10 123/12 |
| $164 / 3 \quad 166 / 5 \quad 167 / 7 \quad 16$ | additional [2] 4/24 | Alaska [1] 17/16 |
| $\begin{array}{llll}170 / 8 & 172 / 19 & 173 / 5\end{array}$ | 143/21 | all [165] 5/8 8/6 10/11 |
| $\begin{array}{lllll}173 / 10 & 173 / 11 & 174 / 3\end{array}$ | address [1] 135/15 | 14/6 18/17 18/18 19/14 |
| 174/14 175/12 176/4 | adjunct [1] 6/24 | 22/10 22/15 22/19 22/24 |
| 176/18 $177 / 15$ 182/21 | adjust [3] 76/13 82/19 | $\begin{array}{lllll}23 / 25 & 24 / 21 & 26 / 14 & 26 / 24\end{array}$ |
| 182/21 184/10 185/12 | 84/18 | $\begin{array}{llll}28 / 1 & 29 / 24 & 30 / 4 & 30 / 19\end{array}$ |
| 185/16 187/15 188/13 | adjusted [4] 76/10 77/4 | $\begin{array}{llll}31 / 12 & 32 / 2 & 32 / 18 & 33 / 2\end{array}$ |
| 195/17 196/5 196/13 | 83/12 123/20 | 33/7 33/22 34/7 36/2 |
| accidents [8] 12/24 | adjusting [1] 84/13 | $\begin{array}{lllll}37 / 4 & 37 / 9 & 37 / 15 & 38 / 10\end{array}$ |
| $\begin{array}{lllll}16 / 24 & 23 / 23 & 26 / 1 & 31 / 20\end{array}$ | adjustment [2] 88/18 | $\begin{array}{llll}39 / 7 & 40 / 12 & 41 / 17 & 42 / 7\end{array}$ |
| 37/24 45/20 111/18 | 103/24 | $\begin{array}{lllll}42 / 15 & 42 / 22 & 46 / 13 & 48 / 10 \\ 48 / 14 & 50 / 19 & 53 / 23 & 56 / 16\end{array}$ |
| accommodate [1] 197/17 | 84/10 85/24 86/13 86/20 | $56 / 17 \quad 56 / 19 \quad 57 / 7 \quad 60 / 1$ |
| $\begin{array}{lll}\text { accomplish [1] } & 119 / 9 \\ \text { accordance [1] } & 123 / 20\end{array}$ | 87/12 87/24 89/11 90/17 | 61/23 62/18 62/20 66/13 |
| accordance [1] 123/20 | 123/23 | 67/8 67/19 78/17 79/14 |
| $\begin{array}{\|c} \text { according } \\ 125 / 8 \\ 128 / 17 \end{array}$ | Administration [1] 23/22 | 80/3 80/7 80/14 80/19 |
| account [4] 41/13 86/20 | admissible [3] 58/1 | 81/4 81/21 82/1 82/14 |


| A | am [4] 36/5 144/8 190/21 | ANDREA [2] 1/12 2/1 |
| :---: | :---: | :---: |
| all... [102] 82/22 84/1 | 199/12 ambulances [1] | $\begin{array}{ccccc}\text { angle [62] } & 41 / 25 & 72 / 2 \\ 72 / 10 & 72 / 22 & 72 / 24 & 73 / 5\end{array}$ |
| 84/5 84/21 85/6 86/2 | among [1] 128/10 | $\begin{array}{llll}73 / 13 & 73 / 22 & 73 / 22 & 74 / 4\end{array}$ |
| $\begin{array}{ll}86 / 19 & 87 / 20 \\ 95 / 9 & 85 / 20 \\ 96 / 4 & 94 / 19\end{array}$ | amount [46] $14 / 12$ 14/12 | 79/11 86/9 95/14 95/21 |
| 95/9 95/20 96/4 96/6 $96 / 22 \quad 97 / 14 \quad 98 / 16 \quad 99 / 11$ | 14/13 14/20 65/16 80/13 | 108/9 108/24 109/6 |
| $\begin{array}{llll} \\ 101 / 2 & 101 / 5 & 101 / 13 & 102 / 9\end{array}$ | 81/19 87/1 87/2 87/15 | 116/15 $117 / 6$ 117/8 |
| 102/24 103/14 106/6 | 88/19 91/9 91/10 91/13 | 117/13 117/14 117/20 |
| 107/13 $107 / 15107 / 18$ | 91/13 91/19 91/21 91/25 | 121/12 121/12 121/13 |
| 108/11 108/21 109/12 | 92/3 93/19 94/6 94/7 | 121/15 121/17 121/21 |
| 109/17 110/5 111/2 | 98/17 98/24 103/24 104/5 | 128/21 $129 / 2$ 129/2 |
| 111/11 112/2 113/22 | 105/21 105/25 109/3 | $130 / 20$ $132 / 12$ $132 / 13$ <br> $132 / 14$ $132 / 16$ $135 / 10$ |
| 114/19 114/24 119/22 | $115 / 11$ 120/23 121/10 | 135/20 146/1 146/3 147/4 |
| $\begin{array}{llll}121 / 3 & 122 / 3 & 122 / 4 & 122 / 4\end{array}$ | 121/11 121/15 132/10 | $\begin{array}{lll}155 / 9 & 166 / 21 & 166 / 24\end{array}$ |
| $\begin{array}{lllll}122 / 8 & 123 / 1 & 123 / 5 & 124 / 6\end{array}$ | 153/8 153/9 159/10 | $\begin{array}{lllll}166 / 25 & 174 / 2 & 174 / 5 & 174 / 8\end{array}$ |
| 124/9 124/12 124/24 | 159/22 166/10 181/3 | $\begin{array}{ll}174 / 10 & 174 / 12 ~ 181 / 7\end{array}$ |
| $129 / 8$ $134 / 129 / 8$ $137 / 5$ $130 / 22$ $139 / 25$ | 188/12 191/16 | 181/12 184/20 189/13 |
| $134 / 11$ 137/5 139/25 <br> 141/15 142/5 142/9 | amounts [1] 88/4 | 190/15 191/7 191/11 |
| 144/10 $144 / 16$ 144/23 | amusement [1] 149/20 | 191/16 191/22 192 |
| 146/8 146/20 147/11 | Analogous [1] 136/4 | 195/25 |
| 150/17 151/11 153/18 | analyses [4] 16/18 16/23 | angled [1] 108/19 |
| 154/20 155/2 155/7 | $86 / 3$ 106/23 analysis [126] 6/1 6/ | angles [37] $59 / 9$  <br> $81 / 10$ $81 / 25$ $83 / 2$ |
| 155/16 157/4 157/8 | $\begin{array}{rrrr}\text { 6/4 } & 9 / 15 & 9 / 21 & 13 / 19 \\ 14 / 7\end{array}$ | $\text { 107/24 108/2 } 117 / 4$ |
| $\begin{array}{llll}157 / 20 & 160 / 3 & 160 / 7 & 161 / 2\end{array}$ | $\begin{array}{llll}14 / 16 & 14 / 19 & 15 / 4 & 22 / 2\end{array}$ | $\begin{array}{lll}117 / 10 & 117 / 16 & 118 / 2\end{array}$ |
| 161/4 $161 / 13$ 163/1 $163 / 1$ | $\begin{array}{lllll}14 / 7 & 23 / 11 & 24 / 11 & 25 / 6\end{array}$ | 118/3 118/23 119/23 |
| 165/7 165/13 169/18 | 26/4 26/8 27/5 28/2 28/6 | 119/25 122/4 $124 / 1 \quad 124 / 4$ |
| $172 / 3$ 179/4 179/6 183/2 $184 / 16 \quad 184 / 18$ $184 / 20$ | 28/18 28/21 28/25 29/12 | 124/7 130/14 131/13 |
| $\begin{array}{llll}184 / 16 & 184 / 18 \\ 190 / 2 & 192 / 23 & 19\end{array}$ | 29/18 30/5 30/23 30/24 | 131/21 136/10 136/21 |
| 195/2 195/3 19 | $33 / 11$ 33/15 33/23 36/4 | 137/2 137/17 138/4 |
| 198/2 | $\begin{array}{lllll}36 / 10 & 37 / 15 & 37 / 23 & 38 / 10\end{array}$ | 138/16 167/2 174/5 |
| Allf [1] 141/20 | $\begin{array}{lllll}42 / 16 & 42 / 22 & 43 / 14 & 43 / 19\end{array}$ | 178/23 187/17 188/21 |
| allow [13] 48/22 96/4 | 45/7 $46 / 5$ 46/6 53/22 | 192/7 192/14 196/25 |
| 105/2 105/6 107/11 | 63/4 63/5 64/15 65/19 | angular [11] 29/7 81/17 |
| 108/25 111/21 112/8 | $\begin{array}{llll}75 / 10 & 76 / 21 & 77 / 5 & 78 / 7\end{array}$ | 96/21 97/25 $98 / 23101 / 14$ |
| 130/25 141/4 146/13 | 78/15 87/5 87/13 87/21 | 150/8 154/1 154/3 154/17 |
| 148/20 169/23 | 88/2 88/18 89/17 89/19 | 170/10 |
| allowable [6] 107/3 | 100/1 103/23 107/22 | animals [1] 19/22 |
| $\begin{array}{llll}108 / 24 & 123 / 7 & 123 / 22 \\ 124 / 4 & 127 / 9\end{array}$ | $\begin{array}{llll} 109 / 19 & 111 / 10 & 119 / 9 \\ 119 / 14 & 120 / 7 & 125 / 4 & 125 / 9 \end{array}$ | $\begin{array}{\|l} \text { animation [5] 70/2 77/18 } \\ 78 / 9 \text { 110/15 187/2 } \end{array}$ |
| 124/4 127/9 | 125/15 125/22 126/5 | animations [1] 79/1 |
| $\begin{aligned} & \text { allowed } \\ & 134 / 25 \end{aligned}$ | 126/11 134/8 138/20 | another [10] 13/24 22/9 |
| allowing [1] 197/5 | 142/14 143/10 143/11 | 48/6 59/10 78/17 86/24 |
| $\begin{array}{llll}\text { allows [2] } 29 / 6 & 130 / 24\end{array}$ | 147/10 148/18 149/4 | 129/3 132/16 179/19 |
| almost [1] 108/6 | 150/4 150/15 150/16 | 181/4 |
| $\begin{array}{llll}\text { alone [2] } & 145 / 5 & 150 / 12\end{array}$ | 151/16 151/17 151/22 | answer [5] 31/21 68/ |
| along [7] 41/9 61/6 |  | 87/18 155/12 |
| 61/12 $66 / 11$ <br> $179 / 20 / 4$ $173 / 14$ | 160/22 162/4 162/16 | $174 \text { / } 6$ |
| 179/20 | $\begin{array}{llll}163 / 14 & 164 / 2 & 165 / 16\end{array}$ | answers [1] 178/8 |
| alpha [2] 154/15 154/17 | 166/5 166/13 166/18 | anterior [1] 185/11 |
| $\begin{array}{\|l\|l\|} \text { already [2] 102/13 } \\ 147 / 15 \end{array}$ | 166/20 168/12 170/4 | anterior-posterior [1] |
| also [34] 7/2 7/15 12/16 | 170/22 171/21 171/25 | 185/11 |
| $\begin{array}{lllll}16 / 18 & 21 / 12 & 51 / 17 & 52 / 24\end{array}$ | 172/4 172/11 172/16 | anticipated [1] 197/2 |
| 57/24 59/17 62/17 75/5 | 172/20 172/23 174/18 | any [82] 6/10 9/16 16/22 |
| 77/4 80/12 $92 / 17 \quad 98 / 24$ | 174/22 174/25 176/6 | $\begin{array}{lllll}17 / 12 & 19 / 18 & 19 / 24 & 22 / 15\end{array}$ |
| 99/2 100/6 119/2 125/3 | 177/14 177/16 183/7 | 25/6 25/19 26/4 33/6 |
| 128/15 129/23 132/11 | 193/4 195/6 196/10 | $\begin{array}{lllll}33 / 8 & 33 / 11 & 33 / 15 & 33 / 18\end{array}$ |
| $\begin{array}{llll}128 / 15 & 144 / 8 & 144 / 14\end{array}$ | $\begin{array}{clll}\text { 196/13 } & 196 / 25 \\ \text { analyze [7] } & 13 / 5 & 23 / 22\end{array}$ | $\begin{array}{llll} 33 / 23 & 36 / 10 & 39 / 2 & 41 / 18 \\ 42 / 22 & 47 / 7 & 47 / 9 & 47 / 10 \end{array}$ |
| $\begin{array}{llll}145 / 22 & 145 / 23 & 146 / 6 \\ 150 / 21 & 157 / 14 & 175 / 3\end{array}$ | 24/9 36/7 40/15 45/21 | $\begin{array}{lllll}\text { 47/11 } & 47 / 14 & 47 / 16 & 47 / 18\end{array}$ |
| $\begin{array}{lll}150 / 21 & 157 / 14 & 175 / 3 \\ 176 / 14 & 195 / 20 & 197 / 17\end{array}$ | 147/25 | 47/20 47/21 49/16 51/6 |
| alter [1] 124/7 | analyzed [3] 17/2 26/9 | $52 / 6 \quad 53 / 18 \quad 54 / 7 \quad 60 / 1$ |
| $\begin{aligned} & \text { although [3] 41/5 78/25 } \\ & 110 / 11 \end{aligned}$ | $37 / 10$ analyzing [2] | $\begin{array}{llll} 60 / 12 & 63 / 3 & 63 / 7 & 64 / 5 \\ 65 / 19 & 66 / 21 & 72 / 6 & 80 / 14 \end{array}$ |
| always [2] 56/13 166/7 | 13 | 82/2 87/5 87/11 89/23 |


| A | 34/10 35/16 35/23 37/12 | 8/24 9/10 9/22 10/17 |
| :---: | :---: | :---: |
| ny... [35] 90/12 94/10 | $\begin{array}{lllll}39 / 18 & 39 / 20 & 43 / 13 & 44 / 11\end{array}$ | $\begin{array}{llll}10 / 21 & 10 / 25 & 11 / 8 & 11 / 21\end{array}$ |
| 94/24 96/23 99/2 108/9 | 46/9 $46 / 946 / 10$ 46/10 | $\begin{array}{lllll}12 / 2 & 12 / 22 & 13 / 8 & 13 / 24\end{array}$ |
| $\begin{array}{llllll} & 109 / 15 & 113 / 2 & 113 / 4 & 113 / 5\end{array}$ | 47/14 49/25 50/7 | $\begin{array}{llll}14 / 2 & 14 / 20 & 16 / 21 & 17 / 6\end{array}$ |
| $113 / 6 ~ 113 / 9 ~ 113 / 11 ~$ | $\begin{array}{lllll}50 / 10 & 50 / 12 & 51 / 18 & 52 / 25\end{array}$ | 17/12 18/2 18/9 19/18 |
| 113/13 113/15 113/16 | $\begin{array}{lllll}55 / 15 & 55 / 16 & 57 / 4 & 59 / 12 \\ 66 / 11 & 70 / 25 & 74 / 24 & 79 / 14\end{array}$ | $\begin{array}{llll} 22 / 14 & 23 / 1 & 25 / 4 & 28 / 7 \end{array}$ |
| 117/25 134/23 135/3 | 80/8 80/19 80/21 81/5 | $\begin{array}{lllll}30 / 3 & 31 / 3 & 37 / 10 & 40 / 13\end{array}$ |
| $\begin{array}{llll}138 / 12 & 139 / 3 & 139 / 20 \\ 139 / 22 & 140 / 15 & 147 / 21\end{array}$ | 81/6 81/11 81/13 85/6 | 40/20 40/20 41/6 45/8 |
| /22 140/15 147/21 | 85/8 86/8 86/12 86/20 | 46/5 48/9 48/9 48/22 |
| 171/25 174/16 192/11 | 88/5 88/5 89/16 89/20 | 49/13 51/5 51/25 53/3 |
| 194/21 197/5 197/10 | 90/8 90/22 91/7 91/8 | 62/1 63/23 67/1 69/7 |
| 199/13 | 92/12 96/1 96/19 103/11 | $\begin{array}{llll}69 / 14 & 69 / 20 & 72 / 10 & 72 / 1\end{array}$ |
| anybody [2] 47/24 47/25 | 103/12 107/3 109/8 | 72/20 $74 / 1$ 77/21 78/12 |
| anymore [1] 197/18 | 113/3 113/9 114/5 | 81/23 82/18 84/3 85/10 |
| anyone [2] 47/7 113/2 | $\begin{array}{llll}5 / 4 & 115 / 8 & 118 / 17 \\ 8 / 22 & 119 / 23 & 122 / 23\end{array}$ | 89/9 92/20 93/12 96/21 |
| anyone's [1] 97/13 | $\begin{array}{llll}18 / 22 & 119 / 23 & 122 / 23 \\ 123 / 24 & 123 / 19\end{array}$ | $\text { 97/13 } 97 / 13 \quad 98 / 13 \quad 101 / 16$ |
| anything [21] 15/5 28/1 | $\begin{array}{lllll}123 / 23 & 124 / 1 & 124 / 2 & 124 / 7\end{array}$ | 101/16 103/24 105/25 |
| $\begin{array}{lllll}48 / 16 & 53 / 5 & 57 / 24 & 58 / 7\end{array}$ | 125/18 $126 / 4127 / 10$ | 108/22 109/22 109/25 |
| $\begin{array}{lllll}61 / 24 & 66 / 23 & 82 / 14 & 82 / 20 \\ 83 / 6 & 95 / 13 & 123 / 2 & 132 / 23\end{array}$ | 129/18 131/9 131/20 | 109/25 110/11 110/14 |
| 83/6 95/13 123/2 132/23 | 131/21 138/18 139/3 | 111/2 114/2 114 |
| 153/18 155/4 156/13 | 139/5 139/6 139/22 | 114/11 116/19 116/23 |
| 157/2 157/12 157/17 | 139/24 140/12 141/6 | 117/2 119/18 122/25 |
| /11 | 141/8 141/8 141/14 | 125/22 126/8 126/24 |
|  | 141/17 142/10 143/3 | 132/15 133/16 136/8 |
| logize [2] 53/ | 145/24 151/7 152/14 | 137/5 137/6 137/1 |
|  | 152/18 152/19 152/20 | 141/21 144/4 145/14 |
| $\text { apparently [1] } 1$ | 153/25 155/13 163/12 | 151/13 156/19 163/22 |
| $\begin{array}{llll}\text { appeal [2] } & 141 / 12 & 146 / 6\end{array}$ | 163/20 163/20 164/5 | 167/14 169/7 170/6 171/8 |
| APPEARANCES [1] 2/1 | $164 / 5$ 166/8 167/21 | 171/11 174/23 176/18 |
| appears [1] 11/17 | 176/17 176/23 177/19 | 180/14 180/14 183/8 |
| appliable [1] 122/14 | 178/8 182/10 182/13 | 185/5 186/9 186/20 188/8 |
| applicable [2] 98/18 | 182/15 $182 / 22 \quad 183 / 2$ | 188/11 190/12 191/1 |
| 167/24 | 184/16 186/12 187/21 | 192/21 194/2 194/2 |
| application [2] 8/16 | $192 / 7$ 195/15 196 | 194/20 194/20 195/16 |
| 19/4 | $\text { 66/18 } 135 / 20 \quad 145 / 13$ | 198/3 198/3 |
| applied [21] 6/17 7/2 | 145/13 148/21 172/ | aside [1] |
| 8/9 11/8 12/21 12/23 | $\text { 173/4 173/22 } 175 / 4$ | $\begin{array}{llll}\text { ask [20] } & 18 / 11 & 22 / 15\end{array}$ |
| $\begin{array}{llll}13 / 15 & 13 / 17 & 14 / 9 & 14 / 22\end{array}$ | $\begin{array}{llll}175 / 23 & 195 / 4 & 195 / 7\end{array}$ | 47/23 51/2 $51 / 4 \quad 54 / 10$ |
| $\begin{array}{lllll}33 / 1 & 41 / 23 & 42 / 1 & 85 / 15 \\ 88 / 4 & 151 / 1 & 151 / 2 & 151 / 4\end{array}$ | 195/23 | 54/17 54/18 56/25 67/20 |
| $\begin{array}{llll} 88 / 4 & 151 / 1 & 151 / 2 & 151 / 4 \\ 156 / 6 & 165 / 11 & 166 / 6 \end{array}$ | areas [2] 16/4 42/20 | 68/2 70/16 96/22 111/16 |
|  | argue [1] 184/7 | 133/8 133/15 143/21 |
| 158/21 | arguing [1] 57/6 | 168/25 172/6 197/19 |
| apply [10] 9/13 13/8 | argument [6] 122/17 | asked [6] 67/25 137/ |
| $\begin{array}{lllll} \\ 17 / 5 & 17 / 6 & 19 / 22 & 22 / 12\end{array}$ | 122/23 133/5 133/18 | 148/19 174/6 178/19 |
|  | 144/20 176/21 | 197/14 |
| 183/22 | arguments [3] 57/18 58/3 | asking [3] 114/9 140/3 |
| applying [2] 8/4 111/17 | arm [17] 9/1 9/4 9/19 |  |
| Appreciate [1] 197/10 | $\begin{array}{lllll} \\ 42 / 4 & 153 / 6 & 153 / 9 & 153 / 10\end{array}$ | aspect [1] 124/19 |
| $\begin{gathered} \text { approach } \\ 131 / 13 \end{gathered} \text { [3] } 78 / 8 \quad 79 / 23$ | $\begin{array}{lll}\text { 153/13 } & 154 / 24 & 155 / 8\end{array}$ | asphalt [2] 75/3 103/6 |
| 131/13 | 155/14 156/4 165/4 165/6 | assassinate [1] 124/19 |
| approaching [1] 49/12 | 165/7 165/10 172/24 | assess [1] 81/5 |
| appropriate [4] 108/2 | around [18] 33/19 39/5 | assessment [1] |
| 128/9 128/16 141/22 | $\begin{array}{lllll}\text { 41/11 } & 48 / 6 & 77 / 13 & 78 / 17\end{array}$ | assignment [1] 6/11 |
| approximate [3] 74/1 | 78/21 79/3 87/3 149/20 | assisting [1] 167/20 |
| 173/14 173/16 | 151/13 154/24 162/7 | ASSOCIATES [2] 2/3 |
| approximately [4] 38/16 | 164/19 165/3 183/21 | 135/24 |
| 69/15 72/16 175/20 | 184/14 191/1 | assume [6] 60/5 75/16 |
| are [146] 4/23 6/6 6/8 | arrows [2] 65/16 98/13 | assuming [4] 136/6 181/7 |
| $\begin{array}{lllllll}8 / 22 & 10 / 14 & 11 / 8 & 13 / 20\end{array}$ | art [1] 141/17 | $181 / 11 \quad 190 / 6$ |
| 13/21 14/22 15/15 15/25 | articles [2] 45/12 89/21 | assumption [6] 122/20 |
| $\begin{array}{llll} 17 / 7 & 17 / 14 & 18 / 17 & 18 / 19 \\ 19 / 14 & 19 / 19 & 19 / 19 & 21 / 6 \end{array}$ | articulate [1] 144/9 | 123/17 127/6 134/19 |
| 22/8 22/20 26/2 27/2 | as [137] 7/15 8/3 8/20 | 139/5 197/3 |

## A

assumptions [2] 136/3 187/17
atlas [3] 8/20 9/15 30/9 attached [1] 54/8 Attachment [1] 184/18 attempt [2] 131/16 134/23
attempted [3] 135/13 187/25 194/22
attempts [2] 25/19 124/19
attention [2] 36/3 127/24
attenuated [1] 59/19
attorney [2] 47/18 113/13
attribute [1] 57/19
Audra [1] 180/3
August [3] 54/18 181/22 182/5
August 21 [1] 54/18
August 21st [1] 181/22
August 21st, 2014 [1] 182/5
authored [1] 51/25
auto [2] 21/4 52/22
automobile [2] 16/24 17/2
availability [1] 198/1
available [4] 82/1
119/18 143/8 195/24
average [2] 75/2 91/25
avoid [1] 73/1
aware [2] 49/3 72/25
away [2] 110/13 114/23
AWERBACH [36] $1 / 12 \quad 1 / 12$ 2/13 2/18 5/4 27/18 $\begin{array}{lllll}38 / 22 & 52 / 12 & 69 / 5 & 69 / 10\end{array}$ 69/16 69/19 72/2 72/9 72/25 76/23 101/10 102/10 102/16 110/14 115/18 $116 / 1 \quad 116 / 7 \quad 116 / 9$ 116/17 116/20 116/22 117/5 117/17 124/10 158/17 163/6 173/18 190/3 190/9 190/12 Awerbach's [30] 65/20 $\begin{array}{llll}76 / 8 & 76 / 11 & 76 / 13 & 76 / 20\end{array}$ 82/2 83/21 87/4 94/18 98/8 99/18 99/18 99/20 101/3 106/17 108/4 108/18 109/1 115/17 $\begin{array}{lll}116 / 2 & 136 / 22 & 162 / 7\end{array}$ 180/19 180/20 180/24 $\begin{array}{lllll}181 / 3 & 189 / 3 & 189 / 7 & 190 / 11\end{array}$ 192/16
axial [2] 185/1 185/7
B
back [38] 4/13 4/13 8/25 47/4 48/10 57/7 58/19 61/13 63/25 68/2 70/22 71/7 73/5 77/21 87/8 94/15 96/6 103/20 105/9 106/5 107/9 108/7 110/7 114/7 117/19 123/13

133/3 136/6 140/23
140/25 144/5 144/23
163/13 163/21 164/15
164/20 171/5 187/13
back-figured [1] 164/20
bad [1] 126/17
bag [2] 9/17 25/17
Baker [5] 128/5 128/7
128/11 128/18 130/11
balance [9] 9/4 29/6
29/7 81/16 81/16 88/23
96/20 123/11 170/10
balanced [1] 185/13
balancing [3] 100/11 100/14 124/21
ball [4] 8/20 8/20 9/15 30/9
ballpark [3] 61/14 89/7 171/23
bar [1] 141/14
barely [1] 192/24
base [7] 27/14 81/14 143/15 150/22 152/16 157/1 179/3
based [57] 13/16 22/16 56/10 58/2 68/8 69/5 72/6 72/8 75/21 100/7 114/13 114/18 115/4 115/5 115/16 115/23 115/25 116/7 116/25 117/25 118/22 118/22 122/9 122/18 122/19 123/16 123/19 128/24 129/6 131/24 132/3 134/13 $134 / 18 \quad 135 / 18$ 136/18 137/19 138/10 139/5 139/9 139/25 145/17 145/20 146/4 148/22 164/12 164/21 164/25 168/14 169/10 $\begin{array}{llll}170 / 12 & 182 / 18 & 183 / 4\end{array}$ 187/16 187/19 196/7 196/24 196/25
bases [2] 22/25 109/9
basic [1] 26/12
basically [7] 61/18 62/24 87/7 99/11 137/14 139/17 163/18
basing [2] 116/5 137/6 basis [8] 53/22 105/9 114/2 116/23 138/6 176/18 195/16 195/24 be [122] $4 / 12$ 4/25 5/10 5/12 8/8 9/15 9/18 10/3 10/4 10/8 10/9 11/17 $\begin{array}{llll}12 / 9 & 12 / 21 & 13 / 13 & 16 / 5\end{array}$ 17/10 17/21 19/5 21/12 $\begin{array}{llll}21 / 12 & 23 / 1 & 23 / 4 & 23 / 13\end{array}$ $\begin{array}{llll}31 / 14 & 31 / 7 & 31 / 20 & 32 / 20\end{array}$ 34/5 34/11 39/24 41/14 42/19 42/19 $47 / 4 \quad 48 / 8$ 49/2 50/22 51/20 54/3 55/9 55/23 57/22 58/4 58/18 58/25 61/11 61/14 62/12 62/14 62/15 62/25 63/2 65/23 69/12 70/5 70/16 71/10 73/11 74/23

75/21 75/23 75/25 78/19
79/10 79/15 89/6 95/16
97/6 97/23 98/9 98/13
104/6 105/4 105/10 106/3
107/10 108/10 115/5
115/9 119/17 120/13
120/25 122/15 122/19
123/2 123/16 126/9
126/12 $126 / 17$ 137/8
141/15 142/3 146/17
150/8 155/10 155/15
155/18 155/24 156/4
$\begin{array}{lllll}156 / 6 & 160 / 2 & 164 / 21 & 165 / 3\end{array}$
$167 / 3$ 167/5 171/15
176/20 179/16 183/9
185/3 186/4 187/11
187/14 190/8 190/11
190/14 191/24 192/4
192/13 195/23 196/17
Bear [1] 182/6
bearing [1] 8/7
beat [2] 33/19 180/4
because [77] 8/24 11/1
33/5 48/2 49/2 49/15
50/19 50/23 $58 / 1$ 61/18
68/13 68/24 $73 / 11$ 73/16
77/20 78/18 82/6 87/3
89/8 92/2 100/16 111/12
116/12 116/25 116/25
118/18 119/17 121/22
124/24 125/8 $126 / 4$
$\begin{array}{llll}126 / 18 & 127 / 2 & 127 / 7\end{array}$
$\begin{array}{llll}129 / 11 & 130 / 11 & 130 / 17\end{array}$
130/22 131/22 133/16
134/4 135/6 135/18
136/12 137/12 137/23
$\begin{array}{llll}138 / 10 & 139 / 4 & 141 / 7 & 143 / 8\end{array}$
$144 / 10$ 146/19 147/23
148/5 148/9 149/9 149/25
$\begin{array}{lllll}151 / 2 & 151 / 3 & 152 / 3 & 152 / 5\end{array}$
153/5 153/22 153/25
154/12 155/8 158/12
159/4 159/19 162/15
167/6 170/19 186/12
188/20 192/11 193/12
197/16
become [1] 85/23
becomes [1] 12/13
been [50] 9/23 13/14 17/19 18/5 23/15 37/18 38/3 45/8 45/11 45/14
$\begin{array}{llll}46 / 14 & 49 / 14 & 51 / 15 & 51 / 18\end{array}$
55/22 73/10 78/20 89/12
89/14 92/21 100/23 103/5
103/6 112/20 114/17
115/15 116/16 116/18
$\begin{array}{llll}116 / 19 & 116 / 19 & 123 / 24\end{array}$
$126 / 13$ 134/16 134/24
137/8 141/18 161/3 161/7
$161 / 8$ 161/10 161/11
170/9 171/9 171/24
171/25 172/8 173/2
185/22 193/22 197/22
before [46] 1/20 21/17
$\begin{array}{llll}22 / 24 & 30 / 17 & 30 / 18 \quad 30 / 25\end{array}$
33/6 34/3 42/24 44/23
45/1 47/4 47/23 51/3

| B | 21/24 22/1 22/17 23/2 | 128/13 132/20 173/12 |
| :---: | :---: | :---: |
| before... [32] 51/16 | $\begin{array}{lllll}23 / 12 & 24 / 5 & 25 / 1 & 28 / 17\end{array}$ | 173/13 173/14 175/12 |
| 51/18 55/7 55/11 55/13 | $45 / 7$ 80/20 80/23 126/5 | 189/19 |
| $\begin{array}{lllll}56 / 12 & 57 / 10 & 69 / 23 & 72 / 23\end{array}$ | 147/25 149/4 150/3 | $\begin{array}{\|rrrr} \text { break } & {[12]} & 40 / 16 & 47 / \\ 47 / 6 & 48 / 5 & 48 / 6 & 57 / 1 / 10 \end{array}$ |
| $\begin{array}{lllll}73 / 20 & 74 / 12 & 78 / 14 & 78 / 15\end{array}$ | $\begin{array}{lll}151 / 17 & 155 / 3 & 156 / 15\end{array}$ | $\begin{array}{ll}71 / 5 & 112 / 24 \\ 113 / 1 & 113 / 19\end{array}$ |
| 93/19 97/7 97/9 97/22 | $\begin{array}{lll}157 / 22 & 160 / 12 & 160 / 15\end{array}$ | 130/3 133/1 |
| $\begin{array}{llll}98 / 10 & 98 / 15 & 107 / 10 \\ 113 / 25 & 114 / 6 & 133 / 16\end{array}$ | 160/22 162/16 165/16 | breaking [2] 10/23 46/21 |
| $\begin{array}{llll}113 / 25 & 114 / 6 & 133 / 16 \\ 144 / 12 & 144 / 15 & 146 / 7\end{array}$ | 166/2 167/23 168/12 | brief [1] 127/18 |
| $\begin{array}{lll}144 / 12 & 144 / 15 & 146 / 7 \\ 146 / 12 & 146 / 22 & 181 / 16\end{array}$ | 170/4 183/6 184/5 | bring [3] 4/7 15/16 |
| 188/16 194/5 197/21 | biomechanically [2] |  |
| beforehand [1] 97/18 | 19/16 24/9 [17] 6/23 | broader [2] 21/10 125/18 |
| begin [1] 36/2 <br> beginning [1] 150/4 | biomechanics   <br> $7 / 2$ $7 / 25$ $8 / 2$ <br> 179 $8 / 23$  | brought [1] $11 / 17$ <br> Buddha [1] $124 / 13$ |
| $\begin{array}{lll}\text { beginning [1] } & 150 / 4 \\ \text { behind [2] } & 41 / 25 \quad 12\end{array}$ | 10/14 11/7 11/20 12/13 | bumper [11] 66/9 66/11 |
| $\begin{array}{lll}\text { being [14] } & 12 / 23 & 26 / 2\end{array}$ | 13/2 18/3 18/14 18/15 | 66/22 66/23 66/25 67/2 |
| 49/6 49/21 57/18 70/25 | 18/20 23/14 169/8 | 67/5 94/20 108/5 137/25 |
|  | biomechanist [1] 12/2 | 191/3 |
| 183/11 185/12 187/8 | biomechanists [2] 12/22 | bunch [1] 114/9 |
| 197/9 | 19/9 | bush [1] 33/19 |
| belief [1] 172/18 | bi | business [1] 124/25 |
| believe [16] 29/13 56/2 | 61/14 66/10 69/17 69/23 | byproduct [1] 170/6 |
| 64/6 83/24 102/8 121/7 |  | C |
| 133/22 145/9 145/21 | 146/14 148/8 160/2 | C1 [1] 50/4 |
| 152/8 161/16 165/17 | 146/14 148/8 160/2 | C1 [1] |
| 172/5 172/17 181/18 |  |  |
| 197/15 | black | 1] 1/24 |
| believes [1] 134/1 | blame [1] 24/15 | calculate [28] 98/7 |
| below [1] 34/5 | board [3] 154/20 165/14 | 98/20 99/17 99/18 101/18 |
| belts [1] 19/7 |  | 101/20 101/24 106/24 |
| bench [14] 20/14 28/12 |  |  |
| 37/1 49/11 49/12 51/8 | $23$ |  |
| 64/9 67/17 80/1 112/22 | 19/17 19/20 21/12 21/20 | 153/12 153/19 157/23 |
| 121/7 144/15 144/16 | $\begin{array}{llll}12 / 8 & 24 / 12 & 24 / 13 & 24 / 17\end{array}$ | $161 / 14164 / 24165 / 15$ |
| 146/18 | $\begin{array}{lllll} \\ 24 / 19 & 28 / 18 & 80 / 21 \quad 140 / 12\end{array}$ | 167/22 169/5 169/15 |
| Berkeley [3] 6/19 6/21 | 145/6 145/11 185/10 | 170/7 170/21 |
| 7/19 [2] 52/11 156/1 | $\begin{array}{llll}\text { bone [6] } & 10 / 23 & 10 / 24\end{array}$ | calculated [5] 78/6 96/9 |
| Besides [2] 52/11 156/1 | 12/7 12/7 33/8 106/20 | 163/2 183/17 185/1 |
| best [2] 123/12 123/14 better [5] 19/13 20/7 | bone-sampling [1] 33/8 | calculates [2] 89/8 |
| $21 / 14 \text { 56/13 69/11 }$ | bones [3] 12/9 33/9 | 184/2 |
| between [33] 11/20 12/3 | 33/1 | calculating [14] 43/19 |
| 15/9 18/9 19/24 20/22 | book [4] 47/17 75/2 | 97/15 123/12 126/2 126/3 |
| $\begin{array}{lllll}\text { 21/18 } & 22 / 7 & 25 / 14 & 42 / 20\end{array}$ | 89/25 113/12 | 148/24 154/8 157/20 |
| $\begin{array}{llllll}\text { 42/23 } & 43 / 2 & 43 / 25 & 44 / 4\end{array}$ | borne [2] 37/21 38/6 | 159/11 159/15 164/8 |
| 44/22 61/13 61/16 106/2 | both [19] 19/2 29/3 | 166/23 168/11 180/20 |
| 121/18 124/17 124/20 | 37/10 38/8 $44 / 13$ 50/16 | calculation [20] 35/1 |
| 124/21 125/10 132/17 | 50/18 87/15 88/6 95/16 | 42/17 68/1 112/6 117/25 |
| 133/19 136/24 149/10 |  | 121/23 127/11 $138 / 24$ |
| 174/2 175/25 176/2 | 150/8 150/25 166/8 | 142/13 142/15 157/9 |
| 181/25 182/10 183/15 | 179/12 191/5 | 157/13 157/18 161/21 |
| beyond [6] 28/8 64/7 | bottom [5] 20/25 40/10 | 167/14 168/14 169/11 |
| 104/24 112/18 161/22 | 60/21 61/2 91/4 | 169/19 169/24 170/16 |
| 178/17 | Boulevard [3] 2/9 2/20 | calculations [30] 26/12 |
| big [2] 8/20 156/20 | 38/15 | 29/11 30/10 53/17 65/1 |
| Bigger [1] 156/22 | bound [14] 34/4 76/17 | 87/11 98/6 115/4 116/24 |
| bills [1] 178/14 | 105/7 106/10 120/7 | 117/11 118/2 118/21 |
| bindings [1] 12/20 | 126/15 126/16 126/19 | 120/10 121/22 125/7 |
| biological [1] 8/5 | 127/2 127/3 162/2 179/18 | 129/25 138/21 143/3 |
| biomechanical [62] 6/4 | 183/19 183/22 | 145/21 147/3 167/8 |
| 8/21 10/17 10/21 11/2 | boundary [1] 76/19 | 167/21 167/23 168/1 |
| $\begin{array}{llll}11 / 9 & 11 / 21 & 12 / 15 & 12 / 17\end{array}$ | bounding [1] 84/23 | 168/6 168/9 187/9 187/16 |
| $\begin{array}{lllll}13 / 4 & 13 / 18 & 13 / 21 & 14 / 7\end{array}$ | bounds [2] 104/9 104/10 | 192/8 196/23 |
| $\begin{array}{lllll}14 / 15 & 14 / 16 & 15 / 4 & 15 / 16\end{array}$ | Bowles [3] 135/13 136/4 $194 / 22$ | California $[1]$ $17 / 16$  <br> call [12] $5 / 4$ $38 / 17$ $42 / 3$ |
| $\begin{array}{lllll}15 / 19 & 15 / 22 & 16 / 23 & 17 / 24\end{array}$ | Bowles' <br> [1] $135 / 17$ | $43 / 4 \quad 44 / 5 \quad 44 / 14 \quad 44 / 15$ |
| $\begin{array}{llll} 18 / 9 & 18 / 12 & 18 / 25 & 19 / 4 \\ 19 / 14 & 19 / 25 & 20 / 21 & 21 / 20 \end{array}$ | box [9] 9/17 25/17 | 44/16 62/24 88/23 93/18 |

call... [1] 97/23
called [11] $12 / 10 \quad 14 / 18$ 26/10 27/24 28/22 29/5 30/11 63/2 64/17 75/9 125/9
calling [2] 54/3 197/23
came [9] 71/18 72/10 73/5 95/23 110/7 117/21 129/9 129/19 146/18 can [92] 9/12 11/19 13/25 $14 / 2 \quad 14 / 2 \quad 14 / 21$ $\begin{array}{llll}15 / 10 & 16 / 10 & 20 / 6 & 20 / 16\end{array}$ 20/20 22/19 29/8 29/9 31/4 31/9 31/10 32/19 $\begin{array}{llll}34 / 11 & 35 / 17 & 42 / 21 & 48 / 4\end{array}$ 49/1 54/4 55/17 55/25 60/21 61/3 61/4 63/20 63/24 63/25 64/21 65/13 66/5 70/12 70/21 71/9 71/24 71/25 74/16 74/17 76/16 80/25 82/9 82/19 83/7 86/6 86/10 89/23 92/17 94/4 96/6 98/14 103/25 104/10 105/23 106/10 108/3 108/8 109/3 110/11 110/19 110/21
110/22 114/4 119/25 123/3 125/23 126/12 127/3 127/9 127/9 128/6 139/2 140/4 140/11 140/18 142/2 143/6 147/22 148/9 157/19 171/4 171/8 174/15 175/8 176/15 186/9 189/17 189/19 198/3
can't [22] 51/20 53/18 58/2 104/6 106/3 109/2 118/12 120/4 129/14 137/22 137/24 138/10 140/2 142/2 147/13 147/14 147/15 167/3 176/22 192/14 196/17 196/18
cannot [3] 47/15 97/6
113/10
cans [1] 21/9
car [17] $41 / 8 \quad 87 / 4 \quad 87 / 4$ 87/10 92/5 93/19 99/21
99/24 117/13 117/24
$\begin{array}{llll}128 / 14 & 132 / 16 & 143 / 14\end{array}$ 152/13 158/14 160/9 163/21
care [1] 48/25
career [1] 171/22
carried [1] 114/23
carrying [1] 10/7
cars [6] 19/22 44/19 97/8 98/12 132/15 163/4 cars's [1] 142/11
$\begin{array}{lllll}\text { case [84] } & 1 / 1 & 4 / 14 & 4 / 23\end{array}$ 8/9 8/17 9/10 9/13 12/19 $\begin{array}{llll}13 / 15 & 14 / 17 & 23 / 24 & 24 / 7\end{array}$ 26/2 47/11 47/19 47/21 55/24 58/19 59/24 67/9 72/7 77/12 78/11 78/20 92/18 95/23 99/16 101/1

113/6 113/14 113/16
115/5 115/6 119/12
124/20 125/25 127/24 128/1 128/2 129/20 130/6
130/21 131/12 132/19
133/3 134/21 134/22 135/24 136/1 $136 / 1$
136/11 136/12 136/13
136/13 137/21 138/4
138/12 138/17 139/1
139/7 139/10 139/10
141/11 144/25 145/25
148/11 159/21 172/3
176/16 181/16 183/17
186/5 186/6 186/13 194/17 194/24 195/9 195/10 195/13 195/13 195/15 195/21 197/7 197/21
case-specific [1] 59/24 cases [11] 16/18 137/21 141/17 141/20 141/24 141/25 170/17 176/19 183/12 195/17 196/7 categories [2] 40/17 80/9
category [1] 21/25 cause [2] 20/1 136/5 caused [2] 142/24 180/20 causing [1] 180/25
CCR [2] 1/24 199/22
CDS [2] 31/19 182/19
center [21] 41/18 41/18
41/24 41/25 61/9 61/9
61/11 61/16 61/19 61/21
151/3 151/4 153/2 153/3
153/6 154/22 155/18
157/10 165/11 172/25 179/3
certain [15] 23/22 68/4 85/4 85/4 87/19 94/7 95/17 104/5 105/20 106/10 107/11 108/10 121/11 172/8 188/12
certainly [5] 15/10 52/20 91/16 132/9 168/6 certainty [3] 128/19 130/12 131/1
CERTIFICATE [1] 199/1
certify [2] 199/6 199/12
cetera [1] 146/1
chairman [1] 16/7
change [12] 43/4 43/22
44/5 79/11 125/12 125/13
147/13 148/9 153/22
155/8 181/13 196/11
changed [2] 183/20 197/7
changes [4] 49/2 100/19 100/20 117/13
characteristics [2] 142/11 143/15
characterize [3] 9/25 46/7 125/21
characterized [1] 182/1
check [20] 25/19 26/4 28/1 29/12 31/18 63/5 77/8 78/12 82/9 88/18

89/18 103/20 159/13
164/23 166/14 173/12
173/13 173/14 183/6
194/25
checked [1] 26/11
checking [1] 31/13
chemistry [5] 6/18 7/16
7/17 7/17 100/11
child [5] 9/18 9/18 10/8 10/9 10/10
Choat [3] 137/22 141/25 195/11
choose [1] 14/20
chooses [1] 121/22
choosing [1] 122/1
chose [1] 128/7
Cipriani [1] 89/25
circle [1] 167/9
circles [1] 12/8
circular [1] 170/23
cite [3] 110/19 135/2 176/16
cited [6] 175/5 194/16
195/8 195/10 195/19
196/7
citing [1] 175/16
claimed [1] 26/2
claiming [1] 53/7
CLARK [7] $1 / 6$ 1/24 $199 / 3$
199/4 199/5 199/18
199/22
classic [1] 96/4
clear [4] 74/23 80/7
177/11 185/3
clearly [2] 49/15 127/14
clips [2] 67/4 180/2
clone [2] 62/24 63/2
close [7] 45/22 45/24
46/1 46/18 130/8 155/1
186/16
close-to-the-minority [1] 46/18
closer [4] 61/11 130/21 130/22 173/22
coefficient [23] 33/17
74/13 74/18 74/23 75/10
75/14 75/22 75/23 82/18
83/4 93/1 93/9 93/17
93/22 94/6 102/24 103/3
103/5 137/3 138/6 138/8
138/10 156/24
coefficients [4] 75/5
91/8 92/12 92/16
coins [2] 9/17 25/17
collide [1] 44/9
collided [5] 128/21
130/14 130/20 132/13 135/11
collision [25] 36/7 42/24 43/3 44/23 44/25 68/13 68/25 73/1 92/20 101/6 115/12 116/7
116/23 117/20 118/6
120/19 132/4 135/14
135/22 135/23 136/5
$\begin{array}{llll}182 / 15 & 188 / 13 & 194 / 23\end{array}$
194/25

| C | concept [3] 13/5 13/17 | contacting [1] 190/25 |
| :---: | :---: | :---: |
| collisions [1] 182/14 | 10/15 137/10 | $\begin{array}{llr}\text { contacts [1] } & 38 / 24 \\ \text { contend [2] } & 144 / 11\end{array}$ |
| column [3] 43/23 50/3 | 141/6 166/9 | context [3] 15/17 23/1 |
| 50/5 combination [1] 150/5 | concluded [4] 136/4 | 45/15 |
| come [34] 5/7 10/12 | 136/23 179/16 198/6 | contradict [2] 147/14 |
| 14/24 18/11 $20 / 13$ 22/15 | conclusion [2] 179/13 182/18 | $\begin{array}{\|c\|} \hline 147 / 15 \\ \text { contradicting [1] } 147 / 20 \end{array}$ |
| $\begin{array}{lllll}26 / 21 & 28 / 11 & 32 / 11 & 32 / 19\end{array}$ | conclusions [7] 22/16 | $\text { contrary [3] } 133 / 20$ |
| $\begin{array}{lllll}36 / 23 & 44 / 19 & 56 / 23 & 59 / 16 \\ 60 / 25 & 64 / 8 & 67 / 16 & 80 / 6\end{array}$ | 22/20 32/11 140/1 147/14 | 133/25 134/4 |
| $\begin{array}{llll}60 / 25 & 64 / 8 & 67 / 16 & 80 / 6 \\ 82 / 23 & 83 / 23 & 85 / 23 & 88 / 1\end{array}$ | 177/12 179/15 | control [2] 163/25 164/9 |
| $\begin{array}{llll}\text { 88/22 } & 99 / 19 & 112 / 21 ~ 114 / 2\end{array}$ | condition [1] 33/23 | controlled [2] 138/22 |
| 117/2 131/1 $134 / 7 \quad 155 / 6$ | conditions [3] 125/13 | 139/3 |
| 171/5 188/5 192/8 192/12 | $\begin{array}{ccc}\text { 126/18 } & 138 / 23 \\ \text { conduct [4] } & 47 / 14 & 47 / 16\end{array}$ | convinced [1] 144/21 cooked [1] 23/11 |
| comes [8] 20/1 117/17 | $\begin{aligned} & \text { conduct }[4] \text { 47/14 47/16 } \\ & 113 / 9113 / 11 \end{aligned}$ | cooked [1] 23/11 Copeland [1] $135 / 24$ |
| 117/19 120/5 124/12 | conference [2] 144/15 | copy [1] 54/12 |
|  | 144/16 | corner [2] 192/20 192 |
| $\text { coming [14] } 38 / 22 \quad 71 / 23$ | configuration [2] 78/5 | CORPORATIONS [1] 1/13 |
| 73/14 73/19 87/8 115/20 | 119/5 | correct [48] 11/25 29/16 |
| 121/13 144/5 173/19 | onfirm [1] 131/23 | 68/7 68/9 69/17 71/17 |
| 190/3 190/19 190/23 | confirmed [2] 114/14 | $\begin{array}{lllll}71 / 20 & 72 / 4 & 73 / 15 & 74 / 14\end{array}$ |
| 192/19 193/13 |  | 75/20 76/23 77/24 83/5 |
| commencing [1] 199/6 |  | 84/8 99/13 100/9 100/22 |
| comment [3] 33/21 51/8 | confusion [1] 175/24 | 107/6 107/12 110/17 |
| 51/9 | conjecture [6] 122/21 | 118/15 118/17 157/11 |
| comment $113 / 5$ | 123/17 127/6 134/20 | 157/24 160/21 161/9 |
| commissioned [1] 199/4 | 139/5 197/3 | 162/18 164/7 165/25 |
| common [3] 46/14 90/2 | connected [8] 47/8 47/10 | 175/19 176/6 178/21 |
| 111/23 | 47/21 107/3 113/3 113/5 | 178/23 179/11 179/18 |
| commonly [1] 123/23 | 113/16 122/24 | 183/18 184/11 184/22 |
| community [5] 25/2 46/15 | connects [1] 127/8 | 188/7 188/17 188/18 |
| 95/25 134/18 135/5 | consequently [1] 134/24 | 189/2 189/9 190/5 |
| company [5] $16 / 14 \quad 19 / 6$ | conservation [14] 29/7 | correctly [3] 76/25 |
| 92/14 136/1 148/2 | 81/17 96/23 97/5 97/11 | 130/7 181/17 |
| compare [1] 31/3 | 5 104/15 | could [46] 17/21 19/3 |
| compared [6] 25/13 42/24 | 107/20 120/16 122/25 | $\begin{array}{llll}19 / 23 & 20 / 4 & 21 / 12 & 21 / 1\end{array}$ |
| 44/23 88/20 118/5 118/6 | 124/22 127/8 170/11 |  |
| comparing [2] 31/1 118/9 | conservation-of-energy $\text { [1] } 124 / 22$ | $\begin{array}{llll} 39 / 24 & 53 / 15 & 60 / 4 & 70 / 1 \\ 70 / 13 & 70 / 25 & 73 / 9 & 74 / 19 \end{array}$ |
| comparison [6] 31/13 | conservative [2] 120/25 | 75/21 78/20 78/21 78/22 |
| $\begin{array}{llll}31 / 15 & 32 / 6 & 32 / 10 & 32 / 23\end{array}$ | 188/8 | 79/10 79/22 $83 / 11 \quad 88 / 15$ |
| 34/1 | conserve [1] 188/11 | 90/19 105/4 116/18 |
| competitions [1] | consider [5] 126/9 | 116/19 118/14 119/17 |
| complete [4] 146/24 | 134/14 136/2 136/7 | 126/17 127/2 135/14 |
| 147/17 147/18 199/10 | 138/22 | 135/19 146/14 148/4 |
| completely [1] 131/9 | considerations [1] 41/18 | 177/5 179/16 183/24 |
| complies [1] 78/24 | consistent [6] 62/18 | 187/13 192/4 192/14 |
| component [10] 91/11 | 66/25 131/9 159/17 | 193/12 195/23 |
| 97/19 104/10 162/21 | $\begin{array}{\|l} \text { 166/16 192/13 } \\ \text { constant [4] } 85 / 1285 / 16 \end{array}$ | $\begin{aligned} & \text { couldn't [3] 86/23 } \\ & 126 / 20 \text { 188/4 } \end{aligned}$ |
| $\begin{aligned} & 162 / 21 \quad 162 / 22 \quad 167 / 5 \\ & 167 / 6 \quad 181 / 4 \quad 181 / 4 \end{aligned}$ | 188/21 188/21 | counsel [11] 48/17 51/4 |
| components [6] 62/18 | consulting [2] 16/17 | 57/21 146/12 146/23 |
| 63/15 98/11 98/24 99/6 | 19/1 | 146/24 147/1 147/16 |
| 185/4 | contact [28] 45/2 61/3 | 177/20 178/4 199/13 |
| comport [1] 170/15 | 62/17 $74 / 25$ 93/12 95/19 | counteract [2] 149/23 |
| comports [1] 107/1 | 98/15 130/19 132/17 | 162/24 |
| compress [1] 9/8 | 135/9 136/10 145/14 | counteracting [2] 150/1 |
| compressive [3] 13/12 | $\begin{array}{llll}149 / 12 & 158 / 21 & 172 / 23 \\ 173 / 4 & 175 / 4 & 175 / 24\end{array}$ | counteraction [1] 149/10 |
| computer [12] 24/25 25 | 175/25 176/1 176/5 | counteracts [2] 186/13 |
| 29/1 36/15 47/17 54/6 | 180/22 180/23 190/16 | 186/14 |
| 54/12 64/22 70/24 92/1 | 190/19  <br> $195 / 7$ $190 / 24$ <br> $195 / 5$  | country [1] 18/18 <br> COUNTY [4] 1/6 199/3 |
| $\begin{aligned} & \text { 113/12 124/21 } \\ & \text { conceded [1] } 135 / 6 \\ & \text { concentrations [1] } 6 / 21 \end{aligned}$ | $\begin{array}{\|rl} 195 / 7 & \\ \text { contacted [3] } & 39 / 23 \\ 42 / 21 \quad 149 / 11 & \end{array}$ | COUNTY [4] $1 / 6$ $199 / 3$ <br> $199 / 5$ $199 / 18$   <br> couple $[5]$ $52 / 3$ $52 / 5$ |


| C | credit [2] 137/4 137/5 | 153/11 159/18 165/ |
| :---: | :---: | :---: |
| couple... [3] 53/24 | critical [7] 82/5 123/9 | 165/5 165/12 166/1 |
| 114/5 170/25 | 136/2 136/7 169/19 | 166/17 $167 / 13167 / 13$ |
| course [3] 52/19 121/10 | 169/25 170/6 | 167/15 174/13 176/11 |
| 184/17 | criticize [1] 127/15 | 189/10 190/7 190/13 |
| courses [3] 7/11 7/13 | cross [3] 127/15 128/10 | 192/15 192/16 |
| 7/16 | 128/16 | damaged [6] |
| court [33] 1/5 15/16 | 128/10 128/16 |  |
| $\begin{array}{llll}18 / 2 & 23 / 1 & 45 / 25 & 49 / 2\end{array}$ | crunched [1] 129/8 | dash [1] 163/15 |
| $\begin{array}{lll}49 / 21 & 54 / 15 & 121 / 7 \\ 128 / 6 & 128 / 17 & 130 / 16\end{array}$ | $\begin{array}{llll}\text { crush [74] } & 26 / 12 & 29 / 11\end{array}$ | data [25] 27/6 36/16 |
| $\begin{array}{llll}128 / 6 & 128 / 17 & 130 / 16 \\ 132 / 7 & 132 / 11 & 133 / 8\end{array}$ | 29/17 43/7 49/24 50/8 | 52/18 53/19 67/10 68/9 |
| $\begin{array}{llll}133 / 15 & 133 / 18 & 134 / 13\end{array}$ | 64/16 65/17 78/7 87/11 | 75/8 77/8 86/1 96/2 |
| 134/21 138/22 167/20 | 87/13 87/21 88/2 88/19 | 123/6 123/13 123/14 |
| 171/13 172/1 177/11 | 89/4 89/10 89/17 89/19 | 127/5 132/2 151/17 $160 / 8$ |
| 179/23 180/1 183/25 | 90/7 90/13 90/15 91/14 | 160/9 172/4 172/15 $182 / 8$ |
| 195/15 195/21 196/11 | 91/19 91/21 91/25 92/3 | 182/19 183/23 184/1 |
| 196/16 | 94/7 94/11 94/14 94/21 | 196/8 [5] 31/19 31/19 |
| court's [3] 127/24 |  | database [5] 31/19 31/19 |
| 171/11 180/8 | 119/15 119/17 119/19 | databases [3] 25/23 |
| courts [1] 45/15 | 119/25 120/1 120/5 120/8 | 31/14 109/9 |
| cover [1] 67/5 | 120/14 120/15 120/18 | date [1] 17/22 |
| covered [2] 26/15 32 | 120/20 121/1 121/6 121/6 | DATED [1] 1/22 |
| crash [80] 26/10 28/7 | 121/8 121/11 121/15 | day [3] 49/8 189/ |
| 29/5 29/12 29/15 36/16 | 121/16 121/17 123/3 | 199/19 |
|  | 137/16 137/19 138/3 | days [4] 52/3 52/5 53/25 |
| 59/12 59/12 67/11 68/1 |  |  |
| 68/5 68/14 74/14 80/8 | 166/18 167/18 187/20 | deal [4] |
| 80/24 80/25 81/8 81/15 | 188/1 188/4 188/8 188/19 | deals [1] 54/22 |
| 81/23 82/15 82/23 87/14 | 188/22 | decelerating [1 |
| 87/16 87/17 89/7 89/11 | crushing [1] 120/22 | deceleration [2] 44/10 |
| 89/18 90/22 92/13 102/6 | CSR [1] 1/24 | 44/15 |
| 105/23 111/12 112/3 <br> 115/9 120/15 121/23 | Cunningham [2] 176/17 | decide [1] 140/17 |
| 115/9 120/15 121/23 <br> 126/11 130/24 133/25 | 195/9 | decided [1] 141/21 |
| 134/8 141/6 147/24 | current [1] 141/16 | decision [6] 114/6 116/ |
| 151/13 151/16 153/16 | custom [2] 124/14 126/13 | 122/19 133/16 144/12 |
| 157/13 163/2 163/15 | cut [1] 51/3 cutting [1] 71/21 | decrease [1] 116/3 |
| 166/15 171/21 171/25 |  | deemed [3] 166/3 1 |
| 172/4 172/10 172/20 | D | 196/15 |
| $172 / 23$ $174 / 17$ <br> $177 / 13$ $177 / 17$ <br> $177 / 18$  | daily [7] 30/19 30/25 | Defendant [2] 2/13 2/18 |
| $\begin{array}{lll} 177 / 13 & 177 / 17 & 177 / 18 \\ 177 / 21 & 178 / 20 & 179 / 6 \end{array}$ | 32/25 34/3 34/25 139/24 | defendants [2] 1/14 51/4 |
| $\begin{aligned} & 177 / 21 \text { 178/20 179/6 } \\ & 179 / 7 \text { 183/18 184/1 } 184 / \end{aligned}$ | 140/13 | defense [2] 4/25 197/21 |
| 184/5 184/20 186/24 | damage [97] 10/22 11/4 | Define [1] 62/21 |
| 193/4 193/18 196/10 | 11/23 11/24 12/3 13/9 | deflects [1] 121/ |
| 196/13 196/24 196/25 | $\begin{array}{llll}13 / 23 & 14 / 11 & 14 / 11 & 14 / 13\end{array}$ | deform [3] 89/5 105/8 |
| Crash's [1] 102/5 | $\begin{array}{lllll} \\ 31 / 21 & 33 / 3 & 34 / 12 & 35 / 18\end{array}$ |  |
| crashes [1] 17/2 | $\begin{array}{llll} \\ 42 / 20 & 59 / 18 & 60 / 6 & 60 / 9\end{array}$ | $\begin{array}{ll} \text { eformation }{ }^{[29]} & 64 / 22 \\ 65 / 17 & 66 / 2287 / 6 \\ 88 / 18 \end{array}$ |
| create [22] 9/20 13/9 | 60/21 61/2 61/4 61/24 | 91/5 93/18 $94 / 4 \quad 95 / 8$ |
| $\begin{array}{lllll}13 / 22 & 14 / 10 & 14 / 11 & 21 / 9\end{array}$ | $\begin{array}{llll}61 / 25 & 62 / 10 & 62 / 16 & 65 / 12\end{array}$ | 95/21 96/8 96/14 99/1 |
| $\begin{array}{llll}31 / 21 & 34 / 12 & 35 / 17 & 59 / 19\end{array}$ | $\begin{array}{llll}66 / 14 & 66 / 20 & 66 / 22 & 78 / 18\end{array}$ | 102/10 102/12 102/18 |
| $\begin{array}{llll} 61 / 19 & 61 / 20 & 87 / 9 & 91 / 6 \\ 94 / 7 & 95 / 15 & 98 / 25 & 121 / 11 \end{array}$ | $\begin{array}{lllll}\text { 80/12 } & 80 / 13 & 81 / 20 & 86 / 25\end{array}$ | 104/13 104/22 105/15 |
|  | 86/25 87/4 87/9 87/10 | 107/8 108/13 120/11 |
| $143 / 6$ | 87/15 88/24 89/1 89/2 | 121/9 121/13 124/8 |
| created [8] 15/25 21/7 | 89/8 91/6 94/6 94/8 | 137/17 138/4 159/10 |
| 42/1 42/3 42/5 97/6 | 94/21 95/11 95/14 95/16 | 160/10 |
| 160/23 191/5 | 99/1 100/25 104/4 104/9 | deformations [1] 124/3 |
| creates [7] 12/14 85/1 | 105/20 105/21 105/25 | deforming [2] 91/11 |
| 153/7 153/7 153/9 165/10 | $106 / 1 ~ 106 / 2 ~ 107 / 25 ~ 108 / 3 ~$ $108 / 13108 / 15 \quad 108 / 16$ | 91/11 |
| 186/3 | $\begin{array}{lll} 108 / 13 & 108 / 15 & 108 / 16 \\ 108 / 19 & 108 / 20 & 117 / 23 \end{array}$ | deforms [1] $93 / 20$  <br> degree [11] $33 / 11$ $124 / 16$ |
| creating [1] 31/5 | 120/20 124/2 129/1 | $128 / 19 \quad 130 / 12 \quad 142 / 7$ |
| $\begin{aligned} & \text { credibility [3] } 124 / 18 \\ & \text { 125/24 193/4 } \end{aligned}$ | 137/24 145/6 145/7 | 143/14 $153 / 19$ 154/24 |
| $\begin{array}{lll}\text { credible [1] } & 124 / 10\end{array}$ | 145/10 145/11 146/4 | 160/9 191/9 195/2 |


| D | 120/8 | 26/4 26/6 27/20 28/1 |
| :---: | :---: | :---: |
| degrees [23] 74/1 75/17 | depths [1] 49/24 | $\begin{array}{llll}28 / 5 & 28 / 6 & 28 / 7 & 28 / 19\end{array}$ |
| 78/16 $78 / 18$ 78/21 86/23 | derive [8] 95/13 96/2 | $\begin{array}{llll}28 / 21 & 28 / 25 & 29 / 1 & 29 / 2\end{array}$ |
| $\begin{array}{llll}142 / 8 & 142 / 11 & 142 / 24\end{array}$ | /23 107/21 108/1 | $\begin{array}{lllll}29 / 18 & 31 / 12 & 33 / 7 & 33 / 11\end{array}$ |
| $\begin{array}{llll}154 / 2 & 156 / 10 & 158 / 19\end{array}$ | 155/2 156/14 159/3 | 33/15 33/22 33/22 33/2 |
| 159/24 $161 / 5161 / 7$ | derived [3] 96/11 $153 / 19$ | $\begin{array}{lllll} 33 / 25 & 36 / 7 & 36 / 10 & 36 / 1 \\ 38 / 8 & 38 / 9 & 38 / 11 & 39 / 2 \end{array}$ |
| $\begin{array}{llll}161 / 10 & 163 / 10 & 164 / 13\end{array}$ | derives [1] 142/13 | $\begin{array}{llll}39 / 21 & 40 / 15 & 41 / 17 & 41 / 17\end{array}$ |
| 165/9 166/18 192/15 | deriving [1] 95/20 | 41/20 41/21 41/23 42/7 |
| $\begin{array}{\|rrrr} \text { 192/17 } & 193 / 25 & \\ \text { Del [4] } & 38 / 22 & 69 / 12 & 82 / 5 \end{array}$ | describe [10] 20/4 20/7 | 42/9 42/22 51/21 51/21 |
| $\begin{array}{r} \text { Del } 4] \\ 173 / 19 \end{array}$ | 20/20 20/23 37/9 59/4 | 51/23 53/23 55/3 60/1 |
| delay [1] 4/20 | 60/4 62/8 65/22 110/2 | 60/9 60/10 60/18 63/3 |
| delta [44] 43/4 43/7 | described [7] 41/13 65/9 | 65/19 68/12 68/25 69/1 |
| 43/20 43/22 44/22 45/6 | 89/22 111/14 142/20 | 69/2 69/7 73/8 76/13 |
| 45/20 46/3 46/4 46/13 | 164/13 187/12 | $\begin{array}{llll}76 / 21 & 82 / 12 & 82 / 13 & 83 / 15\end{array}$ |
| 68/8 $118 / 17$ 121/2 $122 / 6$ | s [4] 165/4 | 83/17 83/21 83/23 84/5 |
| 122/8 131/21 134/10 | /5 167/9 182/17 | 84/6 84/10 84/11 |
| 147/22 147/24 147/25 | 143/1 | 87/5 87/11 87/20 88/7 |
| 151/19 169/18 169/18 | descriptions [1] 174/14 descriptor [1] 151/19 |  |
| 169/25 170/3 177/21 | design [1] 19/12 | 98/20 99/23 103/8 109/11 |
| 179/7 179/10 179/14 | despite [1] 131/3 | 109/15 109/17 109/22 |
| $\begin{array}{lll}180 / 14 & 180 / 19 & 181 / 9\end{array}$ | destroyed [1] 97/7 | 111/3 111/9 114/15 |
| 181/12 181/13 181/25 | detailed [1] 184/4 | 121/23 125/3 130/7 |
| 182/10 182/25 183/5 | detailing [1] 57/17 | 130/17 $131 / 12$ 132/14 |
| 183/8 183/14 $183 / 17$ | deterioration [1] 33/12 | $\begin{array}{llll}132 / 21 & 134 / 22 & 135 / 3\end{array}$ |
| 188/20 188/22 197/1 | determinant [1] 142/6 | 135/12 135/19 135/20 |
| delta-v [41] $43 / 4$ 43/7 | determination [2] 64/16 | $\begin{array}{lllll}136 / 2 & 136 / 5 & 144 / 17\end{array}$ |
| $\begin{array}{lllll}43 / 20 & 43 / 22 & 44 / 22 & 45 / 6 \\ 45 / 20 & 46 / 3 & 46 / 4 & 46 / 13\end{array}$ | 82/24 | $\begin{array}{llll}144 / 19 & 146 / 2 & 146 / 17\end{array}$ |
| $\begin{array}{llll}45 / 20 & 46 / 3 & 46 / 4 & 46 / 13\end{array}$ | determinative [2] 141/21 | 147/23 147/23 152/6 |
| 68/8 121/2 122/6 122/8 | 166/22 | 152/21 153/15 153/20 |
| 131/21 134/10 147/22 | determine [29] 45/7 69/2 | 155/4 156/19 157/6 |
| 147/24 147/25 151/19 | 78/4 86/20 90/7 90/13 | 157/14 157/25 158/6 |
| 169/18 169/18 169/25 | 90/14 $94 / 10$ 100/9 100/19 | 158/7 162/1 164/20 |
| 170/3 177/21 179/7 | 119/5 123/3 123/6 123/14 | $\begin{array}{llll}164 / 24 & 165 / 13 & 165 / 21\end{array}$ |
| 179/10 179/14 180/14 | $\begin{array}{llll}123 / 22 & 124 / 4 & 137 / 17\end{array}$ | 168/10 169/6 172/3 173/8 |
| 180/19 181/9 181/12 | 137/23 138/4 138/15 | $\begin{array}{llll}173 / 23 & 174 / 12 & 176 / 10\end{array}$ |
| 181/13 181/25 182/25 | 142/10 143/1 145/5 | 177/13 178/22 179/24 |
| 183/5 183/14 183/17 | 160/13 164/5 172/12 | 181/17 185/20 191 |
| 188/20 188/22 197/1 | 173/23 176/10 182/9 | 191/21 191/22 193/1 |
| delta-v's [3] 118/17 | determined [12] 124/1 | 193/12 194/ |
| 182/10 183/8 | 124/8 143/4 143/13 | 196/3 196/3 |
| demands [1] 109/13 | 145/19 153/25 154/1 | didn't [26] 27/22 53/9 |
| demonstrating [1] 43/13 | 154/4 164/11 165/23 | $\begin{array}{lllll}\text { 53/18 } & 68 / 24 & 69 / 19 & 75 / 19\end{array}$ |
|  | 170/22 195/24 | 77/18 78/13 78/15 104/6 |
| department [2] 1/21 | determines [10] 122/25 | 114/11 115/19 134/7 |
| departments [1] 18/17 | 123/3 125/15 142/6 150/2 | 137/18 145/8 158/1 163/4 |
| depend [4] 141/8 142/17 | 151/7 153/8 161/2 162/15 | 163/6 165/18 165/20 |
| 142/18 170/18 | 167/8 | 191/18 192/11 192/23 |
| depended [1] 141/9 | determining [7] 20/1 | 192/25 194/4 197/19 |
| dependent [1] 74/24 | 118/1 128/15 134/9 | difference [18] 18/8 |
| depending [2] 15/21 | 134/12 151/7 167/21 | 19/24 20/5 20/21 22/6 |
| 174/24 | develop [1] 107/19 | $\begin{array}{lllll}15 / 14 & 42 / 23 & 43 / 2 & 44 / 4\end{array}$ |
| depends [3] | developed [3] 81/6 90/22 | 75/6 75/12 76/1 103/9 |
| 142/15 142/19 | 138/25 | 124/5 124/20 125/10 |
| depict [1] 41/ | development [2] 16/19 | 149/3 149/5 |
| deposed [1] 52/8 | 141/19 | different [35] 13/13 |
| deposition [23] 27/9 | develops [1] 92/15 | 13/20 13/23 15/13 19/19 |
| 49/13 49/18 $49 / 20$ 51/2 | devices [1] 19/10 | 22/8 40/19 40/20 55/18 |
| 51/7 51/9 51/12 51/13 | diagnosed [1] 21/15 | 69/3 75/8 77/7 77/7 |
| 51/19 53/2 54/6 54/8 | diagnosis [1] 21/23 | 77/17 84/25 110/16 |
| 55/12 55/13 55/15 58/5 | DIAL [1] 2/7 | 111/14 114/12 118/2 |
| 106/15 106/17 114/13 | did [166] 5/25 7/18 7/20 | 118/3 118/14 119/4 |
| 136/18 137/18 193/11 | 12/19 14/16 22/2 22/5 | 121/15 122/5 133/20 |
| DEPT [1] 1/2 | 23/7 23/9 24/10 24/16 | 136/13 136/17 143/4 |
| depth [7] 50/8 50/9 | 24/16 24/17 25/4 25/6 | 143/10 161/8 161/11 |
| 91/13 $94 / 7 \quad 94 / 8 \quad 95 / 7$ | 25/19 25/21 25/22 26/3 | 170/20 183/23 185/4 |


| D | distinction [1] 196/22 | 102/23 107 |
| :---: | :---: | :---: |
| different... [1] 186/4 | distinguish [1] 194/17 | 108/23 112/2 112/3 112/5 |
| difficult [1] 93/15 | distinguishable [1] | 112/10 117/11 118/1 |
| difficulties [1] 4/21 | 194/20 [3] 1/5 | 118/2 120/6 124/7 124/23 |
| $\begin{array}{llll}\text { dire [14] } & 3 / 5 \quad 3 / 6 & 3 / 7\end{array}$ | district [3] 1/5 130 | 127/23 138/24 159/10 |
| 67/14 67/23 70/17 70/18 | diverge [1] 173/8 | 169/4 169/6 170/3 170/15 |
| 114/15 133/9 146/18 | diverting [1] 173/3 | $\begin{array}{lll}171 / 3 & 173 / 16 ~ 184 / 25\end{array}$ |
| 148/14 171/19 177/3 | divisions [1] 18/19 | 191/11 |
| $178 / 17$ direct [6] | do [154] $4 / 15$ 5/11 5/15 | doesn't [31] 18/ |
| direct [6] 3/4 5/23 36/3 121/12 127/24 177/5 | 5/25 6/1 $6 / 10$ 8/6 10/14 | 33/6 33/18 $41 / 5$ 43/7 |
| direction [10] 38/18 | 10/18 11/6 13/4 13/20 | 61/1 108/18 112/4 115/1 |
| 39/5 39/9 73/14 77/14 | $14 / 6$ 14/14 15/5 15/8 | 116/8 116/9 116/17 117/8 |
| $7 / 22$ $110 / 4$ <br> $149 / 14$  | $\begin{array}{llll}15 / 16 & 15 / 16 & 15 / 22 & 15 / 23\end{array}$ | 117/25 125/24 130/25 |
| 181/13 191/2 | $\begin{array}{llllll}15 / 23 & 16 / 3 & 16 / 16 & 16 / 17\end{array}$ | $\begin{array}{llll}131 / 2 & 137 / 11 & 137 / 12\end{array}$ |
| directional [1] 189/18 | 16/17 16/19 16/22 17/8 | 139/13 142/17 142/18 |
| directions [2] 13/7 | 17/12 17/13 18/8 18/25 | 143/17 148/25 149/3 |
| 185/4 | 19/1 19/2 19/10 19/24 | 158/15 163/7 164/15 |
| directly [2] 119/19 | 19/25 19/25 22/1 24/21 | 170/18 174/19 |
| 120/2 | 25/22 26/4 26/21 27/6 | doing [17] 13/24 15/18 |
| disagree [1] 54/9 | 27/20 28/1 29/2 29/6 | 16/22 38/10 42/7 7 |
| disagreement [1] 128/10 | $\begin{array}{lllll}29 / 8 & 29 / 9 & 29 / 24 & 30 / 4\end{array}$ | 84/12 84/23 87/8 123/15 |
| discipline [11] 17/17 | $\begin{array}{llll}32 / 9 & 32 / 20 & 33 / 4\end{array}$ | 126/4 126/24 131 |
| 18/14 18/23 37/16 38/1 | $\begin{array}{lllll} & 33 / 11 & 33 / 15 & 33 / 22\end{array}$ | 143/9 143/10 188/11 |
| 45/8 109/20 111/17 | $33 / 22 ~ 35 / 13 ~ 40 / 18 ~ 40 / 18 ~$ | 193/4 |
| 123/24 126/14 169/8 | (8 42/18 $46 / 248 / 25$ | dollar [1] 167/17 |
| disciplines [1] 17/7 | 14 52/13 $53 / 16$ 53/20 | don't [68] 11/1 18/11 |
| disclosed [2] 55/18 | 54/16 54/21 55/3 56/17 | 24/15 26/21 26/22 30/16 |
| 55/22 | 57/9 57/14 58/20 59/21 | 33/19 35/22 55/19 57/24 |
| discounted [2] 76/22 | 59/21 61/23 63/20 66/5 | 63/13 66/21 71/3 71/5 |
| 136/22 | 68/18 70/1 70/21 71/11 | 71/21 73/3 73/7 73/10 |
| discredit [2] 124/23 | 71/22 72/1 $73 / 18$ 75/10 | 73/24 $74 / 1 \begin{array}{llll} & 74 / 7 & 76 / 3\end{array}$ |
| 125/25 [2] 124/2 | 76/2 76/5 77/6 80/14 | 76/16 76/23 77/11 87/3 |
| discredited [1] 76/20 | 84/18 86/3 86/13 86/17 | 90/5 99/19 108/11 111 |
| discrediting [1] 126/10 | 86/18 86/19 88/7 88/22 | 119/3 126/9 126/11 128/4 |
| discretion [1] 130/17 | 92/1 92/4 93/2 93/3 | 131/20 131/20 131/21 |
| discuss [2] 53/20 151/21 | 101 | 131/22 132/13 136/13 |
| discussed [6] 49/21 | 101/24 110/11 110/17 | 138/5 139/2 139/8 139/19 |
| 96/18 102/16 102/22 |  |  |
| 105/19 172/8 | 116/15 117/25 118/14 | 141/8 145/22 147/21 |
| discussing [1] 50/15 | $5125 / 9127$ | 150/21 151/3 151/11 |
| discussion [14] 20/14 | 133/16 139/12 139/14 | 53/24 167/1 |
| 28/12 36/24 37/1 48/19 | 147/12 147/19 148/8 |  |
| 48/22 50/24 51/6 53/6 | 147/12 147/19 148/8 |  |
| 64/9 67/17 80/1 112/22 | 155/1 155/6 155/16 | 194/2 195/3 197/5 19 197/18 |
| 173/2 | 155/17 159/3 159/11 | done [11] 17/2 27/2 27/3 |
| disks [1] 33/15 | $\begin{array}{llllll}166 / 18 & 167 / 1 & 171 / 2 & 174 / 4\end{array}$ | 55/1 79/2 90/13 118/16 |
| display [1] 60/11 | $\begin{array}{llll}175 / 14 & 175 / 15 & 176 / 7\end{array}$ | 139/17 145/6 194/11 |
| disputed [1] 183/5 | 178/14 183/24 197/7 | 194/15 |
| disputes [2] 124/6 | 197/23 199/5 | door [15] 38/25 43/6 |
| 42/21 | do-over [3] 146/12 | 60/20 61/3 61/7 61/13 |
| 117/1 | 147/19 148/8 | $\begin{array}{llll}64 / 1 & 93 / 13 & 93 / 15 & 94 / 3\end{array}$ |
| dissipated | DOCKET [1] 1/3 | 94/5 94/16 94/17 108/7 |
| 120/9 | doctor [9] 33/19 44/8 | 185/25 |
| distance [22] 63/20 | 58/25 61/17 64/14 71/17 | doors [1] 62/ |
| 68/20 82/1 82/9 83/4 | 155/16 171/1 175/12 | double [1] 25/19 |
| 109/22 109/22 109/24 | doctors [2] 10/25 22/1 | double-check [1] 25/19 |
| 111/2 111/3 111/4 115/25 | does [62] 1/13 10/14 | down [26] 26/21 32/1 |
| 116/7 116/8 116/14 | 10/15 10/16 10/19 15/4 | 40/16 60/25 65/10 80/6 |
| 116/18 116/22 116/25 | $\begin{array}{lllll}15 / 5 & 15 / 7 & 15 / 8 & 16 / 16\end{array}$ | 83/13 84/19 88/16 99/19 |
| 137/3 145/18 145/20 | 18/15 19/7 19/16 20/22 | 103/8 117/8 119/25 |
| 153/10 | 30/10 34/2 40/6 41/2 | 133/23 138/9 142/22 |
| distances [2] 63/23 | 43/18 44/22 46/16 47/23 | 155/6 156/18 158/14 |
| 64/20 | 49/18 54/6 69/14 75/12 | 162/8 167/3 177/20 |
| distant [4] 9/2 9/18 | 75/14 86/14 87/1 88/15 | 180/11 187/22 190/6 |
| 153/3 153/5 | 88/16 90/21 96/8 98/5 | 190/21 |


| D | dry [1] 103/6 | 163/4 194/5 |
| :---: | :---: | :---: |
| Dr [1] 197/20 | duly [1] 199/4 | ending [2] 131/4 138/17 |
| Dr. [59] 5/5 5/6 5/25 | Durango [1] 2/4 duration [1] 18 | ends [3] 121/1 122/6 |
| $\begin{array}{lllll}15 / 15 & 20 / 19 & 49 / 9 & 49 / 13\end{array}$ | during [17] 6/5 8/19 | energies [3] 87/14 |
| $\begin{array}{llll}50 / 19 & 51 / 21 & 52 / 8 & 54 / 2\end{array}$ | $12 / 20 \quad 15 / 25 \quad 21 / 6 \quad 43 / 24$ |  |
| 54/17 $55 / 5$ 55/25 57/10 | $\begin{array}{llll}\text { 47/6 } & 61 / 22 & 67 / 7 & 92 / 19\end{array}$ | $\begin{array}{lllll}\text { energy [94] } & 26 / 12 & 29 / 7\end{array}$ |
| $\begin{array}{llll}57 / 11 & 57 / 19 & 57 / 20 & 59 / 4 \\ 67 / 25 & 70 / 24 & 80 / 6 & 125 / 8\end{array}$ | 113/1 135/9 140/12 | $\begin{array}{lllll} \\ 29 / 18 & 59 / 18 & 59 / 18 & 78 / 7\end{array}$ |
| $\begin{array}{lllll}67 / 25 & 70 / 24 & 80 / 6 & 125 / 8 \\ 125 / 22 & 126 / 1 & 128 / 5 & 128 / 7\end{array}$ | 151/12 $158 / 13165 / 3$ | 78/7 78/13 80/12 81/17 |
| $\begin{array}{lll}128 / 11 & 128 / 18 & 128 / 23\end{array}$ | 184/10 | 81/19 87/2 87/9 87/16 |
| 129/19 129/25 130/11 | dynamic [3] 6/21 181/20 | 87/21 88/2 88/3 88/6 |
| 132/14 $133 / 9$ 133/21 | 181/21 | 89/5 89/8 89/10 89/17 |
| 133/22 135/13 135/17 | dynamics [6] 7/14 86/11 | 89/19 90/14 91/5 91/5 |
| 136/4 136/16 139/17 | $103 / 9$ 149/2 153/22 $172 / 13$ | 91/10 91/13 93/19 96/8 |
| 141/4 144/9 145/2 145/4 | 172/13 | 96/14 96/23 97/5 97 |
| 145/9 145/16 145/19 | E | 97/15 97/17 97/18 98/7 |
| $\begin{array}{llll}145 / 23 & 148 / 16 & 150 / 2 \\ 171 / 21 & 175 / 3 & 177 / 5\end{array}$ | each [16] 38/18 43/24 | 98/8 98/10 98/13 98/17 |
| 194/22 194/24 19 | 44/2 47/7 81/11 86/7 | 98/18 98/22 98/25 99/18 |
| 197/9 194/24 | 86/14 88/5 97/19 97/20 | 99/20 100/6 100/15 101/9 |
| Dr. Baker [5] 128/5 | 98/25 108/13 113/2 114/9 | 101/10 101/18 102/12 |
| 128/7 128/11 128/18 | 149/24 162/24 | 102/18 104/5 104/15 |
| 130/11 | earlier [8] 30/8 57/25 | 104/21 105/2 105/8 |
| Dr. Bowles [3] 135/13 | 86/22 174/23 187/15 | 105/14 105/19 105/20 |
| 136/4 194/22 | 194/16 195/8 195/19 | 105/21 105/25 106/1 |
| Dr. Bowles' [1] 135/17 | early [1] 48/2 | 106/2 107/8 107/20 |
| Dr. Freeman [4] 55/5 | earned [1] $7 / 12$ <br> Earth [1] $173 / 25$ | $\begin{aligned} & 115 / 11 \text { 115/11 } 116 / 6 \\ & 118 / 6 \text { 118/6 119/20 120/9 } \end{aligned}$ |
| 57/11 57/19 57/20 | easier [1] 29/8 | 120/17 120/18 120/21 |
| Dr. Irving [1] 5/5 | easiest [1] 65/23 | 120/23 122/25 124/22 |
| Dr. Scher [42] 5/6 5/25 | easily [1] 29/8 | 127/8 159/21 167/18 |
| $\begin{array}{llll}15 / 15 & 20 / 19 & 49 / 9 & 50 / 19 \\ 51 / 21 & 52 / 8 & 54 / 17 & 55 / 25\end{array}$ | education [2] 6/10 7/4 | 170/11 180/23 181/3 |
| $\begin{array}{llll}51 / 21 & 52 / 8 & 54 / 17 & 55 / 25 \\ 57 / 10 & 59 / 4 & 67 / 25 & 70 / 24\end{array}$ | effort [1] 94/10 | 188/11 188/13 188/21 |
| $\begin{array}{llll} 57 / 10 & 59 / 4 & 67 / 25 & 70 / 24 \\ 80 / 6 & 125 / 8 & 126 / 1 & 128 / 23 \end{array}$ | efforts [1] 26/4 | engage [2] 5/25 109/2 |
| $\begin{aligned} & 80 / 6 ~ 125 / 8 \quad 126 / 1 \quad 128 / 23 \\ & 129 / 19 \quad 129 / 25 \quad 132 / 14 \end{aligned}$ | either [6] 51/18 54/21 | engineer [9] 8/21 10/17 |
| 133/9 133/21 133/22 | 69/7 136/6 136/21 177/6 | 10/21 17/12 17/15 40/21 |
| 136/16 139/17 141/4 | elastic [1] 93/18 | 103/19 107/9 194/1 |
| 144/9 145/2 145/4 145/9 | element [1] 119/22 | engineering [34] 6/4 |
| 145/16 145/19 145/23 | elements [2] 115/8 | 6/17 6/20 7/1 7/13 8/4 |
| 148/16 150/2 171/21 | 5/10 | 11/2 12/16 $12 / 1713 / 21$ |
| 175/3 177/5 194/24 196/8 | cited [3] 147/2 147/5 | $\begin{array}{lllll}15 / 17 & 15 / 19 & 16 / 13 & 16 / 17\end{array}$ |
| 197/9 | 147/16 | $\begin{array}{llll}16 / 18 & 17 / 18 & 17 / 23 & 18 / 12\end{array}$ |
| Dr. Scher's [3] 49/13 | else [21] 47/7 58/7 | 19/4 20/21 21/20 21/24 |
| 54/2 125/22 | 61/24 82/14 82/20 83/6 | $\begin{array}{llll}\text { 22/17 } & 23 / 2 & 23 / 12 & 24 / 6\end{array}$ |
| draw [2] 156/5 196/22 | $\begin{array}{llll}96 / 12 & 105 / 4 & 113 / 2 & 124 / 11\end{array}$ | 25/2 28/17 $44 / 12$ 44/16 |
| drawing [1] 167/3 | 125/24 $131 / 19$ 132/23 | 3/10 160/12 |
| drawings [1] 179/19 | 151/10 151/18 153/18 | 183/7 |
| drawn [4] 65/11 154/20 | 157/17 189/17 | $\begin{aligned} & \text { engineers [10] } 11 / 9 \\ & 11 / 21 \quad 13 / 4 \quad 14 / 15 \quad 18 / 9 \end{aligned}$ |
| 155/5 155/9 | EMILIA [2] 1/9 131/8 | 18/25 19/14 19/25 22/1 |
| drift [1] 163/13 | employ [2] 169/6 169/6 | 141/22 |
| drifts [1] $163 / 21$ <br> drive [7]  | employed [1] 32/22 | enough [14] 20/9 24/11 |
| $\begin{array}{cccccccl}\text { drive [7] } & 2 / 4 & 38 / 15 & 54 / 5 \\ 54 / 11 & 72 / 14 & 173 / 15\end{array}$ | employee [2] 199/13 | 34/20 45/22 45/24 46/1 |
| 54/11 72/14 173/15 $175 / 21$ | 199/14 | 56/4 56/8 83/8 101/2 |
| $175 / 21$ | enable [1] 11/7 | 117/7 152/6 159/9 186/16 |
| $\begin{array}{llll}\text { driver [1] } & 149 / 13 \\ \text { driver's [18] } & 61 / 7 & 66 / 13\end{array}$ | enables [1] 95/13 | ensure [1] 120/9 |
|  | encourage [1] 196/11 | enter [2] 68/4 184/20 |
| $\begin{array}{llll}66 / 20 & 91 / 20 & 94 / 16 & 94 / 20 \\ 94 / 22 & 95 / 10 & 95 / 18 & 108 / 5\end{array}$ | end [24] 19/13 39/5 48/2 | entered [1] 184/13 |
| 94/22 95/10 95/18 108/5 $108 / 19$ $108 / 21 ~ 108 / 22$ | 50/8 50/9 61/7 69/18 | entering [3] 4/8 58/13 |
| $\begin{array}{llll}108 / 19 & 108 / 21 & 108 / 22 \\ 157 / 15 & 190 / 8 & 190 / 12\end{array}$ | 76/16 77/16 78/9 78/22 | 116/10 |
| 190/14 190/25 | 82/8 92/5 94/20 110/4 | entire [4] 26/25 49/19 |
| drives [2] 41/16 152/3 | 115/15 131/24 163/11 | 54/7 125/2 |
| driveway [4] 69/11 $71 / 19$ | $\begin{array}{llll}163 / 21 & 164 / 3 & 164 / 6\end{array}$ | entirely [1] 55/24 |
| 72/10 173/19 | $\begin{array}{ccl}176 / 15 & 176 / 21 & 187 / 15 \\ \text { endeavors [1] } & 15 / 19\end{array}$ | $\begin{array}{llll}\text { entitled [2] } & 51 / 4 & 54 / 19\end{array}$ |
| $\begin{aligned} & \text { driving [3] 27/18 27/19 } \\ & \text { 190/21 } \end{aligned}$ | ended [7] 78/10 79/16 | epidemiology [3] 15/6 15/10 15/11 |


| E | 117/14 117/20 118/19 | expert's [2] 115/2 |
| :---: | :---: | :---: |
| equal... [3] 92/19 | 118/24 118/25 119/24 | 134/12 |
| 100/16 188/14 | 121/20 122/2 122/6 135/3 | expertise [1] |
| equals [4] 154/12 154/15 | 135/13 136/12 136/20 165/14 166/7 194/22 | $\begin{array}{\|lcc} \text { experts [1] } & 124 / 25 \\ \text { explain } & {[32]} & 8 / 8 \\ \hline \end{array}$ |
| 154/16 188/22 | 196/15 196/20 | $\begin{array}{rrrr}\text { 11/19 } & 19 / 24 & 23 / 19 & 32 / 18\end{array}$ |
| equation [4] 99/14 | evidentiary [1] 138/6 | $\begin{array}{llll}11 / 19 & \\ 32 / 21 & 48 / 23 & 49 / 20 & 63 / 11\end{array}$ |
| 100/20 122/25 123/11 | evulsing [1] 10/24 | $\begin{array}{llll}64 / 14 & 65 / 8 & 71 / 10 & 88 / 15\end{array}$ |
| equations [7] 59/15 96/3 | exact [3] 119/17 157/9 | 88/16 91/2 93/8 95/6 |
| $\begin{array}{lll}101 / 13 & 104 / 15 & 105 / 24 \\ 105 / 24 & 165 / 21\end{array}$ | 181/7 | 96/10 97/4 104/2 104/21 |
| 105/24 165/21 error [5] 131 | exactly [7] 77/11 85/2 | 105/14 105/14 107/24 |
| $138 / 25 \quad 161 / 19 \quad 168 /$ | 86/6 112/4 126/11 126/23 | 108/17 141/4 $149 / 7 \quad 154 / 7$ |
| especially [1] 112/16 | 153/24 | 159/14 163/7 170/2 |
| ESQ [8] $2 / 3$ 2/8 2/8 $2 / 9$ | examination [11] 3/4 3/5 | explains [1] 32/10 |
| 2/14 2/15 2/19 2/20 | 3/6 3/7 5/23 67/23 | explanation [1] 170/13 |
| essentially [18] 8/3 9/3 | 128/10 128/16 148/14 | express [3] 32/11 47/20 |
| $\begin{array}{lllll}14 / 8 & 14 / 19 & 15 / 13 & 30 / 7\end{array}$ | 9 | 113/15 [1] $141 / 5$ |
| $\begin{array}{llll}\text { 41/7 } & 62 / 22 & 77 / 13 & 91 / 9\end{array}$ | example [16] 7/16 8/7 | expressed [1] 141/5 |
| 92/4 94/15 $94 / 19$ 96/3 |  | [] |
| 96/20 97/6 97/17 97/24 | $81 / 14 \quad 86 / 22 \quad 104 / 4 \quad 140 / 10$ | extrapolate [2] 120/1 |
| establishes [1] 98/16 | $153 / 20 \quad 162 / 6$ | $165 / 20$ |
| establishing [1] 193/3 | examples [1] 19/3 | extreme [1] 130/15 |
| ESTANISLAO [1] $2 / 15$ | exceed [1] 127/2 | eye [2] 192/20 192/24 |
| estimate [14] 52/15 | except [1] 66/23 | eyeball [1] 90/8 |
| $\begin{array}{llll}61 / 25 & 62 / 1 & 62 / 10 & 116 / 24 \\ 129 / 14 & 129 / 22 ~ 145 / 17\end{array}$ | excluded [1] 139/8 | eyeballing [1] 90/10 |
| $\begin{array}{llll}129 / 14 & 129 / 22 & 145 / 17 \\ 145 / 19 & 148 / 1 & 148 / 4 & 148 / 5\end{array}$ | excluding [1] 196/12 | eyewitness [1] 166/3 |
| $\begin{array}{lllll}145 / 19 & 148 / 1 & 148 / 4 & 148 / 5 \\ 176 / 12 & 188 / 1\end{array}$ | excuse [5] 48/25 113/23 | eyewitnesses [1] 131/7 |
| 176/12 188/1 | 144/2 170/25 180/18 |  |
| estimated [2] 116/20 | excused [2] 144/1 | F |
| 9/13 [14] | 146/13 | facets [1] 33/23 |
| estimates [14] 27/10 $42 / 13$ | exemplar [36] 28/10 | facing [7] 39/5 39/8 |
| $89 / 2 \quad 119 / 191$ | 36/15 36/20 36/21 37/15 | 77/14 77/22 79/4 110/3 |
| $\begin{array}{llll}89 / 2 & 119 / 19 & 129 / 20 \\ 137 / 19 & 145 / 7 & 145 / 10\end{array}$ | 48/19 49/6 49/15 49/16 | 110/7 |
| 137/19 145/7 145/10 | 49/19 50/13 50/21 50/22 | fact [23] 31/20 56/11 |
| $\begin{array}{cccc}\text { 181/23 } & 192 / 4 & 192 / 6\end{array}$ | 50/24 51/6 51/11 51/15 | 79/20 100/14 112/2 |
| et [1] 146/1 | 51/17 52/2 52/23 53/21 | 117/21 124/5 124/7 |
| evaluations [1] 171/ | 53/21 54/2 54/20 54/23 | 124/16 126/10 126/11 |
| even [19] 44/9 5 | 55/6 55/16 55/20 56/1 | 127/6 128/7 130/5 133/23 |
| $52 / 5 \quad 53 / 8 \quad 53 / 13$ | 56/7 62/21 62/22 63/12 | 142/8 142/22 145/18 |
| 75/17 108/11 110/14 | 64/19 64/21 88/21 | 148/17 164/12 167/9 |
| $\begin{array}{llll}115 / 14 & 122 / 2 & 126 / 18\end{array}$ | exemplars [5] 37/11 49/9 | 193/11 196/9 |
| 126/19 127/3 138/13 | 51/6 51/10 123/5 | factor [12] 14/7 14/14 |
| 138/19 139/22 160/22 | exerted [1] 159/12 | 14/18 41/21 74/13 128/23 |
| 181/16 | exhibit [7] 171/9 171/11 | 130/1 133/13 134/2 151/7 |
| event [7] 20/25 | 171/13 173/6 175/11 | 161/4 165/14 |
| 21/6 21/17 21/18 39/6 | 179/23 180/8 | factors [10] 86/19 |
| 120/10 | Exhibit 2 [2] 173/6 | 127/10 141/9 144/10 |
| eventual | 175/11 | 144/11 145/8 146/9 |
| eventual | Exhibit 8 [2] 179/23 | 146/20 147/2 195/2 |
|  | 180/8 | facts [12] 11/3 38/11 |
| $139 / 8 \quad 1$ | exit [2] 82/4 173/20 | 115/6 122/20 123/17 |
| every [6] 53/11 86/7 | expect [5] 10/4 51/25 | $\begin{array}{lllll}123 / 20 & 128 / 5 & 128 / 25\end{array}$ |
| 119/11 124/19 125/6 | 75/24 80/8 80/14 | 132/4 134/19 139/6 |
| 165/14 | experience [2] 16/22 | 159/17 |
| everybody [3] | 185/24 | failed [2] 119/8 131/18 |
| 141/11 148/11 | experienced [1] 139/24 | failing [1] 136/7 |
| everybody's [1] 144/24 | experiment [3] 135/14 | failure [1] 136/7 |
| everyday [1] 31/5 | 138/21 194/23 | fair [8] 20/9 55/24 56/4 |
| everyone [1] 46/19 | expert [24] 18/3 23/1 | 56/8 56/10 56/13 83/8 |
| everything [8] 19/22 | 52/22 53/16 122/14 123/2 | 101/2 |
| 27/8 124/11 131/19 161/3 | $\begin{array}{lllll}132 / 8 & 132 / 11 & 134 / 1 & 134 / 5\end{array}$ | $\text { fall [4] } 12 / 20 \quad 21 / 5$ |
| 161/14 189/5 192/13 | $\begin{array}{lllll}132 / 8 & 132 / 11 & 134 / 1 & 134 / 5 \\ 134 / 24 & 139 / 1 & 139 / 9 & 143 / 5\end{array}$ | 21/25 80/9 |
| everywhere [1] 138/12 | 176/18 195/16 195/21 | fallible [1] 85/15 |
| evidence [27] 72/6 74/3 | 195/22 196/3 196/12 | familiar [5] 19/5 85/24 |
| 79/18 84/2 96/17 111/20 | 196/18 | 130/4 130/6 136/11 |


| F | 62/6 63/18 73/18 97/2 | $\begin{array}{llll} 15 / 9 & 15 / 14 & 15 / 14 & 19 / 18 \end{array}$ |
| :---: | :---: | :---: |
| familiarity [1] 46/2 | /16 | $21 / 6 \text { 21/7 21/8 21/8 }$ |
| family [3] 72/19 74/10 | $\begin{aligned} & \text { Finish [1] 193/ } \\ & \text { fire [1] } 19 / 8 \end{aligned}$ | $\begin{array}{llll} 21 / 20 & 22 / 3 & 22 / 7 & 25 / 6 \\ 25 / 10 & 25 / 12 & 25 / 13 & 28 / 19 \end{array}$ |
| 76/4 | first [22] 8/21 18/8 | $\begin{array}{llllll}28 / 23 & 30 / 5 & 30 / 13 & 30 / 15\end{array}$ |
| fancy | 26/8 $42 / 10$ 42/12 $42 / 17$ | $\begin{array}{lllll}31 / 2 & 31 / 5 & 31 / 7 & 31 / 7\end{array}$ |
| far [7] 114/11 137/6 | 42/18 $49 / 5$ 52/6 67/16 | $\begin{array}{llll}31 / 13 & 31 / 16 & 31 / 17 & 32 / 10\end{array}$ |
| $\begin{array}{rrrr} \\ 149 / 12 & 159 / 8 & 181 / 24\end{array}$ | 68/12 68/15 70/13 71/12 | $\begin{array}{lllll}32 / 24 & 33 / 3 & 34 / 3 & 34 / 6\end{array}$ |
| 182/15 182/25 | 81/1 98/12 124/6 127/19 | $\begin{array}{llllll}34 / 8 & 34 / 10 & 34 / 11 & 34 / 21\end{array}$ |
| far-side [2] 149/12 | 134/23 140/23 177/13 | $34 / 25$ 35/12 35/16 35/1 |
| 182/15 | 177/15 | 35/22 42/8 43/25 80/15 |
| far-sided [2] 181/24 | fit [3] 74/10 108/ | 80/20 81/5 82/24 112/6 |
| 182/25 [2] 181/24 | 123/12 | 122/4 126/3 126/6 126/7 |
| fast [6] 16/11 151/9 | fits [1] 123/1 | 126/19 127/2 136/5 |
| 158/17 184/14 192/20 | fitting [1] 35/10 | 139/23 139/24 140/1 |
| 193/13 | five [2] 38/18 134/18 | 140/11 142/10 143/11 |
| Fe [29] $27 / 17$ 36/8 36/20 | fixed [2] 106/12 148/3 | 150/2 151/7 153/19 |
| 38/16 39/24 41/23 50/22 | flash [2] 54/5 54/11 | 153/25 163/11 163/12 |
| 54/20 60/2 60/6 60/21 | flat [1] 61/5 | 166/6 184/24 186/19 |
| 61/24 65/11 65/12 67/2 | flip [1] 60/13 | Forenza [7] 27/18 36 |
| 82/8 94/15 95/19 121/19 | floor [1] 149/21 | 49/7 50/25 51/7 55/6 |
| 148/3 149/3 149/8 150/11 | focus [3] 13/1 15/24 | 191/3 |
| 152/18 162/14 163/11 |  | Forenza,' [1] 50/4 |
| 164/18 165/12 166/17 | focused | forget [2] 102 |
| FEBRUARY [4] 1/22 4/1 | folder [1] 163/15 | $\begin{aligned} & \text { forgot }{ }^{[1]} \text { form [9] } 47 / \end{aligned}$ |
| 199/7 199/19 | folks [5] 4/13 4/20 47/4 | 81/20 85/19 88/3 111/19 |
| feels [1] 126/25 | 48/10 112/25 | $\begin{array}{llll}112 / 7 & 113 / 15 & 169 / 21\end{array}$ |
| feet [14] 38/14 68/17 | follow [3] 51/12 84/11 | formed [1] 135/7 |
| 68/25 69/13 69/13 72/13 | 114/1 | formula [13] 91/3 91/4 |
| 72/14 116/11 145/20 | follow-up [1] 51/12 | 91/22 91/23 92/2 92/5 |
| $\begin{aligned} & 149 / 1 \quad 149 / 2 \quad 173 / 13 \\ & 173 / 20 \quad 175 / 20 \end{aligned}$ | following [6] 4/9 48/12 | 92/7 98/18 99/12 105/15 |
| felt [1] 192/6 | 56/21 58/14 $96 / 13$ 113/20 | 106/25 124/22 129/9 |
| female [2] 9/1 | foot [2] 106/1 106/3 | formulas [8] 90/8 90/12 |
| few [10] 25/24 35/15 | foot-pounds [2] 106/1 | 90/14 $96 / 11$ 96/15 96/17 |
| 65/14 68/2 87/25 104/3 | 106/3 | 96/19 100/11 |
| 104/7 149/1 149/2 183/20 | force [96] 13/22 14/12 | forth [4] 39/19 40/9 |
| fibula [2] 12/6 12/11 | $\begin{array}{lllll}14 / 20 & 22 / 10 & 22 / 10 & 22 / 12\end{array}$ | 123/14 193/20 |
| field [1] 134/15 | $\begin{array}{llllll}22 / 13 & 25 / 14 & 29 / 25 & 30 / 6\end{array}$ | forward [4] 48/22 59/15 |
| Fifteen [1] 113/18 | 30/23 30/24 32/6 32/22 | 60/13 61/14 |
| fifth [2] 128/23 130/1 | $\begin{array}{llll}34 / 1 & 34 / 24 & 41 / 23 & 42 / 1\end{array}$ | found [4] 76/18 83/11 |
| Figueroa [1] 145/15 | 42/2 $42 / 3$ 42/4 $61 / 18$ | 134/22 134/24 |
| figure [12] 6/2 21/13 | $\begin{array}{llll}67 / 6 & 80 / 21 & 81 / 4 & 87 / 1\end{array}$ | foundation [22] 22/21 |
| $\begin{array}{rrrr}\text { 24/24 } & 60 / 7 & 64 / 22 & 83 / 13\end{array}$ | 88/4 92/18 94/7 121/8 | 31/23 34/14 34/16 35/23 |
|  | $\begin{array}{lllll}126 / 6 & 141 / 7 & 142 / 5 & 142 / 7\end{array}$ | 64/12 67/13 68/3 81/1 |
| 145/16 160/15 | 142/13 142/23 143/3 | 115/3 116/24 117/3 |
| figured [1] 164/20 | 143/11 143/12 151/1 | 117/11 117/14 122/8 |
| figures [1] 128/13 | 151/4 151/16 153/1 $153 / 5$ | 127/13 138/5 139/9 |
| file [10] 54/3 54/7 | $\begin{array}{llll}153 / 7 & 154 / 12 & 154 / 12\end{array}$ | 139/20 146/22 168/24 |
| 54/15 58/1 110/21 110/22 | 155/2 155/15 156/5 | 196/17 |
| 110/24 162/3 163/14 | 156/14 157/13 157/21 | founded [2] 16/14 128/12 |
| 186/9 | 157/23 158/21 158/22 | four [3] 102/9 134/17 |
| final [17] 44/4 44/17 | 158/24 158/24 159/3 | 135/10 |
| 44/23 44/24 78/6 79/15 | 159/5 159/7 159/11 | fracture [4] 12/10 12/15 |
| 109/25 110/6 119/6 | 159/19 159/22 160/13 | 13/13 13/16 |
| 119/10 124/17 129/23 | 160/22 164/17 164/21 | fractures [1] 12/9 |
| 134/7 193/19 194/3 194/4 | 164/21 165/2 165/11 | frame [4] 66/22 70/14 |
| 194/7 | 166/16 167/18 172/25 | 70/22 78/23 |
|  | 185/1 185/2 185/3 185/7 | free [1] 123/2 |
| $193 / 16$ | 185/7 185/9 185/11 | Freeman [4] 55/5 57/11 |
| financially [1] | 185/12 185/13 185/16 | 57/19 57/20 |
| find [5] 46/12 86/8 | 185/16 185/24 186/5 | Fricke [1] 89/25 |
| 135/1 135/17 140/8 | 186/7 186/8 186/13 | friction [24] 74/13 |
| finding [1] 9/6 | 186/14 186/15 187/4 | 74/18 $74 / 24$ 75/5 75/11 |
| fine [15] 8/13 11/14 | 87/8 187/9 191/5 | 75/14 75/22 75/24 82/18 |
| $\begin{array}{rl}\text { 26/19 } & 32 / 16 \\ 37 / 7 & 39 / 12\end{array}$ | forces [76] 9/7 11/21 | 83/4 99/2 102/25 103/3 |
| 40/4 40/24 $43 / 16$ 56/8 | 13/6 13/7 13/9 13/25 | 103/5 137/3 138/7 138/8 |


| F | 167/25 | 189/13 |
| :---: | :---: | :---: |
| friction... [7] 138/10 | generated [1] 142/10 | going [94] 5/1 9/18 9/19 |
| 143/15 150/22 152/16 | generic [4] 37/12 41/3 | 20/24 22/14 31/24 32/1 |
| 156/17 156/23 156/24 | 59/21 152/19 $41 / 3$ | 35/17 36/23 38/22 41/8 |
| frictional [1] 33/16 | generically [1] 41/3 | 42/17 47/24 48/3 48/8 |
| Friday [2] 197/22 197/22 | geometric [2] 125/11 | 50/2 54/18 58/9 61/11 |
| friends [2] 19/6 19/10 | 125/12 | 61/13 $61 / 19$ 61/20 $61 / 21$ |
| front [20] 38/24 61/13 | $\begin{array}{llllll}\text { et [46] } & 5 / 8 & 7 / 18 & 18 / 7\end{array}$ | $\begin{array}{llll}64 / 11 & 65 / 15 & 66 / 15 & 67 / 19\end{array}$ |
| 62/13 64/1 65/19 66/9 | $\begin{array}{llll}19 / 24 & 21 / 14 & 21 / 14 & 21 / 15 \\ 22 / 25 & 25 / 12 & 26 / 11 & 27 / 2\end{array}$ | $\begin{array}{llll}69 / 16 & 69 / 21 ~ 69 / 22 ~ 70 / 17 ~\end{array}$ |
| 67/5 91/6 91/17 92/4 | $\begin{array}{llll}22 / 25 & 25 / 12 & 26 / 11 & 27 / 2 \\ 27 / 11 & 29 / 14 & 29 / 17 & 30 / 4\end{array}$ | 71/7 72/2 83/19 83/25 $84 / 15 \quad 84 / 16 \quad 84 / 17 \quad 84 / 19$ |
| $92 / 5$ $94 / 17$ <br> $1 / 18 / 18$ $108 / 7$ | 30/22 31/1 31/12 31/18 | $\begin{array}{lllll}91 / 19 & 103 / 8 & 105 / 2 & 105 / 6\end{array}$ |
| 108/20 149/1 189/10 | $32 / 2$ 33/7 63/19 63/23 | 105/9 108/7 111/21 112/8 |
| 10 189/14 1901 | 68/5 72/21 80/8 81/23 | 112/18 113/23 114/2 |
| fulfilling [1] 121/25 | 82/15 92/6 92/13 114/5 | 115/18 117/9 119/4 |
| fulfilling [1] 121/25 full [1] 91/24 | 125/13 138/19 138/20 | 129/16 135/2 138/9 |
| function [1] 21/16 | 149/21 151/3 151/5 | 139/10 140/14 143/16 |
| fundamental [1] 183 | 155/11 155/17 170/5 | 143/19 145/16 146/16 |
| further [12] 66/17 | 177/21 179/7 181/16 | 148/7 148/8 148/20 |
| 116/16 135/5 135/17 | 187/13 197/1 198/3 | 149/13 149/15 149/16 |
| 135/24 $138 / 19$ 139/22 | gets [4] 29/25 108/21 | 151/9 151/15 153/23 |
| 158/14 195/22 195/22 | 152/5 189/4 | 155/15 158/18 158/23 |
| 197/10 199/12 | getting [4] 68/24 105/ | 59/6 159/8 160/2 160/19 |
| Furthermore [1] 128/10 | $\begin{array}{llllll}\text { give [14] } & 5 / 12 & 9 / 12 & 19 / 3\end{array}$ | 171/13 174/7 176/20 |
| G | 53/9 55/25 68/6 98/9 | 180/13 185/10 186/12 |
| GARCIA [28] 1/9 9/23 | 145/10 148/7 148/8 175/8 | 186/24 186/25 190/6 |
| 24/7 25/4 27/17 30/3 | 182/18 183/4 196/18 | 190/14 190/22 192/2 |
| 38/15 39/4 52/12 69/6 | given [15] 49/12 51/16 | 197/10 |
| 72/9 77/1 77/13 101/11 | 51/18 51/24 52/4 52/6 | gone [4] 78/21 87/25 |
| 102/19 105/17 110/3 | 52/20 54/10 64/19 83/11 | 104/3 149/19 |
| 112/14 117/18 117/21 | 85/10 85/16 85/17 101/25 | good [10] 16/12 17/9 |
| 129/17 131/9 136/25 | 129/20 | 17/11 43/4 43/8 44/6 |
| 150/13 154/21 173/18 | gives [12] 34/4 52/16 | 45/4 46/21 109/12 151/19 |
| 189/3 191/17 | 59/16 59/18 67/6 81/18 | Google [4] 47/16 113/11 |
| Garcia's [44] 22/3 30/13 | 89/5 101/14 105/9 151/19 | 145/21 173/25 |
| 39/1 41/14 42/5 73/12 | 165/2 172/24 | got [41] 6/18 6/20 15/23 |
| 73/14 $73 / 19 \quad 76 / 11 \quad 78 / 16$ | giving [1] 29/12 | 33/21 40/12 54/13 55/6 |
| 79/3 79/9 83/18 84/15 | GLEN [1] 2/3 | 57/9 58/4 70/7 71/23 |
| 86/23 98/9 104/7 106/14 | glenlerner.com [1] 2/5 | 72/22 73/22 104/12 105/3 |
| 108/6 109/2 115/10 117/9 | go [76] 4/12 5/21 12/1 | 108/12 110/23 114/23 |
| 117/13 151/25 152/18 | 38/23 41/24 46/24 47/3 | 117/5 117/7 117/16 |
| 154/21 164/22 175/1 | 47/4 48/3 $48 / 6$ 48/22 | 117/19 120/17 121/5 |
| 177/7 179/10 179/14 | 53/16 57/7 58/9 58/11 | 124/6 133/18 144/20 |
| 179/20 180/9 180/18 | 58/12 58/12 58/18 59/2 | 147/4 147/4 147/4 180/3 |
| 180/24 186/24 188/20 | 60/16 63/9 63/19 65/6 | 180/5 180/8 183/21 |
| 189/1 189/16 190/6 190/7 | 66/3 66/11 68/2 69/19 | 186/13 187/8 188/12 |
| 190/13 191/7 193/24 | 70/22 71/9 74/16 80/3 | 189/12 190/3 190/4 191/6 |
| gather [1] 92/10 | 88/13 88/25 90/25 93/6 | gotten [1] 34/21 |
| gave [13] 6/11 54/5 | 94/1 95/4 96/6 97/2 | govern [4] 85/9 96/1 |
| 54/11 128/25 129/15 | 97/14 98/3 99/9 106/5 | 125/2 142/25 |
| 144/11 144/12 146/23 | 108/22 114/21 118/1 | governing [1] 83/3 |
| 147/17 162/1 162/3 178/9 | 123/13 127/13 127/19 | government [4] 23/20 |
| 179/25 |  | 45/23 90/22 92/13 |
| general [20] 10/3 10/5 | 140/23 140/25 143/3 | grab [1] 67/2 |
| 17/10 40/16 45/17 53/3 | 143/24 144/4 146/22 | grade [2] 7/9 7/21 |
| 80/11 90/20 99/4 125/1 | 148/12 154/8 156/22 | grades [1] 7/19 |
| 128/21 132/12 132/14 | 159/25 170/3 171/4 171/7 | gravity [2] 61/9 179/3 |
| 152/23 166/24 174/5 | 171/14 171/16 174/7 | great [2] 32/3 78/19 |
| 174/8 174/12 181/10 | 176/22 177/21 178/19 | greater [10] 15/1 15/2 |
| 188/23 | 185/25 188/4 195/3 | 68/21 108/22 120/10 |
| generalization [6] | 197/17 | 121/13 121/14 179/17 |
| 122/21 123/18 127/6 | God [1] 5/14 | 181/8 196/17 |
| 134/20 139/6 197/4 | goes [13] 8/21 12/7 | green [1] 34/15 |
| generally [9] 22/8 80/9 | 65/13 77/21 86/14 116/13 | gross [1] 24/12 |
| 84/11 134/17 135/4 | 121/2 153/2 160/21 | grossly [1] 167/15 |
| 148/21 151/1 160/11 | 162/16 184/5 188/13 | ground [1] 64/12 |

G
guess [19] 57/19 69/11 72/18 $96 / 11$ 96/16 $116 / 25$ 117/2 121/3 122/9 123/2 131/1 137/10 140/3 140/9 165/18 $176 / 20 \quad 191 / 12$ 191/13 191/22
guessed [1] 114/17
guesses [2] 115/6 131/23
guessing [11] 72/17
106/7 116/17 116/21
117/10 123/9 130/23
154/9 191/25 192/1
197/12
guesswork [1] 129/6 guidance [2] 7/1 16/13 guide [1] 110/22
gun [1] $15 / 15$
GUNN [1] $2 / 7$
guy [1] 86/14
guys [13] 36/23 112/21
114/19 134/11 139/11
139/13 140/17 176/23
194/2 194/11 196/21
197/13 198/4
H
had [54] 4/21 18/1 21/17
34/21 34/23 38/15 49/14
50/19 51/24 53/4 62/16
64/18 68/4 69/16 69/22
82/14 84/2 84/6 107/10
111/4 116/15 116/16
121/8 126/16 $132 / 9$ 132/9
132/20 133/21 133/23
136/15 144/15 144/16
146/2 154/9 157/8 157/18
160/10 161/7 162/20
166/9 172/14 173/7 174/9
177/20 178/19 188/4
192/7 192/13 194/21
195/10 196/5 196/16
197/14 197/20
hadn't [1] 55/1
hair [1] 166/4
hair-raising [1] 166/4
half [6] 31/10 87/3
97/19 97/23 167/9 170/23 half-circular [1] 170/23
Hallmark [33] 57/23
57/25 58/2 114/3 114/8
115/1 115/3 119/22
119/23 122/12 $122 / 13$
122/16 123/16 127/5
127/12 128/24 130/2
130/16 130/22 132/1
$\begin{array}{llll}133 / 12 & 133 / 14 & 134 / 12\end{array}$
$\begin{array}{llll}134 / 21 & 138 / 19 & 139 / 10\end{array}$
144/18 144/25 146/10
146/17 170/15 194/16
194/19
Hallmark's [2] 135/19 136/6
hand [13] $5 / 9 \quad 12 / 5 \quad 26 / 12$ 29/2 29/8 29/11 29/18 41/7 41/10 71/22 72/11 72/22 199/17
happen [5] 16/5 18/24 78/19 126/16 170/5
happened [12] 6/3 6/5 21/21 24/5 24/6 24/10 24/24 38/14 69/10 86/6 126/24 186/5
happening [1] 8/24
happens [6] 12/9 25/2 69/12 75/13 124/24 148/25
happy [3] 54/14 70/5 139/13
hard [3] 66/10 73/17 93/10
harder [1] 94/3
Harvard [1] 18/20
harvest [3] 38/11 39/2 39/21
harvested [3] 39/16 40/7 67/9
has [62] 4/25 9/17 9/23 $\begin{array}{llll}9 / 24 & 18 / 21 & 18 / 21 & 18 / 21\end{array}$ 23/15 24/2 37/18 37/20 37/21 37/22 38/3 38/5 $\begin{array}{llll}38 / 6 & 38 / 7 & 43 / 24 & 44 / 2\end{array}$ 45/6 45/8 45/11 45/14 53/14 55/21 77/19 89/11 89/13 89/14 89/15 97/20 103/5 108/6 110/12 110/15 110/15 112/19 116/24 122/19 124/23 125/17 127/13 134/16 $\begin{array}{lll}138 / 5 & 139 / 23 & 140 / 1\end{array}$ 140/15 141/11 147/6 156/7 156/10 165/2 168/19 170/7 170/8 173/2 173/13 174/16 181/4 185/4 187/12 187/17
hasn't [1] 119/21
have [226]
haven't [3] 35/23 56/12 197/7
having [2] 22/11 131/23 he [231]
he'll [3] 23/4 49/2 54/3
he's [59] 38/22 38/23 50/17 53/7 70/17 105/3 115/20 116/5 116/17 116/21 116/21 116/25 $\begin{array}{llll}117 / 1 & 117 / 5 & 117 / 7 & 117 / 10\end{array}$ 117/16 117/17 118/16 118/16 118/20 118/21 119/13 119/22 119/25 120/20 120/21 120/22 120/25 121/5 121/20 121/23 121/25 121/25 122/1 122/4 122/17 123/15 124/13 126/2 126/2 126/3 126/24 126/25 127/3 137/13 137/20 138/3 138/20 139/4 139/17 139/20 143/10 143/18 146/19 147/5 147/15 190/23 197/22
head [1] 74/2
heading [1] 191/7
headlight [3] 94/19 95/9 108/21
Health [1] 18/20
heard [2] 141/20 196/17
Hearsay [2] 20/11 90/4
heat [3] 99/3 99/5 103/10
heavily [1] 136/3
heavy [3] 7/15 8/20 9/3
height [2] 25/3 30/2
held [14] 4/9 20/14
28/12 $37 / 1$ 48/12 $56 / 21$
58/14 64/9 67/3 67/17
80/1 97/13 112/22 113/20
help [3] 5/14 20/7 71/1
helpful [1] 45/3
helping [1] 19/12
helps [1] 136/14
her [88] 24/10 24/12
24/13 24/17 $24 / 17$ 24/19
$\begin{array}{llll}24 / 19 & 28 / 18 & 33 / 8 & 33 / 9\end{array}$
$\begin{array}{llll}33 / 12 & 33 / 16 & 33 / 23 & 33 / 24\end{array}$
34/2 34/8 34/20 34/22
38/16 39/8 52/15 73/23
74/4 77/17 77/20 77/21
84/16 84/17 87/2 87/4
104/13 104/16 104/22
110/6 110/12 110/15
112/14 115/14 126/20
142/7 142/11 142/19
142/20 142/22 150/14
150/14 150/19 151/2
151/9 151/25 152/3 152/3
152/4 152/5 152/7 152/12
152/20 153/11 153/17
153/20 153/24 156/19
157/23 158/18 158/18
158/22 158/22 159/10
159/16 159/22 160/9
163/13 163/13 163/21
163/22 164/18 165/2
165/3 180/13 180/19
192/15 192/16 192/18
192/20 192/24 193/6
193/11 193/11
here [81] $5 / 9$ 13/6 $21 / 10$ 26/21 26/23 27/2 29/14
29/17 29/21 32/11 32/19
35/13 $44 / 9 \quad 44 / 11 \quad 46 / 9$
48/9 48/25 $49 / 1 \quad 53 / 5$
60/20 61/1 61/2 63/4
63/19 63/23 66/7 66/11
$\begin{array}{llll}66 / 12 & 66 / 14 & 66 / 18 & 66 / 21\end{array}$
$\begin{array}{llll}67 / 20 & 71 / 13 & 72 / 13 & 72 / 21\end{array}$
73/14 73/16 73/19 80/6
81/24 91/3 91/24 93/11
93/15 94/14 97/21 99/19
105/3 117/7 117/8 122/16
123/15 123/19 126/1
126/2 127/7 129/14 $136 / 4$
139/12 141/10 143/8
154/22 155/5 155/6
155/11 155/16 155/25
156/1 156/18 157/21
160/2 166/23 169/5 169/5
177/19 177/19 182/10
182/17 185/23 186/19

| H | history [1] 146/14 | 106/16 107/16 156/25 |
| :---: | :---: | :---: |
| here... [1] 197/9 | hit [5] 33/21 43/7 60/7 | Hull [1] 89/24 |
| $\begin{array}{\|cccc} \text { here's } & \text { [5] } & 53 / 22 & 53 / 23 \\ 91 / 18 & 120 / 14 & 122 / 22 \end{array}$ | hits [1] 180/19 | $\begin{array}{rllll} \\ 13 / 5 & 19 / 17 & 19 / 17 & 21 / 19\end{array}$ |
| hereby [1] 199/5 | hitting [1] 94/3 | hurt [1] 126/20 |
| hers [1] 150/24 | hold [3] 57/1 66/5 | hypothetical [1] 168/24 |
| Hey [1] 56/16 | 107/13 | Hyundai [5] 27/ |
| high [3] 15/1 15/3 106/4 | holding [1] 188/21 | 54/20 92/8 121/18 |
| higher [4] 10/3 10/5 | $\begin{array}{lll}\text { Holler [1] } & 113 / 18 \\ \text { honest [1] } & 126 / 24\end{array}$ | I |
| 181/8 181/11 | Honor [45] 4/17 4/18 | I alpha [1] 154/15 |
| highly [1] 135/6 | 4/19 8/12 11/13 23/3 | I'd [6] $22 / 15$ 70/5 70/16 |
| Highway [1] 23/21 | 34/15 35/21 36/18 48/21 | $\begin{array}{cccc}\text { 155/8 } & 170 / 13 & 194 / 14\end{array}$ |
| him [49] 48/25 49/1 | 51/1 51/8 54/24 56/18 | I'll [11] 5/7 35/7 47/1 |
| $\begin{array}{llllll}54 / 10 & 55 / 19 & 56 / 5 & 57 / 4 \\ 57 / 6 & 57 / 17 & 58 / 5 & 69 / 22\end{array}$ | 58/22 58/23 60/14 60/15 | 47/4 64/2 $71 / 671 / 7$ |
| $\begin{array}{lllll}57 / 6 & 57 / 17 & 58 / 5 & 69 / 22\end{array}$ | 64/6 65/5 67/15 67/21 | 76/15 112/17 114/19 |
| $\begin{array}{llll}70 / 5 & 70 / 5 & 70 / 18 & 70 / 18\end{array}$ | 79/22 80/22 88/11 113/25 | 176/20 |
| $\begin{array}{lll}70 / 21 & 71 / 21 & 71 / 23 \\ 114 / 7 & 126 / 22 & 137 / 2\end{array}$ | 114/14 114/22 115/1 | I'm [82] 6/7 6/25 7/2 |
| $\begin{array}{rrr}114 / 7 & 126 / 22 & 137\end{array}$ | 121/17 122/10 127/18 | 11/16 17/15 25/12 27/3 |
| 141/23 143/21 146/13 | $\begin{array}{llll}130 / 10 & 132 / 5 & 132 / 21\end{array}$ | $\begin{array}{llll}\text { 28/4 } & 31 / 24 & 46 / 1 & 48 / 4\end{array}$ |
| 146/19 148/7 148/8 | 134/4 143/25 146/11 | 50/3 54/14 54/17 56/8 |
| $\begin{array}{llll}160 / 19 & 161 / 24 & 174 / 7\end{array}$ | 148/1 177/1 178/3 180/3 | 62/13 64/11 67/19 71/7 |
| 177/25 178/2 178/20 | 189/4 189/20 194/9 | 73/7 77/24 84/23 84/23 |
| 178/23 178/25 190/4 | HONORABLE [1] 1/20 | 84/24 86/24 94/16 96/13 |
| 191/18 192/2 192/24 | hoped [1] 41/6 | 96/13 105/1 105/2 105/4 |
| 193/12 196/12 196/17 | hopefully [2] 21/16 94/4 | 105/6 111/8 111/21 112/8 |
| 197/6 197/20 197/24 | hour [23] 38/17 83/20 | 112/18 113/23 114/22 |
| himself [2] 131/3 131/15 | 84/15 84/16 84/17 84/19 | 114/22 115/24 116/5 |
| hip [1] 19/11 | 85/4 85/5 115/14 115/18 | $\begin{array}{llll} \\ 117 / 9 & 119 / 4 & 134 / 6 & 135 / 1\end{array}$ |
| hired [2] 15/15 178/12 | 8/23 136/22 | 136/11 138/9 $138 / 12$ |
| hiring [1] 141/14 | /25 142/23 143/16 | 139/10 140/3 140/10 |
| his [115] 22/25 28/9 | 153/23 153/23 158/23 | 146/18 148/7 148/8 |
| $\begin{array}{llll}38 / 24 & 38 / 24 & 43 / 14 & 49 / 16\end{array}$ | 58/24 162/8 180/13 | 148/20 149/13 149/16 |
| $\begin{array}{lllll}50 / 19 & 51 / 22 & 51 / 22 & 51 / 25\end{array}$ | 181/25 | 149/16 158/12 159/20 |
| 51/25 53/7 53/14 53/17 | how [110] 6/6 6/22 6/22 | 160/19 161/24 168/22 |
| 53/22 54/6 54/7 54/8 | $\begin{array}{llllll}8 / 8 & 8 / 15 & 9 / 12 & 9 / 25 & 11 / 7\end{array}$ | 169/14 169/23 171/2 |
| 54/11 56/5 57/3 57/24 | $\begin{array}{lllll}11 / 20 & 12 / 17 & 12 / 18 & 13 / 4\end{array}$ | 171/2 173/10 173/18 |
| 57/25 58/2 64/7 70/2 | $\begin{array}{llll}13 / 22 & 13 / 22 & 14 / 6 & 14 / 14\end{array}$ | $\begin{array}{llllll}174 / 7 & 178 / 3 & 182 / 4 & 182 / 7\end{array}$ |
| 72/11 99/21 99/24 104/25 | $\begin{array}{llll}15 / 25 & 17 / 19 & 18 / 11 & 20 / 20\end{array}$ | 189/4 189/10 $192 / 2$ 194/1 |
| 105/2 112/19 115/13 | 21/14 22/8 24/17 24/17 | 194/1 194/9 194/15 197/7 |
| 115/19 115/21 115/24 | $\begin{array}{llllll}24 / 19 & 24 / 19 & 24 / 21 & 25 / 4\end{array}$ | /12 |
| 116/1 116/18 116/23 | $\begin{array}{llll}25 / 22 & 26 / 7 & 28 / 5 & 28 / 19 \\ 29 / 9 & 29 / 24 & 30 / 4 & 31 / 1\end{array}$ | I've [9] 77/4 89/4 95/11 |
| 116/24 117/2 117/11 | $\begin{array}{llll} 31 / 12 & 32 / 10 & 32 / 21 & 33 / 4 \end{array}$ | $148 / 5 \quad 155 / 5$ |
| $\begin{array}{llll}117 / 24 & 118 / 4 & 118 / 8 & 118 / 9\end{array}$ | $\begin{array}{llllll}33 / 8 & 33 / 12 & 35 / 11 & 35 / 13\end{array}$ | I-r-v-i-n-g [1] 5/18 |
| $118 / 12$ $119 / 7$ $119 / 78$ 118 | $\begin{array}{lllll} & 41 / 13 & 41 / 21 & 42 / 21 & 43 / 18\end{array}$ | I-X [2] 1/13 1/13 |
| 119/7 119/7 119/9 119/14 | 45/4 46/7 64/14 64/22 | idea [7] 14/15 32/24 |
| $\begin{array}{llll}119 / 16 & 121 / 5 & 121 / 5 \\ 121 / 16 & 121 / 17 & 121 / 21\end{array}$ | $\begin{array}{llll}65 / 8 & 65 / 24 & 67 / 6 & 69 / 2\end{array}$ | 94/2 117/19 118/17 |
| /16 121/17 121/21 | 69/9 69/10 $74 / 7 \quad 74 / 20$ | 167/19 188/23 |
| $\begin{array}{llll}122 / 8 & 122 / 17 & 122 / 23 \\ 124 / 24 & 126 / 5 & 126 / 20\end{array}$ | 76/2 81/18 83/23 85/16 | identifiable [1] 145/25 |
| $\begin{array}{ll}124 / 24 & 127 / 16131 / 3\end{array}$ | 85/23 86/3 87/23 88/2 | identified [3] 141/5 |
| 131/5 131/6 131/20 | 88/15 88/16 92/10 96/10 | 146/3 173/4 |
| 131/21 131/21 131/23 | 97/4 97/14 98/5 98/20 | identify [3] 91/2 135/20 |
| 131/23 134/4 134/7 135/5 | 101/20 101/24 104/21 | 146/8 |
| 135/15 136/19 137/4 | 105/14 105/14 107/24 | ignore [1] 99/5 |
| 137/6 137/18 138/14 | 108/11 108/23 117/23 | ignored [1] 103/12 |
| 139/3 141/6 142/9 142/12 | $\begin{array}{ll}118 / 1 & 124 / 6 \\ 125 / 8 & 126 / 6\end{array}$ | ignores [1] 117/24 |
| 142/14 143/3 143/17 | 126/17 139/12 142/13 | II [1] 1/20 |
| 143/18 144/24 145/20 | 151/6 151/8 152/4 153/15 | illness [1] 15/12 |
| 147/2 147/13 147/14 | 156/4 158/17 159/3 | illustrate [4] 11/7 |
| 147/20 158/4 158/20 | 164/20 164/24 171/21 | 43/18 93/21 98/5 |
| 158/21 159/12 160/18 | 173/23 174/12 $174 / 16$ | illustrates [4] 8/15 |
| 161/23 168/6 168/6 | 176/10 184/14 186/16 | 32/21 65/8 93/2 |
| $\begin{array}{llll}170 / 12 & 170 / 13 & 170 / 13\end{array}$ | 89/21 191/4 | illustration [8] 8/6 |
| 189/12 190/25 193/3 | HUDGINS [1] 2/7 | 9/10 9/12 11/6 11/1 |
| 196/23 197/16 197/24 | $\text { huh [5] } 102 / 11 \text { 102/14 }$ | image [2] 35/11 116/12 |
| histories [1] 184/16 | huh [5] 102/11 102/14 | image [2] 35/11 116/12 |


| I | inches [19] 50/2 50/9 | 145/13 172/23 173/4 |
| :---: | :---: | :---: |
| imagery [3] 27/11 52/16 | $\begin{array}{lllll}64 / 1 & 64 / 16 & 65 / 13 & 65 / 16 \\ 66 / 15 & 88 / 25 & 89 / 1 & 91 / 18\end{array}$ | $\left\lvert\, \begin{array}{rrrr} \text { 175/4 } & 175 / 24 & 195 / 7 \\ \text { initially [5] } & 73 / 1 & 83 / 24 \end{array}\right.$ |
| 173/25 | $\begin{array}{lllll} \\ 96 / 15 & 88 / 25 & 89 / 1 & 91 / 18 \\ 91 / 20 & 91 / 24 & 94 / 21 & 94 / 22\end{array}$ | $100 / 7 \quad 146 / 16 \quad 149 / 16$ |
| imagine [1] 26/10 | $\begin{array}{llll}95 / 11 & 104 / 6 & 104 / 8 & 105 / 19\end{array}$ | initiated [1] 193/7 |
| imaging [2] 11/18 52/16 <br> immaterial [1] 174/25 | 121/8 | injured [2] 13/14 181/24 |
| immaterial [1] $\begin{aligned} & \text { immediately [2] } 44 / 20\end{aligned}$ | inclination [1] 144/17 | injuries [9] 15/11 15/25 |
| 69/23 | inclined [2] 146/13 | $17 / 5 \text { 20/2 26/2 136/6 }$ |
| impact [94] 43/24 43/25 | include [1] 10/25 | $\text { injury [21] } \quad 10 / 15 \quad 10 / 1$ |
| 44/1 61/6 61/16 66/17 | included [3] 157/14 | $\begin{array}{rrrrr} \\ 10 / 22 & 10 / 25 & 11 / 8 & 11 / 21\end{array}$ |
| $\begin{array}{lllll}68 / 15 & 69 / 3 & 69 / 8 & 69 / 23\end{array}$ | 157/16 196/5 | $\begin{array}{llll}12 / 2 & 12 / 22 & 13 / 2 & 14 / 4\end{array}$ |
| $\begin{array}{lllll}72 / 3 & 72 / 23 & 73 / 6 & 73 / 20 \\ 74 / 4 & 75 / 11 & 77 / 7 & 78 / 5\end{array}$ | includes [2] 50/15 52/1 | $\begin{array}{llll}14 / 6 & 14 / 25 & 15 / 2 & 21 / 9\end{array}$ |
| $\begin{array}{llll}74 / 4 & 75 / 11 & 77 / 7 & 78 / 5 \\ 95 / 14 & 95 / 21 & 96 / 2 & 98 / 10\end{array}$ | including [2] 47/11 | 21/11 21/18 21/23 31/16 |
| 95/14 95/21 96/2 98/10 98/23 105/10 106/5 | 113/6 | 139/23 141/14 183/9 |
| 106/21 106/22 108/2 | inclusive [1] 1/13 | input [28] 59/11 68/9 |
| $\begin{array}{lll}108 / 14 & 108 / 24 & 114 / 12\end{array}$ | incomplete [2] 144/13 | 74/13 77/8 81/8 81/10 |
| $116 / 3$ 116/14 116/16 | 168/23 | 81/10 81/23 82/15 83/1 |
| 117/1 119/5 119/20 120/7 | Incomprehensible [1] | 86/16 110/12 115/9 |
|  | 169/22 73 | 151/16 157/22 160/14 |
| 128/20 129/16 129/21 | consistent [8] 73/11 | 163/10 163/16 163/19 |
| $\begin{array}{llll}130 / 13 & 130 / 18 & 131 / 14\end{array}$ | 9/20 118/23 118/25 | 165/16 167/23 169/20 |
| 131/14 135/8 135/10 | 119/11 131/10 158/3 | 170/21 170/22 174/24 |
| 135/20 136/10 136/17 | 160/17 | 186/24 187/14 193/1 |
| 136/22 137/2 137/11 | 20/11 | inputs [14] 59/5 79/14 |
| 137/15 140/2 145/13 | increments [1] | 80/19 81/7 100/1 |
| 146/1 $146 / 3148 / 17$ | independent [1] 122/24 | 126/4 155/3 156/1 |
| 148/22 149/12 149/14 | $\begin{array}{lll}\text { indicate [2] } & 12 / 9 & 45 / 20\end{array}$ | 163/24 193/18 |
| $\begin{array}{llll}150 / 1 & 152 / 23153 / 2 \\ 153 / 17 & 154 / 23 & 155 / 24\end{array}$ | indicated [3] 144/16 | inputted [2] 67/10 |
| $153 / 17$ 154/23 155/24 $156 / 2 \quad 158 / 13$ $159 / 6 \quad 159 / 8$ | 145/23 173/9 | 168/11 |
| 156/2 158/13 159/6 159/8 162/20 164/10 164/17 | indicates [1] 128/18 | inquiry [1] 193/3 |
| 165/3 166/21 172/13 | indicating [4] 66/12 | inside [1] 152/4 |
| $\begin{array}{llll}174 / 2 & 174 / 16 & 174 / 25\end{array}$ | 66/15 155/14 190/20 | inspect [3] 27/22 119/19 |
| 181/8 182/23 187/17 | indication [1] 67/6 | 135 |
| 188/16 188/25 191/4 | indicator [5] 43/5 43/8 | inspected [1] 119/21 |
| 195/4 195/23 195/25 | 44/6 45/4 45/21 | inspection [5] 36/22 |
| 196/2 | individual [4] 8/18 21/7 | 50/13 54/19 54/22 55/1 |
| impacts [3] 181/25 | 4/3 182/19 | instance [1] |
| 182/14 183/10 | idually [3] 1/9 | instant [1] 86/7 |
| implied [1] 169/6 | indulgence [1] 194/10 | $136 / 3$ |
| implies [1] 31/3 |  | Institute [1] 18/ |
| importance [1] 172/7 | 19/15 | instructed [2] 47/6 |
| important [40] 12/13 | inertia [9] 97/24 101/17 | 113/1 |
| $\begin{array}{lllll}43 / 1 & 63 / 23 & 64 / 2 & 109 / 25 \\ 112 / 16 & 125 / 20 & 129 / 24\end{array}$ | 101/21 152/16 154/6 | insurance [1] 148/2 |
| $\begin{array}{llll}112 / 16 & 125 / 20 & 129 / 24 \\ 129 / 24 & 131 / 4 & 133 / 24\end{array}$ | 154/8 154/10 154/15 | integrates [1] 59/14 |
| $\begin{array}{llll}129 / 24 & 131 / 4 & 133 / 24 \\ 134 / 1 & 134 / 9 & 141 / 16 & 146 / 8\end{array}$ | 156/23 | integrity [1] 126/25 |
| $\begin{aligned} & 134 / 1 \quad 134 / 9 \quad 141 / 16 \quad 146 / 8 \\ & 148 / 10 \quad 148 / 11 \quad 149 / 7 \end{aligned}$ | information [57] 25/10 | intend [2] 51/14 53/20 |
| 148/10 148/11 149/7 149/8 149/9 151/20 | 27/14 39/2 39/15 39/18 | intended [2] 43/12 |
| $152 / 25 \quad 153 / 21 \quad 1$ | 39/21 40/6 40/9 40/13 | 188/25 |
| 155/22 157/5 158/20 | 47/11 51/20 51/23 52/13 | interact [1] 6/23 |
| 158/25 163/20 164/1 | 52/17 52/17 52/21 59/8 | interacting [1] 67/1 |
| $\begin{array}{lll}166 / 8 & 166 / 12 & 166 / 22\end{array}$ | 59/23 60/1 60/6 60/18 | interested [7] 10/12 |
| 166/24 172/16 173/17 | 62/9 63/3 63/11 81/8 | 14/23 150/13 158/12 |
| 175/1 176/6 178/20 | 81/12 82/10 83/2 83/9 | 164/8 170/4 199/15 |
| 184/13 | 83/23 84/7 86/6 92/14 | interesting [3] 64/3 |
| impose [2] 10/2 125/5 | 94/25 99/23 101/8 106/10 | 100/12 166/15 |
| imposed [1] 151/8 | $\begin{array}{llll}111 / 3 & 111 / 5 & 113 / 6 & 136 / 2\end{array}$ | interestingly [1] 117/7 |
| impossible [1] 187/11 | $\begin{array}{ll}136 / 8 & 137 / 3 \\ 143 / 8 & 147 / 7\end{array}$ | International [1] 16/7 |
| improve [1] 13/1 | 147/22 152/6 152/10 | Internet [2] 47/13 113/8 |
| impulse [1] 151/13 | 152/21 154/9 157/5 | interrupt [1] 160/5 |
| $\begin{aligned} & \text { inaccurate [2] 145/15 } \\ & 145 / 16 \end{aligned}$ | $\begin{array}{lll}168 / 15 & 172 / 8 & 184 / 19 \\ 195 / 24 & 196 / 19 & 197 / 2\end{array}$ | $\begin{array}{lr}\text { interrupted [1] } & 114 / 23 \\ \text { intersection [4] } & 69 / 13\end{array}$ |
| inadequate [1] | initial [15] 41/6 43/24 | 143/20 149/1 173/21 |
| inanimate [1] 19/18 inch [1] 88/25 | $\begin{aligned} & 44 / 5 \quad 84 / 3 \quad 85 / 15 \quad 85 / 25 \\ & 125 / 13 \quad 131 / 14 \quad 138 / 20 \end{aligned}$ | $\begin{aligned} & \text { introduce [2] 135/12 } \\ & \text { 194/21 } \end{aligned}$ |

intrusion [1] 43/6
invalid [4] 46/6 111/12 176/18 195/16
invalidate [2] 112/6 112/10
investigating [2] 173/7 173/9
investigations [2] 24/1 38/4
involved [20] 22/3 27/21 36/13 37/14 37/24 47/18 53/1 59/22 59/24 66/8 $\begin{array}{llll}82 / 25 & 83 / 1 & 113 / 13 & 124 / 3\end{array}$ $\begin{array}{lllll}136 / 5 & 166 / 4 & 169 / 5 & 170 / 8\end{array}$ 174/3 199/14
involves [3] $9 / 10 \quad 102 / 15$ 102/21
inward [1] 95/8
IRVING [3] $3 / 3$ 5/5 5/18 is [461]
isn't [6] 18/15 44/18 57/25 80/24 106/7 127/7 ISO [1] $16 / 6$
issue [5] 47/8 47/18 55/19 113/3 113/13
issued [2] 55/2 147/11 issues [4] 18/7 47/16 102/1 113/11
it [406]
it's [183] 8/3 9/3 9/16 9/21 10/10 11/23 11/23 $\begin{array}{llll}12 / 13 & 12 / 24 & 12 / 25 & 14 / 11\end{array}$ $\begin{array}{llll}14 / 25 & 15 / 1 & 15 / 1 & 15 / 1\end{array}$ $\begin{array}{lllll}15 / 12 & 17 / 3 & 18 / 17 & 19 / 11\end{array}$ $\begin{array}{lllll}19 / 21 & 20 / 7 & 21 / 4 & 30 / 7\end{array}$ $\begin{array}{llll}30 / 11 & 31 / 21 & 42 / 4 & 45 / 1\end{array}$ $\begin{array}{lllll}45 / 4 & 45 / 21 & 45 / 22 & 45 / 24\end{array}$ 46/5 $46 / 5 \quad 46 / 6 \quad 46 / 13$ 51/10 $51 / 10 \quad 52 / 6 \quad 58 / 4$ 59/24 61/11 61/13 61/19 61/20 63/2 66/10 66/15 67/1 $67 / 3 \quad 72 / 18 \quad 72 / 18$ 73/16 73/25 74/9 74/25 75/9 79/3 79/5 79/20 80/23 84/13 85/3 86/5 86/17 88/25 89/25 90/1 90/5 90/10 91/5 93/14 96/3 96/4 96/17 96/20 97/13 97/19 97/23 97/24 100/6 101/25 102/4 102/5 $\begin{array}{lllll}103 / 6 & 103 / 7 & 105 / 18 & 108 / 4\end{array}$ 108/19 108/21 114/24 $114 / 24$ 116/25 117/22 118/8 118/18 118/19 118/25 121/2 121/3 122/8 123/11 125/10 125/20 126/13 $126 / 15 \quad 126 / 15$ 126/16 126/17 126/22 127/16 129/13 129/22 $\begin{array}{lllll}130 / 22 & 131 / 4 & 131 / 7 & 142 / 8\end{array}$ $\begin{array}{lllll}143 / 4 & 143 / 16 & 146 / 7 & 148 / 5\end{array}$ 148/10 149/11 149/12 149/21 150/7 150/14 151/2 151/12 151/12 151/21 152/15 153/10 153/16 153/21 154/6

154/16 155/1 155/1 155/13 159/6 159/8 159/13 159/15 159/17 160/2 160/21 160/23 161/4 162/7 163/14 $\begin{array}{lll}163 / 21 & 164 / 17 & 164 / 25\end{array}$ 166/15 167/4 167/14 168/8 170/6 170/17 $\begin{array}{lll}170 / 19 & 170 / 20 & 170 / 21\end{array}$ 171/13 173/5 173/22 174/23 174/25 175/6 175/6 184/12 184/14 185/18 186/9 186/9 186/11 186/12 186/16 186/16 187/8 189/10 191/13 193/24 196/19 itemize [1] 88/16 iteration [2] 79/10 123/8
iterations [5] 76/5 79/1 84/6 118/14 131/23 iterative [14] 77/25 100/8 100/10 100/18 100/19 103/7 103/15 106/9 107/18 118/2 119/2 159/4 165/22 165/23
its [12] 41/24 41/25 44/2 $45 / 12 \quad 46 / 8 \quad 49 / 2$ 97/18 130/16 170/19 187/7 187/13 196/11 itself [4] 10/15 13/16 28/24 89/20

## $J$

January [2] 22/4 38/13 January 2nd [2] 22/4 38/13
JARED [8] $1 / 12$ 2/18 $5 / 4$ $\begin{array}{lllll}71 / 18 & 129 / 15 & 131 / 8 & 131 / 8\end{array}$ 151/9
Jared's [8] 125/4 125/16 125/18 132/16 142/18 143/19 143/20 162/6 jeez [1] 17/3
JERRY [1] 1/20
journal [1] 89/21
JR [1] 2/8
judge [33] $4 / 11$ 35/4
36/21 52/8 $54 / 1 \quad 55 / 23$
$\begin{array}{llll}56 / 9 & 56 / 14 & 58 / 16 & 70 / 16\end{array}$ 122/11 123/19 124/9 125/5 127/4 127/21 130/7 140/6 140/8 140/20 141/2 141/20 142/4 144/12 145/2 170/12 171/8 171/17 176/14 191/15 193/2 194/14 195/20 Judge Allf [1] 141/20 jurors [2] 160/1 171/5 jury [37] 1/19 4/7 4/8 $\begin{array}{llll}4 / 10 & 4 / 11 & 4 / 16 & 43 / 14\end{array}$ $\begin{array}{llll}48 / 13 & 48 / 15 & 51 / 16 & 51 / 20\end{array}$ 56/22 58/13 58/15 58/16 58/21 70/2 70/14 74/9 76/6 78/23 79/3 113/21 113/23 115/20 118/21 118/22 122/7 131/18

133/10 $144 / 15 \quad 146 / 13$
171/14 177/13 185/19
185/21 186/12
just [126] 10/8 11/3
$\begin{array}{llll}11 / 4 & 12 / 24 & 15 / 15 & 18 / 23\end{array}$
$\begin{array}{llll}19 / 1 & 21 / 11 & 22 / 14 & 22 / 20\end{array}$
24/12 24/16 26/15 26/23
28/6 32/5 32/6 32/19
$\begin{array}{llll}33 / 21 & 34 / 22 & 36 / 17 & 36 / 19\end{array}$
$\begin{array}{lllll}37 / 12 & 39 / 15 & 41 / 21 & 43 / 2\end{array}$
43/3 43/23 $44 / 16$ 44/18
$\begin{array}{lllll}45 / 1 & 45 / 1 & 45 / 15 & 46 / 4\end{array}$
$\begin{array}{lllll}46 / 5 & 46 / 19 & 47 / 23 & 48 / 3\end{array}$
50/1 53/20 56/3 58/25
63/23 65/9 67/25 68/1
$\begin{array}{llll}70 / 13 & 72 / 17 & 74 / 23 & 76 / 5\end{array}$
77/23 78/12 78/16 80/7
82/22 84/10 85/10 86/14
86/14 88/11 89/22 90/20
95/22 96/15 96/18 98/15
99/5 99/15 101/6 102/16
102/22 105/19 106/7
108/19 114/2 115/1
117/11 117/24 119/23
120/2 120/13 121/20
121/25 123/9 124/13
125/14 128/6 129/11
129/13 130/8 130/23
$\begin{array}{lllll}131 / 8 & 131 / 18 & 133 / 7 & 133 / 7\end{array}$
143/5 143/17 144/4
144/15 146/12 147/13
150/21 151/25 152/7
153/10 154/9 154/11
155/4 155/8 $156 / 19$ 161/4
163/21 166/1 166/14
172/6 172/18 175/24
177/11 178/8 182/16
184/12 $186 / 20 \quad 194 / 14$
194/16 195/18 196/16

## K

keeping [1] 51/1
key [2] 114/5 115/8
kid [1] 44/9
kids [1] 47/25
$\begin{array}{llll}\text { kind [11] } & 14 / 16 & 15 / 22\end{array}$
46/18 $47 / 17$ 48/3 $93 / 12$
96/2 106/20 113/12
125/16 154/16
kinds [1] 85/24
kinematics [2] 72/20 75/15
kinetic [4] 87/2 97/18 98/22 100/6
knee [1] 19/11
knew [2] 161/13 161/20
know [97] 9/10 12/15
$\begin{array}{llll}12 / 16 & 13 / 14 & 15 / 21 & 18 / 20\end{array}$
$\begin{array}{lllll}12 / 4 & 33 / 4 & 33 / 5 & 33 / 21\end{array}$
$33 / 2434 / 2 \quad 34 / 5 \quad 34 / 22$
35/22 44/9 66/17 66/20
$\begin{array}{llll}72 / 20 & 73 / 7 & 73 / 10 & 73 / 25\end{array}$
74/7 76/2 77/11 78/13
78/15 78/20 81/13 85/2
85/3 86/25 95/10 100/16 100/18 101/15 101/16
101/23 106/12 106/19

| K | laws [19] 19/18 19/21 | licensed [1] 17/19 |
| :---: | :---: | :---: |
| know. . . [57] 108/11 | 19/21 52/19 81/16 107/4 | licenses [1] 17/12 |
| $\begin{array}{rrrr} \\ 108 / 12 & 109 / 4 & 109 / 16\end{array}$ | 107/7 107/10 107/19 | licensure [1] 17/24 |
| $\begin{array}{lllll}114 / 8 & 115 / 8 & 116 / 8 & 116 / 9\end{array}$ | 108/24 137/3 137/7 137/7 | lies [1] 124/10 |
| $\begin{array}{llll}116 / 17 & 119 / 3 & 119 / 24\end{array}$ | 142/15 164/11 165/1 | life [7] 30/19 34/22 |
| 122/7 125/10 128/2 | $\begin{array}{cc} \text { 165/23 } 187 / 1918 \\ \text { lawyer [1] } & 194 / 1 \end{array}$ | $\begin{aligned} & 78 / 10 \text { 79/16 79/18 79/ } \\ & 139 / 24 \end{aligned}$ |
| $\begin{array}{llll}129 / 21 & 130 / 3 & 130 / 17\end{array}$ | lawyers [2] 15/16 45/16 | lift [1] 30/14 |
| $\begin{array}{lll}131 / 12 & 131 / 17 & 131 / 20\end{array}$ | lay [2] 21/1 146/22 | lifting [5] 8/19 9/14 |
| $\begin{array}{llll}131 / 20 & 131 / 21 & 131 / 22\end{array}$ | layman's [1] 104/12 | 9/16 30/9 30/14 |
| $\begin{array}{llll}131 / 24 & 132 / 21 & 133 / 14\end{array}$ | leading [4] 35/3 35/5 | ligament [2] 10/24 10/24 |
| $\begin{array}{lll}135 / 21 & 136 / 14 & 137 / 11 \\ 137 / 12 & 139 / 2 & 139 / 8\end{array}$ | 104/17 104/19 | ligaments [3] 33/2 |
| $\begin{array}{llll}137 / 12 & 139 / 2 & 139 / 8 \\ 139 / 12 & 140 / 13 & 140 / 1\end{array}$ | learned [1] 52/3 | 185/13 185/17 |
| 9/12 $140 / 13140 / 15$ | learning [1] 86/2 | light [1] 140/18 |
| $\begin{array}{llll}140 / 17 & 140 / 21 & 147 / 4 \\ 147 / 4 & 147 / 5 & 148 / 18\end{array}$ | least [4] 9/5 34/24 85/3 | like [66] 11/9 11/23 |
| $\begin{array}{llll}148 / 21 & 150 / 18 & 151 / 1\end{array}$ | 183/4 | 16/1 16/2 16/8 16/18 |
| 153/1 153/24 158/23 | leave [4] 47/23 48/24 | $\begin{array}{llll}18 / 15 & 20 / 23 & 21 / 1 & 24 / 22\end{array}$ |
| 160/1 167/13 171/23 | 49/1 109/15 | 25/15 25/18 27/12 30/19 |
| 172/2 174/4 174/12 179/2 | LEE [1] 2/8 | $\begin{array}{lllll}31 / 9 & 31 / 20 & 33 / 11 & 33 / 1\end{array}$ |
| 181/2 192/21 192/22 | 38/23 39/23 41/7 43/23 | $\begin{array}{llll}40 / 18 & 44 / 22 & 45 / 18 & 48 / 18 \\ 52 / 22 & 55 / 24 & 62 / 22 & 71 / 22\end{array}$ |
| knowing [3] 64/20 135/7 | $\begin{array}{llll} 50 / 5 & 65 / 15 & 69 / 19 & 69 / 20 \end{array}$ | 52/22 55/24 62/22 71/22 <br> 84/1 84/6 85/6 85/8 86/9 |
| 166/10 | 69/24 71/19 71/22 72/11 | $\begin{array}{lllll} & 91 / 22 & 103 / 12 & 103 / 15\end{array}$ |
| known [7] 90/10 100/21 | 72/22 73/5 $73 / 10 \quad 73 / 25$ | 103/23 106/13 106/20 |
| 138/23 138/25 139/3 | 74/6 77/19 77/20 98/17 | 109/9 112/19 114/5 |
| 152/6 166/6 | 109/5 110/13 117/6 | 119/23 132/21 137/9 |
| KRISTY [3] $1 / 24199 / 4$ | 117/18 117/19 120/23 | 141/22 143/15 147/8 |
| 199/22 | 121/2 149/16 190/4 | 152/15 154/10 154/11 |
| L | 190/12 190/22 | 154/16 154/17 155/14 |
| L5 [2] 143/12 151/8 | left-hand [4] 41/7 71/22 | 155/25 156/6 161/13 |
| L5-S1 [1] 143/12 | 2/11 72/22 | 162/19 163/16 163/17 |
| lab [1] 7/2 | legitimate [2] 37/25 | 165/8 177/12 189/13 |
| labeled [1] 65/15 |  | 192/10 194/14 |
| lack [2] 69/11 139/9 | $136 / 9 \quad 153 / 12$ | likelihood [7] 14/10 |
| $\begin{array}{lll}\text { laid [1] } & 35 / 23 \\ \text { land [1] } & 21 / 5\end{array}$ | lengths [2] 64/20 90/10 | $\begin{array}{rrrr}14 / 14 & 14 / 25 & 15 / 2 & 15 / 5\end{array}$ |
| land [1] 21/5 | LERNER [1] 2/3 | 31/16 183/9 |
| lane [20] 38/17 38/19 | less [8] 10/9 14/25 | likelihoods [1] 15/10 |
| 38/19 38/19 77/17 77/21 | 120/10 120/11 140/15 | likely [7] 14/11 31/20 |
| $\begin{aligned} & 79 / 4 \\ & 110 / 17 \\ & 1118 / 9\end{aligned} 110 / 9$ 110/16 | 181/12 188/19 188/22 | 31/22 76/18 76/24 116/2 |
| 163/13 163/22 186/25 | let [26] 32/5 32/5 33/7 | 117/22 |
| 187/1 187/7 187/14 196/6 | 36/3 47/23 $48 / 22$ 49/19 | limit [6] 14/2 51/3 58/5 |
| lanes [3] 38/18 69/17 | 54/17 60/13 67/19 70/5 | 109/5 123/22 126/22 |
| 191/8 | 73/16 96/22 114/19 | limitation [3] 47/12 |
| language [1] 193/23 | 127/19 132/25 140/2 | 107/13 113/7 |
| large [6] 9/2 9/8 9/20 | 140/21 146/19 155/17 | limitations [1] 127/10 |
| 13/12 75/12 159/5 | 160/19 161/24 166/1 | limited [4] 104/14 |
| larger [2] 76/12 159/19 | 174/7 182/2 192/2 | 121/21 170/19 176/23 |
| Las [6] 2/4 2/10 2/16 | let's [25] 26/23 32/2 | limits [4] 103/24 105/16 |
| 2/21 4/1 76/2 | 6/2 36/19 47/3 56/3 | 105/21 109/3 |
| Las Vegas [1] 76/2 | 58/12 73/13 | Lindsey [1] 16/10 |
| last [4] 5/19 52/5 53/24 | $\begin{array}{lllll}81 / 4 & 81 / 12 & 89 / 24 & 119 / 16 \\ 120 / 6 & 130 / 15 & 140 / 7 & 140 / 8\end{array}$ | line $[11]$ $41 / 9$ $42 / 19$ <br> $49 / 13$ $49 / 18$ $49 / 22$ 52 |
| 78/23 | $\begin{array}{llll}155 / 11 & 155 / 16 & 155 / 17\end{array}$ | $\text { 61/12 } 123 / 12 \quad 123 / 14$ |
| $\begin{aligned} & \text { later [3] } \quad 49 / 1249 / 12 \\ & 112 / 17 \end{aligned}$ | 183/20 184/6 185/3 | 167/16 173/15 |
| lateral [16] | 187/20 | line 2 [1] 52/10 |
| 106/22 149/10 149/14 | level [11] 10/11 14/19 | line 7 [1] 49/22 |
| $\begin{array}{llll}150 / 1 & 158 / 13 & 162 / 21\end{array}$ | 24/10 24/12 $34 / 5$ 125/6 | linear [15] 29/6 40/17 |
| 181/24 182/14 182/23 | 126/19 143/2 143/12 | 41/7 42/2 81/16 96/20 |
| 183/10 186/14 186/14 | 160/16 196/19 | 97/19 98/11 98/23 99/15 |
| 187/4 187/9 | levels [3] 25/11 25/14 | 101/8 125/11 125/14 |
| laterally [4] 180/15 | 123/22 | 150/8 170/10 |
| 186/8 187/12 187/18 | lever [5] 9/1 9/4 9/19 | lined [1] 67/7 |
| latitude [2] 146/24 | 10/6 165/8 | lines [1] 98/12 |
| 147/17 | Levine [3] 137/22 141/25 | link [1] 21/18 |
| $\begin{array}{lllll}\text { law [7] } & 2 / 14 & 18 / 2 & 20 / 12\end{array}$ | 195/11 license [2] | list [2] $11 / 18$ $52 / 1$ <br> listen [2] $47 / 9$ $113 / 4$ |

## L

literature [7] 46/12
86/13 100/24 103/6
142/17 168/21 170/9
litigation [6] 12/25
15/17 15/20 15/23 23/16 45/15
little [23] 36/24 44/23 $\begin{array}{llll}44 / 24 & 61 / 14 & 66 / 10 & 69 / 17\end{array}$ 69/23 72/16 $72 / 22 \quad 73 / 25$ 93/10 93/14 111/4 117/5
125/12 143/4 146/14
148/8 149/25 160/2 173/12 176/23 183/21
live [1] 6/9
living [5] 30/25 $32 / 25$
34/3 35/1 140/13
LLC [1] 2/14
$\begin{array}{lrlll}\text { load [3] } & 8 / 7 & 13 / 12 & 13 / 14\end{array}$ load-bearing [1] 8/7
loaded [1] 152/5
loads [10] 8/22 9/8 9/20 $\begin{array}{llll}10 / 1 & 10 / 4 & 10 / 7 & 12 / 3\end{array}$
14/22 152/3 158/16
location [40] 38/21 39/3
52/17 108/12 111/6
$\begin{array}{llll}111 / 13 & 112 / 15 & 114 / 15\end{array}$
114/16 114/18 118/12
$\begin{array}{llll}122 / 5 & 131 / 5 & 131 / 9 & 131 / 14\end{array}$ 136/17 142/18 142/19 $\begin{array}{lllll}143 / 7 & 148 / 16 & 150 / 5 & 150 / 5\end{array}$ 152/23 154/23 155/24
156/2 157/3 157/15 158/1 159/5 159/8 164/6 164/18 165/2 165/5 165/9 165/12 166/17 176/3 193/20
locations [5] 43/12 124/17 126/2 143/7 170/18
logic [7] $32 / 22 \quad 34 / 19$ 34/23 35/10 35/13 42/16 126/21
long [8] 9/4 9/19 17/19 46/14 48/9 97/13 167/14 180/14
longer [2] 128/8 183/22
look [49] 8/24 12/2 12/5 $\begin{array}{lll}13 / 21 & 13 / 25 & 14 / 22 \\ 15 / 25\end{array}$ 19/9 24/17 24/17 24/19 27/12 27/21 27/24 28/6 28/7 29/9 $34 / 1 \quad 42 / 12$ $\begin{array}{lllll} & 43 / 8 & 44 / 8 & 46 / 11 & 49 / 23\end{array}$ 50/14 $53 / 10 \quad 61 / 12 \quad 63 / 24$ 73/13 $76 / 15$ 88/19 89/1 91/14 91/17 103/16 117/4 119/13 119/16 119/25 120/2 120/6 120/16 121/16 130/15 162/2 162/3 166/16 182/8 183/23 184/6
looked [12] 25/2 25/13 25/23 28/18 53/21 87/14 87/16 87/18 119/14 119/22 129/7 144/23 looking [26] 21/21 50/3 68/13 70/15 76/7 78/13 82/6 85/1 86/15 86/24

87/7 88/2 105/9 129/12
129/21 135/23 135/25
137/24 $138 / 1 \quad 139 / 2 \quad 171 / 9$ 173/11 182/2 182/4 183/8 187/22
looks [1] 129/1
lost [2] 81/19 104/5
lot [8] 13/20 16/3 16/19
73/2 75/25 127/7 141/11
173/20
lots [2] 75/22 119/4
LOUIS [1] 2/19
low [3] $15 / 1$ 31/17 163/13
lower [5] $14 / 2$ 31/7
34/11 35/16 115/15
lowers [1] 116/6
lroberts [1] 2/11
lumbar [26] 8/22 9/7 9/8
$\begin{array}{llll}9 / 20 & 10 / 1 & 10 / 4 & 10 / 12\end{array}$
28/19 28/23 29/25 30/6
$\begin{array}{llll}30 / 15 & 30 / 23 & 30 / 24 & 33 / 1\end{array}$
150/3 150/14 150/15
151/8 151/21 151/23
152/4 158/16 182/11
182/20 183/12
lunch [1] 47/3
LVMPD [3] 127/24 130/6 130/10
M
MA [1] 154/16
made [13] 49/10 51/8 51/22 57/23 63/11 84/10 89/11 114/9 121/20 122/2 122/4 187/17 196/1
MADYMO [17] 28/22 29/21 30/5 80/20 80/23 150/15 155/3 163/20 169/20 $\begin{array}{lllll}181 / 17 & 184 / 2 & 184 / 3 & 184 / 8\end{array}$ 184/14 184/19 184/23 196/23
magnitude [2] 162/21 181/14
main [5] 13/1 15/24 17/4 161/4 174/24
majored [1] 6/17
majority [1] 46/17
make [51] 19/12 25/19
26/4 26/23 33/18 37/13 48/18 60/9 60/18 62/23
63/3 64/16 65/1 72/11
74/10 75/6 75/12 76/1
84/7 85/25 86/14 88/5
89/2 92/18 94/10 96/23 100/18 103/8 114/3 114/6 114/20 116/1 117/10 117/11 $117 / 14$ 122/12 131/16 133/5 133/16 134/22 139/13 144/6 147/17 149/3 149/4 159/16 160/1 $166 / 1$ 182/22 191/6 194/14
makes [7] 16/10 45/24 84/9 84/21 103/2 131/19 188/24
making [7] 38/23 39/23

71/22 86/16 90/16 137/19 185/25
male [1] 9/9
$\operatorname{man}[1] \quad 6 / 6$
manage [1] 34/20
manipulating [1] 121/25
manner [1] 108/9
manufacturer [1] 62/25
many [3] 23/15 116/15
171/21
maps [1] 145/21
March [1] 52/9
March 4 [1] 52/9
margin [2] 161/19 168/20
MARIA [1] 2/15
MARISA [1] $2 / 9$
mark [2] 61/4 171/8
marks [8] 66/11 66/13
75/17 75/19 75/21 128/9
191/3 196/1
mass [31] 9/2 9/19 10/11 41/18 41/24 41/25 61/19
61/21 97/19 97/24 100/4
150/25 151/3 151/4 153/2
153/3 153/6 154/4 154/10
154/11 154/13 154/16
154/16 156/21 164/13
165/8 165/11 172/25
179/2 181/3 181/4
masses [1] 101/15
master [1] 17/8
master's [1] 6/20
match [17] 42/20 64/21
66/14 82/6 88/4 92/17
92/20 112/4 117/8 117/10
121/22 122/2 126/11
131/2 131/16 166/19
192/17
matched [5] 26/13 62/10
65/24 77/15 193/20
matches [4] 77/9 131/7
159/23 191/4
material [2] 141/6 148/17
materials [2] 7/14 74/24
math [2] 7/15 17/11
mathematic [1] 90/12
Mathematical [2] 181/19 181/21
matter [17] 126/18
143/17 148/25 151/11
$\begin{array}{lllll}158 / 1 & 158 / 6 & 158 / 7 & 158 / 10\end{array}$
158/15 158/17 158/23
$162 / 10$ 163/4 163/6 163/7
164/15 178/12
matters [5] 140/13 150/15 162/13 177/7 177/9
maximum [2] 89/5 115/21
may [14] 57/5 62/25 63/2 73/2 79/1 91/14 123/2 140/6 144/3 163/7 173/10 183/9 183/10 190/16
maybe [18] 13/13 15/20
32/19 48/5 51/9 52/4 57/16 57/20 57/20 61/14 74/1 93/14 133/9 162/8

| M | mention [2] 49/16 | moments [2] |
| :---: | :---: | :---: |
| maybe... [4] 162/8 | mentioned [12] 7/25 10/ | 20 |
| 170/17 171/23 181/13 | 25/24 57/11 62/20 76/4 | omentum [8] 29/6 29/7 |
| MAZZEO [10] 2/14 2/14 | $86 / 22 ~ 93 / 1 ~ 146 / 12 ~ 174 / 2 ~$ | 81/16 81/17 96/21 96/21 |
| 3/7 57/2 58/10 127/19 | mere [1] 115/6 | money [1] 141/11 |
| 131/4 133/6 171/7 171/16 | $\begin{aligned} & \text { mere [1] } 115 / 6 \\ & \text { merely [1] } 74 / 5 \end{aligned}$ | $\begin{array}{\|ll} \text { money [1] } & 141 / 11 \\ \text { more [52] } & 10 / 9 \\ \hline \end{array}$ |
| me [48] $\begin{array}{llll} \\ \text { ma/b }\end{array}$ | metal [1] 166/11 | $\begin{array}{rlll}\text { l } \\ 14 / 11 & 24 / 12 & 28 / 4 & 56 / 10\end{array}$ |
| $\begin{array}{llllll}29 / 12 & 30 / 10 & 30 / 15 & 32 / 5\end{array}$ | method [9] 30/7 89/10 | $\begin{array}{lllll}\text { 56/13 } & 66 / 20 & 74 / 12 & 88 / 24\end{array}$ |
| $33 / 7$ 33/21 36/3 36/4 | 89/19 95/22 168/8 168/10 | 106/7 108/5 108/6 108/22 |
| 47/23 48/22 49/19 52/16 $54 / 6 \text { 54/17 57/18 60/13 }$ | 169/4 169/7 169/15 | 112/16 117/22 121/13 |
| $\begin{array}{llll}64 / 19 & 71 / 1 & 73 / 16 & 77 / 24\end{array}$ | methodology [18] 23/8 | 122/12 122/20 123/16 |
| $\begin{array}{lllll} \\ 78 / 25 & 79 / 12 & 85 / 7 & 89 / 5\end{array}$ | $\begin{array}{lllll}23 / 10 & 23 / 23 & 115 / 3 & 119 / 8\end{array}$ | 127/1 127/1 128/1 |
| 89/7 96/22 105/9 110/19 | $\begin{array}{lll}122 / 15 & 122 / 18 & 126 / 5\end{array}$ | 129/18 $134 / 18$ 135/18 |
| 112/16 113/18 132/25 | 127/14 127/23 128/24 | 139/5 139/24 140/14 |
| 136/14 $139 / 13139 / 14$ | /2/5 132/2 133/13 | 155/4 155/14 159/6 |
| 140/21 144/2 155/17 | 134/13 135/16 168/19 | 159/20 166/3 166/7 |
| 159/20 166/1 170/25 | [2] 46/4 46/13 | 168/22 170/20 172/18 |
| 173/17 180/18 182/2 | metric [2] 46/4 46/13 | 173/17 181/7 181/15 |
| 182/6 188/10 | Michigan [1] 30/11 | 182/13 182/16 187/8 |
| mean [40] 8/1 18/15 | middle [1] 38/18 | 188/19 188/20 188/21 |
| $\begin{array}{llll}\text { 22/11 } & 30 / 17 & 30 / 17 & 43 / 21\end{array}$ | might [7] $8 / 8$ 19/5 44/14 | 189/10 189/18 193/22 |
| $\begin{array}{lllllll}\text { 44/11 } & 46 / 1 & 55 / 14 & 55 / 15\end{array}$ | 44/15 75/23 85/2 120/13 | 197/3 197/13 |
| 55/17 55/19 57/14 60/5 | mile [6] 31/9 31/10 | morning [4] 47/25 171/6 |
| 75/7 82/4 84/9 92/8 | 84/19 85/4 85/4 136/22 | 197/12 197/24 |
| 106/7 107/7 107/15 110/2 | miles [21] 38/16 76/8 76/9 83/19 84/15 84/16 | most [8] 15/18 $76 / 18 \quad 76 / 24 \quad 129 /$ |
| 111/8 125/20 133/15 | $84 / 17$ 115/14 115/18 | 129/12 175/1 185/6 |
| 137/5 139/17 139/22 | 116/3 118/23 136/25 | motion [85] 21/9 22/7 |
| 140/3 141/14 141/20 | 116/3 118/23 136/25 | motion [85] 21/9 22/7 |
| 144/5 167/1 176/7 176/15 | 142/23 143/16 153/23 | 40/16 40/17 40/17 41/4 |
| 185/15 188/16 194/4 | 153/23 158/23 158/24 | 40/16 40/17 40/17 41/4 |
| 194/7 196/25 | milliseconds [1] 101/6 | 42/5 57/23 57/25 58/2 |
| meaning [2] 10/20 119/3 | mind [9] 8/22 26/21 | 59/15 74/25 80/21 81/23 |
| meaningful [1] 65/2 | 26/22 $35 / 25$ 51/1 71/3 | $\begin{array}{llll}96 / 4 & 97 / 22 & 101 / 13 & 112 / 6\end{array}$ |
| means [4] 47/15 61/18 | 111/1 148/9 197/7 | 120/19 121/2 141/7 142/6 |
| 97/5 113/10 | minimum [2] 81/7 81/22 | 142/20 143/1 143/3 |
|  | minor [2] 6/18 188/25 | 143/14 149/10 149/14 |
| measure [8] 44/22 | minority [1] 46/18 | 149/25 150/19 151/12 |
| $\begin{array}{cc}\text { 63/23 } & 74 / 17 \\ 119 / 25\end{array}$ | minus [1] 162/4 | 151/16 151/25 152/1 |
| 188/4 188/8 | minute [10] 27/20 28/11 | 152/7 154/2 154/12 |
| measured [2] 63/15 | 48/5 48/6 64/3 67/16 | 154/24 155/2 156/10 |
| 119/18 | 112/21 113/24 133/1 | 156/14 157/13 157/21 |
| measurement [4] 5 | 187/20 | 157/23 158/13 158/22 |
| 120/5 128/8 128/8 | minutes [3] 25/24 65/14 | 160/13 160/21 160/23 |
| measurements [13] 27/12 | 113/18 | 161/2 161/15 162/13 |
| 51/17 52/7 53/5 53/6 | Mischaracterizes [1] | 162/15 162/25 163/2 |
| 53/14 55/18 55/21 56/6 | 11/ | 164/9 164/13 165/15 |
| 64/15 121/16 121/17 | mismatch [1] | 166/14 167/10 167/22 |
| 123/4 | missing [2] 57/1 130/24 | 168/11 168/16 168/18 |
| measures [1] 63/14 | misspoke [1] 57/16 | 169/5 169/16 169/16 |
| mechanical [8] 6/17 6/20 | misstating [1] 189/5 | 169/19 170/5 170/8 |
| 7/13 8/3 8/25 12/3 17/18 | model [8] 29/12 37/13 | 172/13 185/23 186/2 |
| 17/23 | 62/23 110/12 116/2 | 186/3 193/1 193/7 194/5 |
| mechanics [4] 6/18 8/4 | 126/23 181/20 181/21 | motions [25] 21/7 21/7 |
| 17/10 96/4 | modeling [4] 59/6 102/5 | 21/21 22/3 22/8 27/7 |
| mechanism [4] 12/12 | 126/1 127/1 | 28/22 29/1 29/14 42/8 |
| 13/5 13/6 | models [1] 36/15 | 59/14 80/17 83/1 83/4 |
| median [3] 73/23 | modest [1] 132/9 | 105/24 126/3 148/24 |
| 187/1 | moment [23] 42/4 97/24 | 149/23 150/7 152/4 152/5 |
| medical [5] 10/25 | 140/6 152/15 153/6 153/8 | 159/16 163/12 163/19 |
| 19/10 22/1 33/25 | 153/10 153/13 154/6 | 163/19 |
| medicine [3] 20/20 | 154/8 154/10 154/15 | motor [4] 17/6 23/14 |
| 21/25 | 154/24 155/8 155/14 | 46/11 99/4 |
| medium [ | 156/4 156/23 157/9 165/4 | motorcycle [1] 196/1 |
| meet [1] 85/25 | 165/5 165/7 165/10 | motorists [1] 129/20 |
| meeting [1] 46/25 | 172/24 | MOTT [1] 2/8 |


| M | Mr. Mazzeo [7] 57/2 | 182/15 |
| :---: | :---: | :---: |
| move [16] 6/22 22/9 | $\begin{array}{lllll}58 / 10 & 127 / 19 & 131 / 4 & 133 / 6\end{array}$ | $\begin{array}{\|lcc} \hline \text { muscle [1] } & 33 / 2 \\ \text { muscles [4] } & 8 / 25 & 9 / 7 \end{array}$ |
| $\begin{array}{llll}22 / 12 & 22 / 12 & 22 / 25 & 36 / 17\end{array}$ | Mr. Roberts [22] 49/10 | $\begin{array}{ll}\text { muscles } \\ \text { 185/13 } & 185 / 17\end{array}$ |
| $\begin{array}{lllll}74 / 12 & 134 / 4 & 141 / 2 & 146 / 7 \\ 149 / 13 & 149 / 16 & 149 / 18\end{array}$ | Mr/20 $71 / 15$ 71/25 111/11 | must [4] 17/8 50/22 |
| 149/13 149/16 149/18 <br> 187/4 187/12 187/18 | 114/21 122/11 123/8 | 122/14 126/23 |
| moved [5] 24/17 24/18 | 125/5 125/21 126/22 | my [40] 5/2 6/20 6/21 |
| 24/19 24/20 39/24 | 27/13 127/15 $129 / 5$ | $\begin{array}{lllll}8 / 22 & 15 / 18 & 15 / 20 & 15 / 24\end{array}$ |
| movement [1] 170/8 | $\begin{array}{llll}129 / 14 & 129 / 23 & 133 / 19 \\ 133 / 25 & 144 / 3 & 144 / 21\end{array}$ | 16/9 17/4 31/15 54/6 |
| $\begin{array}{ccc} \text { moves [3] } \\ 151 / 13 \end{array} \quad 110 / 16 \quad 151 / 13$ | $\begin{array}{ll}133 / 25 ~ 144 / 3 ~ & 144 \\ 176 / 25 & 193 / 8\end{array}$ | $74 / 2$ 76/15 77/5 110/21 |
| moving [6] 25/4 30/14 | Mr . Scher [1] 147/3 | 110/22 116/5 120/10 |
| 41/9 85/9 180/15 191/1 | Mr. Smith [1] 52/9 | 136/12 144/24 146/17 |
|  | Mr. Strassburg [18] 5/3 | 147/10 148/9 158/10 |
| 49/9 57/19 | 5/21 46/22 54/9 67/25 | 162/2 162/3 163/14 |
| Mr. [106] 5/3 5/21 27/18 | /3 127/22 | 174/25 179/15 186/9 |
| 38/22 46/22 49/10 52/9 | $137 / 1$ $178 / 9$ $178 / 9$ 178 | $\begin{array}{llll} 193 / 23 & 197 / 7 & 199 / 8 \\ 199 / 11 & 199 / 17 & 199 / \end{array}$ |
| 52/12 54/9 57/2 58/10 |  | 199/11 199/17 199 |
| 65/20 67/20 67/25 68/11 |  | N |
| $\begin{array}{llll}69 / 5 & 69 / 10 & 69 / 16 & 69 / 19 \\ 70 / 20 & 71 / 15 & 71 / 25 & 72 / 2\end{array}$ | $137 / 4$ | N/S [1] 173/7 |
| 72/9 72/25 76/8 76/11 | Ms. [60] 9/23 22/3 24/7 | name [5] 5/16 5/19 31/3 |
| $\begin{array}{llll}76 / 13 & 76 / 20 & 76 / 23 & 80 / 3\end{array}$ | 25/4 27/17 30/3 30/13 | 89/23 102/4 |
| 82/2 83/21 87/4 94/18 | $\begin{array}{llll}38 / 15 & 39 / 1 & 39 / 4 & 41 / 14\end{array}$ | Named [1] 102/3 |
| 98/8 108/4 108/18 109/1 | 12 69/6 72/9 | names [1] 96/19 |
| 110/14 111/11 114/21 | 14 73/19 76/11 | narrow [2] 86/10 192/13 |
| 115/17 115/18 116/1 | 78/16 79/3 | NASS [4] 31/19 45/19 |
| 116/2 116/7 116/9 116/17 |  | 182/19 |
| 116/20 116/22 117/5 | $\begin{array}{lllll} 108 / 6 & 109 / 2 & 110 / 3 & 112 / 14 \end{array}$ | $\begin{array}{\|c} \text { NASS/CDS } \\ 182 / 19 \end{array}$ |
| 117/17 117/21 122/11 | 115/10 117/9 117/13 | national [5] 18/19 23/21 |
| $\begin{array}{llll}123 / 8 & 124 / 10 & 125 / 5\end{array}$ | $\begin{array}{llll}117 / 18 & 129 / 17 & 136 / 25\end{array}$ | 25/23 31/13 181/23 |
| 125/21 126/22 127/13 | 150/13 151/25 154/21 | nature [9] 16/21 27/13 |
| 127/15 127/19 127/22 | 154/21 175/1 177/7 | 42/14 52/23 81/15 99/3 |
| 129/5 129/14 129/23 | 179/10 179/14 179/20 | 109/10 150/23 167/6 |
| $\begin{array}{lll}131 / 4 & 133 / 6 ~ 133 / 19\end{array}$ | 180/9 180/24 186/24 | necessarily [1] 136/14 |
| $\begin{array}{ll}133 / 25 & 136 / 22 ~ 137 / 1\end{array}$ | 188/20 189/3 190/6 | necessary [16] 90/5 |
|  | 190/13 191/7 191/17 | 118/8 121/8 121/10 |
| 146/21 147/1 147/3 162/7 <br> 171/7 171/16 173/18 | 193/24 | 121/14 122/5 132/7 147/2 |
| $\begin{array}{ll}173 / 18 & 176 / 25\end{array}$ | Ms. Awerbach's [1] 101/3 | 147/6 147/9 147/10 |
| $\begin{array}{ll}178 / 13 & 178 / 15\end{array}$ | Ms. Garcia [21] 9/23 | 151/21 151/23 159/15 |
| $\begin{array}{llll}180 / 18 & 180 / 19 & 180 / 20\end{array}$ | 24/7 25/4 27/17 30/3 | 164/18 172/4 |
| 180/24 181/3 184/21 | 38/15 39/4 52/12 69/6 | need [42] 21/14 40/19 |
| 189/1 189/3 189/7 189/16 | 72/9 77/1 77/13 110/3 | 42/18 42/19 48/16 56/17 |
| 190/3 190/7 190/9 190/11 | 112/14 117/18 129/17 | 62/12 81/7 81/13 81/22 |
| 190/12 193/8 | 136/25 150/13 154/21 | 81/24 83/21 85/24 101/15 |
| Mr. Awerbach [26] 27/18 | 189/3 191/17 | $\begin{array}{llll}113 / 18 & 114 / 7 & 132 / 8\end{array}$ |
| 38/22 52/12 69/5 69/10 | Ms. Garcia's [38] 22/3 | 132/11 144/4 147/21 |
| 69/16 69/19 72/2 72/9 | 30/13 $39 / 141 / 14$ 42/5 | 148/17 $150 / 17150 / 21$ |
| 72/25 76/23 110/14 | 73/12 $73 / 14$ 73/19 76/11 | 150/21 150/25 151/1 |
| 115/18 116/1 116/7 116/9 | 78/16 $79 / 3 \quad 79 / 983 / 18$ | 152/21 153/1 153/20 |
| 116/17 116/20 116/22 | 84/15 86/23 98/9 104/7 | 153/24 155/3 155/4 |
| 117/5 117/17 124/10 | 106/14 108/6 109/2 | 156/19 157/17 174/4 |
| 173/18 190/3 190/9 | 115/10 117/9 117/13 | 174/8 174/9 175/6 181/2 |
| 190/12 | 151/25 154/21 175/1 | 195/3 197/10 197/18 |
| Mr. Awerbach's [24] | 177/7 179/10 179/14 | needed [10] 83/1 147/12 |
| 65/20 76/8 76/11 76/13 | 179/20 180/9 180/24 | 153/18 $156 / 13156 / 14$ |
| 76/20 82/2 83/21 87/4 | 186/24 188/20 190/6 | 157/12 160/14 161/14 |
| 94/18 98/8 108/4 108/18 | 190/13 191/7 193/24 | 165/15 167/22 |
| 109/1 115/17 116/2 | $\text { much [19] } 12 / 1712 / 21$ | needs [3] 21/13 89/6 |
| 136/22 162/7 180/19 | 13/22 13/22 15/2 27/8 | [2] 44/13 44/14 |
| 180/20 180/24 181/3 | $\begin{array}{llll} 32 / 4 & 63 / 25 & 64 / 22 & 67 / 6 \\ 74 / 7 & 74 / 20 & 76 / 12 & 88 / 3 \end{array}$ | negligible [1] 103/11 |
| 189/3 189/7 190/11 | $\begin{array}{llll} \\ 94 / 3 & 138 / 11 & 158 / 15\end{array}$ | negligible [1] 103/11 <br> Neither [1] 72/9 |
| Mr. Garcia [2] 117/21 173/18 | $\begin{array}{\|l} 159 / 20 \\ \text { muddled [1] } \end{array}$ | $\begin{array}{\|ccc\|} \hline \text { Nev [3] } & 127 / 25 & 176 / 17 \\ 195 / 14 \end{array}$ |
| $\text { 189/1 } 189 / 16 \quad 190 / 7$ | multiple [2] 62/25 | NEVADA [9] 1/6 2/4 $2 / 10$ |


| N | 68/25 69/13 69/21 72/3 | notes [7] 76/15 11 |
| :---: | :---: | :---: |
| NEVADA. . [6] 2/16 2/21 | $\begin{array}{llll} 73 / 14 & 73 / 19 & 116 / 11 & 149 / 1 \\ 173 / 15 & 175 / 20 \end{array}$ | $\begin{array}{lll} 136 / 15 & 144 / 24 & 177 / 19 \\ 199 / 9 & 199 / 11 & \end{array}$ |
| 4/1 199/2 $199 / 5$ 199/18 | northbound [4] 38/23 | nothing [6] 5/13 15/23 |
| never [11] $35 / 25$ 50/24 | norther $187 / 191 / 8 \quad 196 / 6$ | $\begin{array}{rlll}\text { nothing } & 105 / 4 & 112 / 19 & 191 / 16\end{array}$ |
| $\begin{array}{llll}51 / 15 & 51 / 18 & 73 / 5 & 86 / 4 \\ 86 / 4 & 111 / 1 & 118 / 16 & 148 / 2\end{array}$ | not [199] 4/24 11/24 | notice [1] 49/6 |
| $\begin{aligned} & 86 / 4 \text { 111/1 118/16 148/2 } \\ & 148 / 6 \end{aligned}$ | $\begin{array}{llll}12 / 19 & 12 / 24 & 15 / 7 & 17 / 4\end{array}$ | notoriously [2] 126/12 |
| new [4] 53/19 53/19 | 18/13 20/15 21/11 21/24 | 126/12 |
| 97/11 147/21 | $\begin{array}{lllll}\text { 22/1 } & 22 / 12 & 24 / 14 & 28 / 13\end{array}$ | now [80] 6/25 7/25 9/9 |
| newer [1] 179/21 | $\begin{array}{lllll}31 / 21 & 34 / 2 & 34 / 12 & 34 / 17\end{array}$ | 10/6 10/14 10/17 11/6 |
| newspapers [2] 47/12 | 35/17 36/12 37/2 39/24 | $\begin{array}{lllll}11 / 16 & 13 / 3 & 14 / 14 & 15 / 15\end{array}$ |
| 113/7 | 41/19 41/24 $43 / 5$ 44/21 | 16/13 17/3 18/1 $18 / 7$ |
| next [6] 126/4 170/21 | 46/1 46/6 47/6 47/9 | 19/16 19/23 22/2 22/14 |
| 171/10 173/12 173/13 | $\begin{array}{llll}47 / 14 & 47 / 20 & 48 / 21 & 49 / 18\end{array}$ | 23/7 26/24 27/4 28/17 |
| 173/14 | 51/10 51/18 51/21 51/21 | 30/22 32/5 35/20 39/21 |
| NHTSA [4] 23/20 25/25 | 53/4 53/20 54/1 54/6 | 40/12 41/2 42/7 42/22 |
| 31/19 52/19 | 54/14 $55 / 17$ 57/12 61/19 | $\begin{array}{lllll}43 / 18 & 44 / 8 & 44 / 17 & 45 / 6\end{array}$ |
| no [121] $1 / 1$ 1/2 $4 / 14$ | 62/23 64/10 67/5 67/18 | 53/7 71/5 71/9 71/17 |
| 8/12 10/21 11/13 15/7 | $\begin{array}{llll}69 / 1 & 69 / 13 & 71 / 4 & 72 / 1\end{array}$ | 74/9 78/22 80/7 82/14 |
| $\begin{array}{lllllll}18 / 13 & 18 / 17 & 23 / 3 & 26 / 18\end{array}$ | $\begin{array}{lllll}72 / 6 & 72 / 8 & 72 / 14 & 72 / 18\end{array}$ | 83/8 84/5 84/9 88/15 |
| $\begin{array}{lllll}\text { 27/22 } & 31 / 21 & 32 / 15 & 33 / 10\end{array}$ | $\begin{array}{llllll} & 75 / 14 & 78 / 3 & 78 / 20\end{array}$ | 90/7 94/2 94/5 96/8 |
| $\begin{array}{lllll}33 / 14 & 33 / 18 & 34 / 16 & 36 / 12\end{array}$ | 4 79/10 80/2 80/23 | 103/2 107/18 107/24 |
| 37/6 39/11 40/3 40/23 | 82/5 83/7 83/11 84 | 111/11 114/24 116/5 |
| $\begin{array}{lllll}43 / 13 & 44 / 10 & 44 / 20 & 45 / 17\end{array}$ | $86 / 13$ 96 | 124/5 124/9 134/21 137/1 |
| $\begin{array}{lllll}47 / 1 & 49 / 15 & 51 / 5 & 51 / 11\end{array}$ | 109/16 109/24 110/9 | $\begin{array}{llll}138 / 8 & 142 / 25 & 144 / 5 & 147 / 8\end{array}$ |
| $\begin{array}{lllll}51 / 12 & 52 / 2 & 54 / 24 & 57 / 5\end{array}$ | $\begin{array}{lll}110 / 24 & 111 / 8 & 112 / 3\end{array}$ | 157/25 161/25 164/15 |
| $\begin{array}{llll}58 / 11 & 58 / 19 & 60 / 15 & 62 / 5\end{array}$ | 112/10 112/12 112/23 | 166/9 169/18 174/1 |
| 63/8 63/17 $65 / 566 / 2$ | $\begin{array}{lllll}113 / 1 & 113 / 4 & 113 / 9 & 113 / 15\end{array}$ | 174/15 180/8 180/18 |
| $\begin{array}{lllll}66 / 17 & 69 / 1 & 72 / 12 & 72 / 18 \\ 73 / 11 & 74 / 3 & 74 / 5 & 75 / 16\end{array}$ | 114/8 114/15 114/17 | 186/23 196/17 197/23 |
| $\begin{array}{llll}73 / 11 & 74 / 3 & 74 / 5 & 75 / 16\end{array}$ | 114/18 115/6 115/22 | nowhere [2] 53/5 121/4 |
| $\begin{array}{lllll}76 / 10 & 82 / 5 & 82 / 21 & 88 / 12 & 90 / 24\end{array}$ | 116/6 116/19 118/11 | number [10] 7/16 23/22 |
| 93/5 93/14 93/25 94/21 | 118/18 118/19 118/22 | 29/9 46/4 81/7 87/19 |
| 95/3 95/8 95/24 97/22 | 119/17 119/18 120/2 | 89/6 115/21 145/12 |
| 98/2 99/8 100/25 106/9 | 122/23 $123 / 1123 / 9124 / 7$ | 188/24 |
| 108/20 110/11 110/24 | 124/13 124/23 125/8 | number 1 [1] 145/12 |
| 110/24 110/24 112/10 | 2 126/15 1 | numbers [2] 109/8 136/25 |
| 116/24 117/10 117/14 | 127/13 129/7 129/12 | NV [1] 1/24 |
| 117/19 118/17 119/23 |  | 0 |
| 120/10 121/20 122/2 | 133/24 134/1 134/1 134/6 | o'clock [2] 48/3 199/7 |
| 122/8 126/18 131/10 | $\begin{array}{llll}134 / 9 & 134 / 22 & 134 / 24\end{array}$ | O'Neil [1] 135/24 |
| 132/6 132/24 136/20 | 135/3 135/12 135/15 | oath [1] 59/1 |
| 148/3 155/7 155/7 157/19 | 135/19 135/19 135/20 | $\begin{array}{lllll}\text { object [5] } & \text { /16 } & 112 / 18\end{array}$ |
| $\begin{array}{lll} 158 / 10 & 164 / 23 & 165 / 19 \\ 165 / 21 & 166 / 9 & 166 / 13 \end{array}$ | $\begin{array}{lllll}136 / 2 & 136 / 5 & 138 / 9 & 141 / 6\end{array}$ | 146/11 147/19 147/20 |
| $\begin{array}{llll} 165 / 21 & 166 / 9 & 166 / 13 \\ 168 / 8 & 168 / 8 & 168 / 8 & 16 \end{array}$ | 141/16 141/21 143/7 | objected [1] 146/17 |
| $\begin{array}{llll} 168 / 8 & 168 / 8 & 168 / 8 & 16 \\ 172 / 2 & 175 / 24 & 179 / 16 \end{array}$ | 143/20 145/7 145/16 | objection [62] 8/12 |
| $\begin{array}{llll}180 / 14 & 183 / 6 & 183 / 10\end{array}$ | 146/9 146/19 147/12 | 11/13 20/11 20/16 22/21 |
| 183/22 186/6 187/21 | 147/23 148/4 148/5 148/7 | 23/3 26/18 $28 / 8$ 31/23 |
| 188/25 191/17 194/7 | 148/18 151/4 151/21 | 32/15 34/14 35/3 35/21 |
| 196/1 196/16 197/19 | 155/1 $157 / 19$ 158/7 | 36/17 37/3 37/6 39/11 |
| No. [6] 38/17 133/4 | 158/11 158/15 159/8 | 40/3 40/23 43/11 43/13 |
| 173/12 173/14 186/25 | 159/15 160/22 162/11 | 49/11 60/12 60/15 62/5 |
| 187/1 | 162/12 164/1 164/3 | 63/7 63/8 63/17 64/5 |
| No. 1 [3] 38/17 186/25 | 166/24 167/4 167/14 | 64/12 65/5 66/2 67/13 |
| 187/1 | 168/6 169/25 170/3 170/6 | 79/22 80/22 85/19 88/12 |
| No. 2 [1] 173/12 | 170/17 171/13 172/2 | 90/4 90/24 93/5 93/25 |
| No. 5 [1] 173/14 | 175/25 176/17 180/14 | 95/3 98/2 99/8 104/17 |
| No. A637772 [1] 133/4 | 181/14 $182 / 14184 / 12$ | 104/24 111/19 112/7 |
| Nobody [1] 142/21 | 185/15 186/16 187/8 | 114/8 148/19 158/3 |
| nobody's [1] 140/14 | 189/14 193/16 194/1 | 160/17 161/22 168/5 |
| none [3] 98/14 147/9 | 195/23 196/19 197/5 | 168/23 169/12 169/21 |
| 147/10 | 195/23 196/19 197/5 | 174/6 177/22 191/15 |
| noon [2] 46/25 48/6 | Notary [1] 199/5 | objections [1] 127/12 |
| Norfolk [1] 135/25 normal [2] 14/1 44/14 north [12] 38/14 68/17 | notation [1] 173/9 <br> noted [2] 173/7 195/21 | objective [8] 11/4 96/15 107/25 109/18 123/21 |


| 0 | 61/15 64/14 66/6 68/11 | 113/15 126/20 126/21 |
| :---: | :---: | :---: |
| objective... [3] 165/13 | 69/2 70/1 70/3 70/7 | 134/12 $134 / 14135 / 6$ |
| 166/7 168/14 | 70/14 70/23 71/7 71/8 | 135/15 135/17 146/16 |
| objects [3] 6/22 85/9 | 21 72/25 73/13 74/3 | opinions [19] 22/25 |
| 85/10 | $\begin{array}{llll}74 / 9 & 75 / 7 & 76 / 13 & 77 / 6 \\ 78 / 22 & 78 / 25 & 94 / 10 \quad 97\end{array}$ | 51/22 51/25 53/7 55/25 |
| observations [2] 107/25 | 99/17 103/22 106/13 | $\begin{array}{llll} 56 / 5 & 58 / 2 & 122 / 14 \\ 135 / 4 & 137 / 7 & 139 / 3 \end{array}$ |
| 12 | 111/1 111/2 114/24 | 139/20 139/21 139/22 |
| observe [1] 127/9 | $\begin{array}{llll}138 / 12 & 144 / 7 & 148 / 7\end{array}$ | 140/5 183/3 196/18 |
| observed [1] $164 / 22$ <br> observers [1] $112 / 5$ | 151/23 154/7 155/12 | opportunity [1] 148/9 |
| obtained [1] 90/22 | 155/17 155/24 156/2 | opposed [1] 163/22 |
| obtaining [1] 195/1 | 156/7 156/22 157/25 | opposite [6] 39/5 39/9 |
| obviously [4] 9/22 66/8 | $\begin{array}{lll} 162 / 19 & 163 / 9 & 163 / 24 \\ 164 / 24 & 166 / 1 & 169 / 4 \\ 170 / 7 \end{array}$ | 77/14 77/22 92/19 110/4 |
| 73/24 95/17 | $\begin{array}{llll} 164 / 24 & 166 / 1 & 169 / 4 & 170 / 7 \\ 172 / 3 & 172 / 18 & 172 / 22 \end{array}$ | [2] 12/8 65/11 |
| occasion [4] 18/1 61/23 | $\begin{array}{llll}174 / 1 & 174 / 15 & 174 / 20\end{array}$ | order [15] 5/2 54/13 |
| 84/6 87/20 | 175/3 175/6 175/10 | 56/23 67/20 68/5 78/19 |
| Occasions [2] occupant [6] 143/2 | 175/20 175/23 176/5 | 95/15 171/10 177/21 |
| occupant [6] 143/2 | 176/13 176/24 177/17 | 188/10 191/6 192/8 |
| $\begin{array}{ll} 157 / 14 & 162 / 25 \\ 185 / 24 & 186 / 3 \end{array}$ | 178/7 179/16 179/19 | 192/12 197/15 197/20 |
| occupants [5] 6/5 2 | 179/19 179/22 180/8 | ordinary [1] 140/12 |
| 97/9 181/24 182/15 | 180/12 181/2 181/15 | organic [1] 7/16 |
| occur [2] 15/12 25/11 | 181/19 182/8 184/23 | organizations [1] 23/16 |
| occurred [10] 38/13 73/6 | 185/1 186/4 186/18 187/3 | orientation [8] 59/10 |
| $\begin{array}{llll} \\ 74 / 17 & 145 / 11 & 146 / 4\end{array}$ | 189/12 189/16 189/22 | 65/25 78/11 82/7 109/25 |
| 173/11 175/13 176/4 | 190/18 194/3 194/9 | 110/1 110/6 194/7 |
| 196/2 196/5 | 194/18 196/21 197/25 | orientations [1] 80/11 |
| occurs [1] 153/17 | 198/2 | oriented [1] 95/17 |
| October [2] 55/7 115/25 | old [4] 6/6 1 | original [2] 163/22 |
| October 10 [1] 55/7 | 141/18 141/2 | 187/1 |
| October 10th [1] 115/25 |  | ls [1] 54/1 |
| odd [2] 34/21 69/13 | oncoming [1] 79/4 | other [53] 10/19 10/19 |
| off [16] 10/24 51/3 | one [59] $8 / 19$ 10/3 16/5 | $\begin{array}{llll}15 / 18 & 15 / 19 & 15 / 22 & 16 / 1\end{array}$ |
| 56/19 66/24 67/3 67/5 |  | $\begin{array}{llllll}15 / 13 & 25 / 15 & 28 / 7 & 30 / 6\end{array}$ |
| $\begin{array}{lllll}72 / 15 & 74 / 2 & 121 / 14 & 133 / 1\end{array}$ | $\begin{array}{lllll}17 / 8 & 23 / 10 & 25 / 24 & 25 / 25\end{array}$ | $\begin{array}{llll} \\ 30 / 16 & 30 / 25 & 47 / 7 & 47 / 17\end{array}$ |
| $\begin{array}{lll}133 / 17 & 140 / 21 & 140 / 24\end{array}$ | $\begin{array}{lllll}28 / 4 & 36 / 18 & 50 / 2 & 50 / 8\end{array}$ | 50/9 52/21 54/22 66/19 |
| $146 / 15$ <br> $179 / 24$ <br> $198 / 4$ | $\begin{array}{lllll}53 / 14 & 56 / 25 & 59 / 10 & 69 / 7\end{array}$ | 74/21 75/5 77/18 77/19 |
| offer [8] 53/7 56/5 | 74/9 74/12 75/11 77/4 | 79/1 79/1 79/6 81/11 |
| $\begin{array}{lll}135 / 3 & 139 / 21 & 139 / 23\end{array}$ | 79/2 $79 / 2 \begin{array}{lllll} & 79 / 7 & 85 / 2 & 87 / 3\end{array}$ | 86/11 90/13 98/20 99/5 |
| 140/4 140/18 177/12 | 97/12 $97 / 19$ 97/23 $99 / 14$ | 100/15 100/20 100/20 |
| offered [3] 18/13 139/20 | 100/14 100/19 103/3 | 111/9 113/2 113/12 |
| 146/17 | 110/20 115/9 125/12 | 121/23 123/7 124/19 |
| offering [2] 139/4 | 125/15 127/18 129/3 | 125/19 127/10 130/15 |
| 147/21 $74 / 21$ | $\begin{array}{lllll}132 / 5 & 132 / 16 & 134 / 14\end{array}$ | 132/5 149/24 152/21 |
| Offers [1] $74 / 21$ | $\begin{array}{lllll}135 / 7 & 144 / 2 & 147 / 3 & 147 / 5\end{array}$ | 155/12 162/24 163/22 |
| Office [1] 199/18 | 160/20 168/22 177/6 | 170/17 184/1 184/21 |
| Officer [7] 128/12 | 179/7 179/15 179/19 | 187/5 188/15 |
| 128/13 145/15 145/17 | 181/4 183/3 187/4 188/14 | others [9] 47/15 47/16 |
| 173/7 173/9 173/21 | 194/15 | 47/16 $63 / 14 \quad 86 / 18$ 113/10 |
| Officer Wick's [2] 128/12 128/13 | one-half [2] 97/19 97/23 | 113/11 113/11 128/11 |
| officers [1] | ones [4] 19/19 59/22 | otherwise [2] 75/24 |
| $\begin{array}{lllll}\text { offset [2] } & \text { 61/16 187/9 }\end{array}$ | 109/12 125/11 | 144/21 |
| often [1] 76/2 | only [32] 44/10 64/12 | ought [2] 32/19 70/18 |
| oh [7] 18/11 110/23 | 67/3 78/21 104/7 104/14 | our [13] 46/5 47/3 47/6 |
| 111/10 119/14 147/8 | 107/11 108/8 123/16 | 48/8 48/24 53/15 57/23 |
| 179/24 195/20 | 126/23 129/22 132/8 | 58/3 97/21 113/1 113/23 |
| oil [2] 75/22 75/25 | 132/12 132/20 137/19 | 128/2 164/15 |
| $\begin{array}{llll}\text { okay [124] } & 6 / 10 & 9 / 25\end{array}$ | $\begin{array}{llll}141 / 7 & 142 / 8 & 142 / 24 & 148 / 3\end{array}$ | out [52] 5/1 6/2 7/12 |
| $\begin{array}{lllll}12 / 1 & 14 / 14 & 16 / 13 & 19 / 23\end{array}$ | 150/13 150/14 150/19 | 7/23 7/24 9/6 18/7 21/1 |
| $\begin{array}{lllll}12 / 7 & 22 / 24 & 27 / 2 & 27 / 4\end{array}$ | 150/20 150/24 151/15 | $\begin{array}{lllll} & 1 / 13 & 24 / 24 & 37 / 21 & 38 / 22\end{array}$ |
| 28/5 28/25 29/14 29/20 | 158/19 158/20 177/7 | 41/6 60/7 64/22 67/20 |
| $\begin{array}{lllll}32 / 3 & 34 / 19 & 35 / 25 & 36 / 6\end{array}$ | 177/9 185/23 187/13 | $\begin{array}{llll}69 / 10 & 71 / 18 & 71 / 23 & 72 / 10\end{array}$ |
| 39/2 40/1 $43 / 16$ 44/17 | 197/24 | 74/16 75/2 83/13 84/10 |
| 45/22 45/22 46/20 48/20 | Op [1] 128/1 | 84/25 85/17 93/16 106/11 |
| 49/4 57/6 57/13 58/6 | operation [1] 124/21 | 106/14 109/15 117/17 |
| 58/12 59/11 60/16 60/23 | opinion [10] 47/20 | 117/21 120/19 120/23 |


| 0 | page 6 [1] 115/24 | 68/14 74/14 80/8 80/24 |
| :---: | :---: | :---: |
| t... [18] 122/16 140/8 | page 653 [1] 135/2 | 80/25 81/8 81/15 81/23 |
| 141/7 142/4 145/2 145/3 | pages [2] 92/2 135/1 | 82/15 82/23 87/14 87/16 |
| $\begin{array}{lll}149 / 21 & 160 / 15 & 164 / 9\end{array}$ | pain [4] 10/25 11/24 | 89/7 89/11 89/18 102/5 |
| 164/16 167/16 173/19 | 21/12 33/5 | 102/6 105/23 111/ |
| $\begin{array}{llllll}179 / 7 & 188 / 4 & 191 / 1 & 192 / 24\end{array}$ | panel [6] 61/4 62/13 | 112/3 115/9 120/15 |
| 197/15 197/20 | 62/14 62/15 71/12 93/16 | 121/23 126/11 130/24 |
| outboard [1] 149/19 | panels [1] 93/11 | 133/25 134/8 141/6 |
| outcome [4] 21/1 21/15 | paper [4] 89/24 189 | 147/24 151/16 153/16 |
| 77/8 125/14 | 190/22 190/23 | 157/13 163/2 163/15 |
| outcomes [1] 126/10 | parallel [1] | 166/15 171/21 171 |
| output [9] 35/11 75/13 | parameter [1] 101/22 | 172/4 172/10 172/20 |
| 124/21 125/21 184/3 | parameters [17] 29/9 | 172/23 174/17 17 |
| 184/4 184/19 184/22 | 52/21 84/25 90/21 91/7 | 176/6 177/13 177/17 |
| 196/24 | 99/21 99/24 125/1 125/18 | 177/18 177/21 178/20 |
| outputs [2] 59/12 80/15 | 125/19 142/25 152/12 | 179/6 179/7 $183 / 18$ 184/1 |
| outside [16] 12/8 15/17 | 160/13 | 184/3 184/5 184/20 |
|  |  | 186/24 193/4 193/18 |
| 56/22 57/8 113/21 113/22 | park [1] 149/20 | 5/10 |
| 114/4 133/4 133/10 | $\text { part [27] } 7 / 1 \text { 7/2 } 10 / 24$ | PC-Crash [72] 26/10 29/5 |
| 137/25 140/25 149/18 | $\begin{array}{llll}\text { Pa/4 } & 24 / 6 & 26 / 8 & 29 / 15\end{array}$ | $\begin{array}{cclll}\text { PC-Crash } \\ \text { 29/12 } & 29 / 15 & 59 / 5 & 59 / 7\end{array}$ |
| outward [1] 186/3 outweighs [1] 127/5 | $\begin{array}{lllll}31 / 1 & 41 / 8 & 46 / 5 & 46 / 6\end{array}$ | 59/12 59/12 67/11 68/1 |
| outweighs [1] 127/5 <br> over [29] 9/19 18/18 | 72/18 72/19 86/2 87/21 | 68/5 68/14 74/14 80/8 |
| $\begin{array}{llll} 18 / 18 & 34 / 21 & 42 / 4 & 46 / 1 \end{array}$ | 101/12 102/5 102/6 | 80/24 80/25 81/8 81/15 |
| $\begin{array}{llll}\text { 59/14 } & 61 / 7 & 66 / 13 & 66 / 15\end{array}$ | 105/25 $120 / 17$ 120/18 | 81/23 82/15 82/23 87/14 |
| 66/20 73/16 78/1 78/1 | 137/23 153/16 174/24 | 87/16 89/7 89/11 89/18 |
| 79/5 81/19 85/4 91/19 | 177/18 183/16 185/18 | 102/6 105/23 111/12 |
| 94/16 94/20 95/9 121/1 | particular [27] 23/8 | 112/3 115/9 120/15 |
| 146/12 $147 / 19$ 148/8 | 30/1 33/24 40/14 72/2 | 121/23 126/11 130/24 |
| 185/25 187/1 187/5 191/7 | 75/11 77/12 77/16 85/18 | 133/25 134/8 141/6 |
| overall [6] 41/22 42/16 | 86/9 88/8 92/18 96/9 | 147/24 151/16 153/16 |
| 149/3 163/20 177/16 | 97/21 98/6 106/24 108/1 | 157/13 163/2 163/15 |
| 183/8 | 109/24 139/6 152/18 | 166/15 171/21 171/25 |
| overestimated [5] 89/4 | 152/20 159/21 162/4 | 172/4 172/10 172/20 |
| 94/22 95/11 120/8 188/8 | 168/15 168/16 169/16 | $\begin{array}{llll}172 / 23 & 174 / 17 & 174 / 21\end{array}$ |
| overestimates [1] 138/14 | 169/16 | 177/13 177/17 177/18 |
| overestimating [2] | particularized [11] | 177/21 178/20 179/6 |
| 120/20 120/21 | 24/13 40/13 67/10 122/20 | 179/7 183/18 184/1 184/3 |
| overhead [1] 120/3 | 123/6 123/17 123/20 | 184/5 184/20 186/24 |
| overruled [5] 20/16 37/3 | 127/5 128/25 134/19 | 193/4 193/18 196/10 |
| 111/22 112/9 193/5 | 168/15 | 196/13 196/24 196/25 |
| overstated [1] 188/7 | particularly [1] 34/15 | PC-Crash's [1] 102/5 |
| own [10] 23/11 44/2 | parties [6] 4/15 58/20 | PE [3] 17/19 18/13 18/24 |
| 47/15 53/15 113/10 117/2 | 137/13 144/17 199/13 | peak [8] 38/15 68/17 |
| $\begin{array}{lllll}118 / 8 & 119 / 7 & 119 / 7 & 131 / 5\end{array}$ | 199/14 | 68/25 72/14 116/1 116/12 |
| P | parts [7] 6/1 22/9 24/2 | peer [16] 37/18 38/4 |
|  | 24/13 29/11 62/11 112/17 | 45/11 86/12 89/17 89/20 |
| P.2d [1] 195/14 | party [2] 47/18 113/13 | 92/22 95/22 $134 / 17$ 137/9 |
| $\text { m [2] } 38 / 14 \quad 198 / 6$ | passenger [19] 38/25 | 167/25 168/5 168/8 |
| package [4] 25/1 25 | 60/20 66/18 91/19 94/17 | 168/10 169/10 169/14 |
| 25/17 26/10 | 94/19 94/21 95/9 95/19 | peer-reviewed [11] 37/18 |
| page [22] $3 / 2$ 49/7 49/13 | 108/7 108/8 108/20 109/1 | 38/4 45/11 86/12 89/17 |
| 49/18 49/22 49/23 50/14 | 149/12 167/4 189/2 189/8 | 89/20 92/22 95/22 168/10 |
| 51/2 52/9 53/9 115/24 | 189/9 189/11 | 169/10 169/14 |
| 135/2 135/2 173/6 173/6 | passenger's [1] 94/17 | Penn [1] 18/21 |
| 175/10 175/11 180/11 | past [3] 49/14 138/19 | Pennsylvania [2] 6/16 |
| 182/4 182/6 185/22 | 176/22 | 7/5 |
| 193/14 | pathologies [1] 182/20 | people [7] 10/5 16/15 |
| page 1 [2] 173/6 175/11 | patrol [1] 128/13 | 19/22 24/6 71/22 116/15 |
|  | pavement [4] 74/20 74/21 | 166/4 |
| page 2 [1] 173/6 | 74/21 196/2 <br> pays [1] 178/16 | $\begin{array}{llll} \text { er }[10] & 23 / 23 & 38 / 17 \\ 85 / 4 & 85 / 5 & 91 / 13 & 136 / 2 \end{array}$ |
| Page 22 [1] 193/14 | $\text { PC }\left[\begin{array}{llll} {[74]} & 26 / 10 & 29 / 5 & 29 / 12 \end{array}\right.$ | $153 / 23 \quad 153 / 23 \quad 176 / 17$ |
| page 42 [1] 52/9 | 29/15 59/5 59/7 59/12 | $195 / 16$ |
| page 5 $[2]$ $49 / 23$ $50 / 14$ <br> page $56[2]$ $49 / 13$ $49 / 18$  | 59/12 67/11 68/1 68/5 | per se [2] 176/17 195/16 |


| P | 195/15 | plural [5] 49/24 50/17 |
| :---: | :---: | :---: |
| [1] 192/25 | physical [24] 7/17 11/21 | /6 51/10 53 |
| [ [1] 20 | $\begin{array}{llll}19 / 18 & 19 / 18 & 22 / 13 & 27 / 23\end{array}$ | plus [2] 10/10 162/4 |
| percent [2] 15/20 181/23 | $\begin{array}{llll}36 / 12 & 41 / 12 & 83 / 3 & 85 / 9\end{array}$ | plus-or-minus [1] 162/ |
| percentage [1] 14/23 | 85/16 96/10 96/15 96/22 | Poindexter [2] 197/15 |
| perception [1] 192/22 | 99/21 99/24 102/21 | 197/20 |
| perception-reaction [1] | 160 | $\begin{array}{lll} t & 38] \\ 23 & 31 / 25 & 46 / 21 \end{array}$ |
|  | 166/5 | 60/23 66/12 68/13 68/1 |
| perform [11] 22/2 25/6 | physically [4] 10/23 | 68/24 69/2 69/8 77/9 |
| $\begin{array}{lllll}36 / 10 & 42 / 17 & 42 / 22 & 65 / 19\end{array}$ | 27/23 126/17 187/11 | 78/6 84/3 84/20 114/12 |
| $\begin{aligned} & 87 / 6 ~ 87 / 21 ~ 106 / 23 ~ 157 / 13 \\ & 172 / 4 \end{aligned}$ | physician [1] 10/19 | 116/14 116/16 117/1 |
| performed [11] | physicians [1] 19/25 | 119/6 119/10 124 |
| 23/25 43/19 77/25 78/4 | physics [29] 7/14 17/10 | 129/24 131/7 133/24 |
| 98/6 119/3 129/25 170/16 | 19/21 19/22 21/21 21/22 | 134/7 136/16 136/21 |
| 171/22 194/25 | 41/16 44/16 52/19 81/16 | 137/11 137/15 138/20 |
| performing [10] 6/11 8/7 | 97/12 107/5 107/7 107/11 | 145/1 145/2 148/17 |
| $\begin{array}{lllll}13 / 18 & 14 / 15 & 23 / 7 & 27 / 4\end{array}$ | 107/20 108/25 109/17 | 180/14 183/11 |
| 42/10 88/17 135/14 | 109/18 111/17 123/1 | pointing [1] 190/21 |
| 194/23 | 137/7 141/8 142/16 | points [7] 77/11 106/12 |
| perhaps [1] 70/1 | 164/11 165/1 165/24 | 123/13 132/17 175/25 |
| period [1] 6/25 | /19 188/12 | 176/5 195/4 |
| permanent [8] 65/17 | pick [1] 84/10 | police [16] |
| 66/22 87/10 87/15 94/4 | picking [2] 25/16 25/17 | 69/3 69/14 69/15 72/14 |
| 94/6 95/8 99/1 | picture [12] 8/18 11/17 | 72/15 114/13 114 |
| permanently [3] 88 | 13/15 63/13 63/14 65/14 | 114/16 114/18 |
| 91/11 93/20 | 65/24 65/25 66/7 79/12 | 136/17 137/15 145/15 |
| Permission [29] 8/11 | 110/17 138/2 | 173/21 |
| 11/12 20/9 26/17 32/14 | pictures [26] 37/1 | pops [1] 93 |
| 34/13 35/19 37/4 39/10 | 51/15 52/4 52/7 52/12 | portion [13] |
| 40/1 40/22 43/10 60/11 | 53/4 53/6 53/19 56/7 | 61/3 63/5 66/21 95/ |
| 62/2 63/6 63/16 64/4 | 62/11 62/19 63/21 64/18 | 120/21 122/19 |
| 65/4 66/1 67/14 88/10 | 64/19 64/21 66/19 75/19 | 158/13 164/10 166/13 |
| 90/3 90/23 93/4 93/24 | /8 98/15 $119 / 22$ 119/24 | 183/7 |
| 95/2 97/1 98/1 99/7 | /1 123/4 138/3 176/12 | position [10] 46/18 <br> 72/13 118/4 118/9 118/18 |
| permit [1] 104/16 | piece [1] 30/9 | 124/12 130/13 13 |
| perpendicular [3] 155/10 | pieces [3] 106/10 136/2 | 174/21 184/9 |
| 155/15 185/10 | 136/7 | positions [15] 30/12 |
| person [8] 13/13 21/13 | pinpoint [1] | 41/6 59/13 80/12 81/1 |
| 21/22 30/8 47/10 93/15 | pitch [1] 184/9 | 92/3 118/24 128/20 |
| 113/5 199/15 | place [13] 36/14 44/24 | 130/18 131/16 131/1 |
| personal [1] 141/13 | 61/16 68/24 79/15 112/ | 135/8 136/8 138/17 147/5 |
| personally [1] 27/22 | 114/12 118/15 177/5 | positive [2] 44/13 44/13 |
| perspective [2] 65/ $139 / 16$ | 193/19 194/4 194/4 194/6 | possession [1] 50/19 |
| PETER [1] | placed [2] 43/14 136/16 | possibility [1] 196/5 |
| PH.D [1] 3/3 | places [4] 52/22 118/11 | possible [6] 83/14 84/24 |
| PhD [1] 6/21 | 134/5 193/17 | 114/17 115/21 116/14 |
| Philadelphia [2] | plaintiff [5] 1/10 2/2 | 193/6 |
| 7/7 | 55/24 124/11 124 | post [1] |
| photogrammetry [14] | plaintiff's [4] 4/23 | postcontact [2] 93/12 |
| 27/24 28/2 28/5 63/21 | 57/20 173/6 175/10 | 93/16 |
| 64/17 87/8 88/22 90/9 | plaintiffs [1] 4/24 | posterior [1] 185/ |
| 123/4 138/15 138/15 | plan [2] 48/8 197/23 | postgraduate [1] 7/18 |
| 174/16 174/17 187/25 | plastic [1] 67/4 | postimpact [8] 98/21 |
| photograph [1] 54/2 | plastically [1] 91/10 | 101/5 103/17 103/ |
| photographed [1] 60/ | play [3] 10/13 71/ | 103/23 105/15 106/25 |
| hotographically [1] | d | 107/2 |
| 37/10 | plead [1] 170/1 | pound [2] 25/16 25/17 |
| photographs [27] 27/10 | please [14] 5/9 5/16 | pounds [5] 14/8 14 |
| 27/24 28/3 37/23 42/13 | 5/17 $8 / 15$ 26/23 $59 / 4$ | 14/10 106/1 106/3 |
| $\begin{array}{lllllll}\text { 50/11 } & 50 / 12 & 50 / 17 & 50 / 18\end{array}$ | 60/4 62/8 65/8 73/1 | pour [1] 29/21 |
| 53/23 55/17 $56 / 1$ 60/8 |  | powerful [1] 24/11 |
| 88/20 94/25 108/3 137/20 | pleasure [1] 197/5 | PowerPoint [4] 49/8 68/12 68/18 185/22 |
| 137/22 137/24 142/2 <br> 145/5 145/5 166/10 | $179 / 6$ | practice [6] 86/17 |
| 176/17 187/21 195/12 | plugging [1] 76/7 | 109/13 109/19 124/14 |


| P | 100/9 100/10 101/12 | 77/6 77/7 77/18 120/18 |
| :---: | :---: | :---: |
| practice... [2] | 103/7 103/15 106/6 106/9 | 120/18 122/5 129/8 |
| 141/22 | 107/18 119/3 123/10 | 131/19 140/12 146/24 |
| practiced [1] 17/23 | 159/4 165/22 165/23 | 156/1 156/18 161/20 |
| preaccident [2] 32/25 | produce [2] 72/19 83/12 | $\begin{array}{lllll}173 / 21 & 184 / 1 & 184 / 8\end{array}$ |
| 34/25 | produced [6] 51/22 54/3 | 184/19 194/20 196/16 |
| prebraking [3] 128/12 | 65/18 112/20 118/16 | 197/6 |
| 128/20 130/13 |  | puts |
| precise [6] 86/5 132/13 | 127/14 135/15 166/5 | Q |
| $174 / 5174 / 10$ 193/22 $195 / 23$ | profession [1] 92/24 | qualification [1] 18/2 |
| 195/23 | professional [2] 17/15 | qualifications [1] 115/2 |
| precontact [1] 93/11 | 23/16 | qualified [1] 18/5 |
| predominant [1] 46/16 | professor [1] 6/25 | quantification [3] 42/8 |
| pregnancy [1] 10/1 | proffered [1] | 42 |
| pregnant [2] 9/17 9/23 | ffering [1] 146/23 | quantifications [2] 67/8 |
| preimpact [7] 97/15 98/7 | profile [4] 65/12 91/25 |  |
| 99/15 103/16 103/20 | profiles [2] 95/15 | quantify [1] 99/2 |
| 104/22 107/4 | profiles [2] 95/15 | quantify [1] 99/ |
| Prepare [1] 64/25 | program [11] 7/18 7/19 | $101 / 9$ |
| prepared [2] 148/1 | 18/21 18/21 18/22 | quantities [20] 92/6 |
|  | 29/5 67/12 75/8 115/9 | 92/11 100/21 101/ |
| 48/13 48/15 56/22 57 | 184/6 | 102/9 102/15 102/21 |
| $\begin{array}{llll} 48 / 13 & 48 / 15 & 56 / 22 & 57 / 8 \\ 58 / 15 & 58 / 20 & 113 / 21 \end{array}$ | promised [1] 19/23 | 103/11 103/16 103/22 |
| 113/23 114/4 | promote [1] 16/3 | 105/16 106/24 107/2 |
| 133/10 141/1 | proof [2] 49/14 166/3 | 107/4 107/14 109/22 |
| present [4] | proper [1] 168/1 | 123/6 123/7 141/4 154/7 |
| 70/12 186/6 | property [1] 123/1 | quantity [8] 43/19 96/10 |
| presentation [1] 26/25 | proportional [1] 125/14 | 100/19 104/23 107/10 |
| press [1] 22/11 | prove [4] 54/10 127/3 | 107/19 125/7 154/1 |
| pressing [1] 93/15 | 134/23 154/8 | quarter [1] 62/15 |
| pretty [2] 27/8 138/11 | Provence [5] 176/16 | quasi [1] 9/5 |
| prevent [2] 12/18 12/23 | $\begin{aligned} & \text { 195/9 195/13 195/21 } \\ & 196 / 14 \end{aligned}$ | quasi-statically [1] 9/5 query [1] 183/16 |
| preventing [1] 17/5 | provide [5] 30/15 51/16 | question [9] $24 / 14 \quad 28 / 15$ |
| preview [2] 22/14 22/19 | 53/15 132/12 181/23 | 54/18 88/25 105/11 133/9 |
| principle [5] 96/23 97/5 | provided [10] 27/9 28/22 | 155/12 191/21 191/23 |
| 97/10 127/8 149/22 | 49/6 51/20 53/4 53/24 | questionable [1] 46/10 |
| principles [14] 8/4 11/8 | 106/4 137/15 185/23 | questioning [2] 137/1 |
| 17/4 83/3 84/12 85/9 | 186/9 | $144 / 25$ |
| 85/16 96/1 97/12 109/18 | provides [2] 25/10 | questions [9] 51/2 51/5 |
| 123/21 143/13 160/8 | provides [2] 25/10 | 67/20 68/2 114/10 137/5 |
| 160/11 | providing [1] 16/22 | 143/22 171/1 172/6 |
| prior [7] 18/3 43/2 | Public [1] 199/5 | quick [2] 22/20 112/24 |
| 43/23 116/2 116/10 130/3 | published [2] 103/6 | quicker [1] 32/20 |
| 196/11 | published $134 / 16$ | $\text { quickly [2] } 29 / 8 \quad 30 / 11$ |
| probabilities [1] 196/4 | pull [4] 67/3 67/4 79/12 | quite [3] 155/1 186/16 |
| probable [4] 82/24 82/25 | 182/2 | 192/10 |
| 107/21 129/10 | pulled [1] 66/24 | quote [2] 128/6 193/11 |
| probably [7] 55/21 58/4 | pulling [2] 9/1 69/10 | quoting [1] 115/24 |
| 140/11 162/7 173/22 | pun [1] 188/25 |  |
| 192/23 193/22 |  | R |
| problem [10] 21/13 47/1 | purpose [5] 12/25 42/15 | radio [2] 47/13 113/8 |
| 47/24 48/1 55/19 71/4 | Pusp/25 151/15 170/19 | Railway [1] 136/1 |
| 120/14 122/22 137/10 | purposes [19] 17/24 | Rainbow [11] 2/9 2/20 |
| blems [1] 33/6 | 82/16 82/23 125/16 | 38/15 38/23 69/21 72/3 |
| problems [1] procedure [1] che | 138/14 139/1 141/10 | 109/4 111/9 111/10 |
| procedure [1] 23/12 | 141/12 142/9 143/17 | 116/10 116/13 |
| ceed [3] 57/5 66/6 | 143/18 146/5 148/18 | rains [1] 76/2 |
|  | 150/18 163/2 166/12 | raise [1] 5/9 |
| $\begin{array}{lc}\text { proceeding [1] } & 142 / 22 \\ \text { proceedings [7] } & 4 / 9\end{array}$ | 166/20 167/20 167/22 | raising [1] 166/4 |
| proceedings [7] 4/9 | pushed [1] 108/5 | ran [1] 67/12 |
| $\begin{array}{llll} 48 / 12 & 56 / 21 & 58 / 14 & 113 / 20 \\ 198 / 5 & 199 / 6 & & \end{array}$ | pushing [1] 93/12 | RANDALL [1] 2/20 |
| process [23] 27/24 | put [30] 30/12 48/16 | random [1] 117/14 |
| 64/17 77/25 78/4 86/2 | 51/14 59/5 62/8 68/17 | range [22] 76/12 76/20 |
| 86/15 89/21 92/21 100/8 | 70/13 75/8 76/4 76/8 | 77/5 84/24 87/18 103/7 |


| R | 170/14 | 130/5 132/2 132/3 133/13 |
| :---: | :---: | :---: |
| range... [16] 104/14 | reconsideration [1] $146 / 6$ | 134/13 135/16 165/13 166/3 167/21 168/3 |
| 108/10 108/23 115/15 | reconstruction [27] 6/2 | relied [16] 51/23 52/1 |
| $\begin{array}{lll}118 / 22 & 119 / 19 & 120 / 5 \\ 153 / 21 & 161 / 18 & 162 / 4\end{array}$ | 16/23 17/8 24/4 24/23 | $\begin{array}{rrrrr}\text { relied } \\ 53 / 7 & 53 / 23 & 55 / 16 & 55 / 20\end{array}$ |
|  | $\begin{array}{llll}16 / 3 & 27 / 5 & 36 / 4 & 37 / 25\end{array}$ | 114/11 136/3 144/10 |
| $\begin{aligned} & 167 / 2 ~ 174 / 9 \quad 188 / 5 \quad 188 / 7 \\ & 192 / 13 \quad 196 / 4 \end{aligned}$ | 46/12 86/3 90/1 95/25 | 145/4 145/7 145/9 145/24 |
| ranges [11] 75/13 83/13 | 100/1 103/13 109/13 | 146/9 147/11 148/4 |
| 84/14 86/8 86/10 100/9 | 111/18 124/15 143/5 | relies [2] 53/3 53/12 |
| 100/21 100/23 100/25 | 160/12 167/25 172/20 | rely [4] 51/21 53/12 |
| 120/1 188/24 | 176/19 177/16 186/23 | 114/11 166/7 |
| rare [1] 86/5 | 5/1 195/17 | relying [1] 131/8 |
| rate [1] 138/25 | reconstructionist [1] | remain [2] 5/9 56/23 |
| rates [2] 15/12 101/14 | reconstructionists [2] | 76/25 190/24 |
| $\begin{aligned} & \text { rather }[4] \quad 122 / 20 \quad 129 / 19 \\ & 134 / 19173 / 24 \end{aligned}$ | 126/9 141/15 | reminded [1] 58/25 |
| ray [2] $11 / 17$ | record [31] 4/14 5/17 | repair [8] 27/10 42/13 |
| react [1] 192/25 | 48/16 48/18 56/19 57/7 | 52/15 60/8 61/25 89/1 |
| reaction [1] 192/22 | /19 72/7 74/3 114/6 | 167/12 176/12 |
| read [7] 47/9 49/19 | $\begin{array}{lll}114 / 20 & 117 / 20 & 121 / 21 \\ 122 / 3 & 128 / 17 & 131 / 11\end{array}$ | repaired [1] 62/12 repetitive [1] $78 / 1$ |
| 78/12 106/14 113/4 | $\begin{array}{ll} 122 / 3 & 128 / 1 \\ 133 / 1 & 133 / 3 \end{array}$ | repetitive [1] 78/1 <br> replaced [2] 62/12 62/14 |
| 144/25 192/18 | 140/21 140/25 144/4 | replacement [2] 19/11 |
| Reading [1] 52/9 | 144/6 144/14 146/5 | $19 / 12$ |
| $\begin{array}{\|ccc\|cc\|} \hline \text { ready [5] } & 56 / 24 & 58 / 9 \\ 58 / 11 & 58 / 12 & 197 / 17 \end{array}$ | 146/15 146/24 147/18 | replied [1] 196/9 |
| $\begin{array}{cccc} 58 / 11 & 58 / 12 & 197 / 17 \\ \text { real }[9] & 18 / 16 & 18 / 17 \end{array}$ | 147/18 194/20 198/4 | report [64] 28/7 28/9 |
| real [9] 18/16 18/17 | records [4] 33/25 38/1 | 47/9 49/24 50/15 52/1 |
| $\begin{array}{lll} 18 / 23 & 22 / 19 & 78 / 10 \\ 79 / 18 & 79 / 20 & 128 / 3 \end{array}$ | 39/16 167/12 | 52/18 54/19 55/2 55/5 |
| realistic [1] 116/12 | recourse [1] 56/ | 55/8 57/11 57/17 64/7 |
| reality [5] 79/10 125/8 | recreate [3] 135/13 | 68/19 68/21 69/4 69/15 |
| 125/22 126/24 143/6 | 194/22 194/24 | 72/14 77/24 104/25 105/2 |
| realize [1] 10/5 | recreational refer [1] 176/16 | 114/16 114/17 114/18 |
| really [15] 41/5 44/8 | reference [2] 75/4 195 | $\begin{array}{llll}114 / 16 & 114 / 17 & 114 / 18 \\ 115 / 13 & 115 / 19 & 115 / 21\end{array}$ |
| 82/17 82/21 93/17 134/22 | referred [1] 49/9 | 115/24 117/1 118/4 $118 / 8$ |
| $\begin{array}{ll}147 / 9 & 147 / 12 \\ 150 / 7 & 147 / 12\end{array}$ | referring [1] 175/11 | $\begin{array}{llll}118 / 18 & 119 / 2 & 119 / 7\end{array}$ |
| $\begin{array}{llll}150 / 7 & 167 / 12 & 167 / 14 \\ 192 / 19 & 193 / 13 & 195 / 5\end{array}$ | refinishing [1] 62/15 | $\begin{array}{llllll}119 / 16 & 131 / 3 & 131 / 5 & 134 / 5\end{array}$ |
|  | reflect [1] 144/14 | 134/8 136/18 137/16 |
| $\begin{array}{llll}\text { rear } & \text { [8] } & 38 / 25 & 38 / 25 \\ 60 / 20 & 62 / 13 & 62 / 16 & 94 / 17\end{array}$ | regard [3] 47/17 113/12 | 145/14 147/11 147/13 |
| 60/20 62/13 62/16 94/17 | 139/16 | 147/14 147/20 158/4 |
| rearward | regarding [8] 39/22 40/7 | 160/18 161/23 162/2 |
| reason [7] 115/23 126/3 | 52/21 128/11 148/16 | 168/6 173/5 173/10 |
| 137/23 144/22 181/2 | 160/8 191/17 195/12 | 175/12 181/22 182/5 |
| 186/11 192/6 | relate [5] 28/19 35/13 | 185/5 185/9 188/3 193/17 |
| reasonable [14] 75/13 | 87/15 104/21 107/9 | reported [14] 1/24 20/15 |
| 81/8 84/14 86/16 86/21 | related [3] 42/2 97/18 | 28/13 37/2 64/10 67/18 |
| 108/1 108/9 108/23 | 107/3 | 68/20 69/14 80/2 112/23 |
| 128/19 130/12 134/15 | relates [4] 91/9 91/13 | 145/14 182/10 182/11 |
| 167/2 192/4 192/7 | 93/18 94/6 | 199/6 |
| reasonably [1] 17/11 | relation [1] 12/3 | REPORTER [1] 199/1 |
| rebuttal [7] 53/15 55/5 | lationship [5] 11/20 | REPORTER'S [1] 1/17 |
| $\begin{aligned} & 57 / 11 ~ 57 / 15 \quad 57 / 17 \quad 196 / 15 \\ & 196 / 18 \end{aligned}$ | rrrrer$14 / 12$ $15 / 9$ $15 / 14$ <br> relationships [2] $132 / 15$  <br> $125 / 11$   | $\begin{aligned} & \text { eports [10] } 49 / 17 \text { 51/19 } \\ & 51 / 2254 / 2255 / 1058 / 1 \end{aligned}$ |
| recall [4] 68/18 73/3 | 125/11 | 58/5 121/5 121/5 177/6 |
| 73/24 74/1 | relative [10] 22/9 59/9 | represent [2] 46/16 |
| receive [1] 80/14 | 81/11 129/3 149/17 | 177/25 |
| received [2] 49/7 57/12 | 149/25 172/7 174/2 | representatives [1] 16/6 |
| recess [3] 56/20 133/2 | 9/12 199/14 | represents [1] 104/5 |
| 140/22 | $\begin{array}{llll}\text { release [1] 12/20 } \\ \text { relevance [5] } 34 / 7 & 82 / 3\end{array}$ | request [2] 114/1 141/3 requesting [2] 144/8 |
| $\begin{aligned} & \text { recitation [2] 144/11 } \\ & 145 / 8 \end{aligned}$ | 140/16 174/17 193/2 | 144/9 |
| recited [1] 145/23 | relevant [5] 8/8 38/11 | require [3] 34/2 109/23 |
| recognized [10] 23/1 | $10 \text { 167/14 195/6 }$ | $18$ |
| 23/4 23/15 37/16 45/8 | reliable [17] 122/15 | $\begin{aligned} & \text { cequired }[5] \quad 91 / 5 \text { [5] } \\ & 109 / 18 \quad 124 / 14 \\ & 164 / 21 \end{aligned}$ |
| $\begin{array}{lll} 115 / 2 & 134 / 15 & 168 / 20 \\ 169 / 7 & 182 / 9 & \end{array}$ | $\begin{array}{ccc}\text { reliable } \\ \text { 122/18 } & 127 / 14 & 127 / 23\end{array}$ | requirement [2] 125/6 |
| reconsider [2] 141/3 | 128/15 128/24 129/18 | 132/6 |


| R | right [327] | 16/20 19/9 |
| :---: | :---: | :---: |
| requirements [4] 99/25 | right-hand [2] 12/5 $41 / 10$ | $\begin{array}{\|crrr} \hline \text { said [36] } & 31 / 16 & 35 / 15 \\ 71 / 18 & 72 / 25 & 73 / 2 & 73 / 2 \end{array}$ |
| 99/25 127/4 196/10 | risk [1] 14/18 | $\begin{array}{lllll}73 / 4 & 73 / 5 & 73 / 9 & 76 / 23\end{array}$ |
| requires [3] 92/3 122/13 | $\begin{array}{llll}\text { road [10] } & 75 / 23 & 76 / 1\end{array}$ | $\begin{array}{llll}79 / 4 & 79 / 9 & 83 / 19 & 83 / 25\end{array}$ |
| $\begin{array}{lllll}\text { 123/16 } \\ \text { esearch [8] } & 16 / 3 & 16 / 19\end{array}$ | 79/6 111/9 142/12 142/22 | 87/17 118/15 130/8 132/8 |
| $\begin{array}{lllll}\text { 47/14 } & 47 / 17 & 89 / 12 & 89 / 16\end{array}$ | 152/16 187/5 187/5 190/7 | 132/11 133/17 136/1 |
| 113/9 113/12 | roadmap [1] 26/24 | 137/14 146/18 146/21 |
| $\begin{array}{llll}\text { resist [6] } & 14 / 1 & 33 / 3\end{array}$ | roadway [8] 27/12 27/12 | 147/3 147/6 147/15 158/2 |
| $\begin{array}{rrrrl}34 / 3 & 34 / 6 & 34 / 20 & 35 / 17\end{array}$ | 74/16 99/2 176/2 176/3 | 177/13 178/4 188/3 194/3 |
| resistance [3] 74/20 | 195/5 195/7 | 196/16 199/8 199/11 |
| $74 / 25 \quad 154 / 11$ | ROBERTS [24] 2/8 3/5 | 199/14 |
| resisted [1] 34/11 | 49/10 67/20 71/15 71/ | same [39] 9/15 9/21 17/4 |
| resistive [2] 34/24 | 111/11 114/21 122/11 | 19/17 19/21 19/21 21/16 |
| 185/16 | 123/8 125/5 125/21 | $\begin{array}{llll}\text { 21/16 } & 23 / 23 & 25 / 3 & 25 / 9\end{array}$ |
| RESNICK [1] 2/19 | 126/22 127/13 127/15 | 30/2 31/7 35/21 42/3 |
| $\begin{array}{llll}\text { respect [13] } & 16 / 24 & 27 / 7\end{array}$ | 129/5 129/14 129/23 | 42/6 49/24 62/23 62/25 |
| 125/4 132/15 133/10 | 133/19 133/25 144/3 | 63/2 87/18 89/6 89/7 |
| $133 / 25 ~ 146 / 3 ~ 172 / 10 ~$ | 76/25 193/8 | 94/2 96/3 97/9 101/2 |
| 172/16 174/17 175/4 | rocker [3] 61/4 62/13 | 101/8 105/18 121/12 |
| 176/5 196/12 |  | 121/15 125/6 129/16 |
| responds [1] 163/25 | RODRIGUEZ-SHAP | 149/22 158/24 163/20 |
| response [2] 57/23 57/24 | RODRIGUEZ-SHAPOVAL | pling [1] |
| rest [25] 39/3 44/19 | ROE [1] 1/13 | sampling [1] $33 / 8$ Santa [29] $27 / 17 \quad 36 / 8$ |
| 44/24 59/13 59/16 78/6 | ROGER [1] 2/19 | $\begin{array}{cccc}\text { 36/20 } & 38 / 16 & 39 / 24 & 41 / 23\end{array}$ |
| 80/11 112/14 118/4 118/9 | roll [1] 184/9 | 50/22 54/20 60/2 60/6 |
| 118/12 118/24 119/6 | rotate [7] 61/22 87/2 | 60/21 61/24 65/11 65/12 |
| 119/10 124/12 124/16 | 159/8 164/18 165/3 165/8 | 67/2 82/8 94/15 95/19 |
| $143 / 7$ 150/5 164/6 167/10 | 166/17 | 121/19 148/3 149/3 149/8 |
|  | rotated [1] 78/17 | 150/11 152/18 162/14 |
| 170/18 192/8 | rotates [2] 184/14 191/1 | 163/11 164/18 165/12 |
| rested [1] 4/24 | rotating [2] 163/9 | 166/17 |
| $79 / 15 \quad 109 / 25 \quad 110 / 6$ | 193/24 | Santa Fe [29] 27/17 36/8 |
| $\begin{array}{llll}111 / 13 & 112 / 3 & 131 / 6\end{array}$ | rotation [27] 41/19 | 36/20 38/16 39/24 41/23 |
| $\begin{array}{llll}131 / 16 & 131 / 17 & 132 / 6\end{array}$ | 61/10 61/17 61/20 80/10 | 50/22 54/20 60/2 60/6 |
| 133/24 134/7 142/19 | 109/3 153/7 153/9 154/3 | 60/21 61/24 65/11 65/12 |
| 158/1 174/21 193/19 | 154/24 155/19 157/9 | 67/2 82/8 94/15 95/19 |
| 194/3 194/4 194/6 | 157/10 158/12 170/23 | 121/19 148/3 149/3 149/8 |
| restraint [2] 19/7 | 172/25 175/1 177/7 | 150/11 152/18 162/14 |
| 181/24 | 177/10 183/10 183/11 | 163/11 164/18 165/12 |
| result [10] 31/15 78/5 | 184/9 184/12 184/15 | 166/17 |
| 81/23 82/15 111/17 | 185/23 192/16 194/5 | satellite [3] 27/11 |
| 111/24 112/3 119/6 | rotational [18] 40/17 | 52/16 173/25 |
| 168/19 179/9 | 41/10 41/14 42/5 97/21 | satisfied [2] 99/24 |
| resulting [1] 154/23 | 97/22 97/24 98/13 101/9 | 130/5 |
| results [14] 28/2 29/13 | 101/10 101/18 154/10 | satisfies [8] 127/4 |
| 29/20 30/5 30/22 64/25 | 154/22 162/20 186/2 | 127/12 130/1 132/18 |
| 67/11 80/8 82/6 83/12 | 186/13 186/15 187/8 | 133/12 133/13 146/10 |
| 103/17 106/1 111/12 | rotations [1] 59/17 | 196/9 |
| 124/24 | RPR [1] 1/24 | satisfy [3] 127/23 |
| reverse [3] 103/19 107/9 | rule [2] 113/25 146/23 <br> ruled [2] 147/19 195/15 | $128 / 23$ $144 / 18$   <br> saw [5] $9 / 22$ $62 / 11$ $121 / 7$ |
| 123/10 | ruling [9] 49/2 49/3 | 192/19 192/24 |
| $\begin{aligned} & \text { reverse-engineer [2] } \\ & \text { 103/19 107/9 } \end{aligned}$ | 114/3 140/19 141/3 141/5 | say [42] 9/13 $12 / 25$ 13/3 |
|  | 141/9 170/14 196/12 | 30/16 39/8 40/13 52/22 |
| $\begin{gathered} \text { reverse- } \\ 123 / 10 \end{gathered}$ | rulings [1] 141/17 | 61/13 63/25 68/23 69/14 |
| review [8] 33/25 38/12 | run [5] 31/9 31/10 52/19 | 72/16 73/8 75/7 75/10 |
| 39/16 61/23 134/17 137/9 | 105/23 105/23 | 75/16 86/4 92/7 129/14 |
| 168/5 168/8 | running [1] 143/20 | 130/7 138/9 139/3 140/14 |
| $\begin{array}{llll}\text { reviewed [13] } & 37 / 18 & 38 / 4\end{array}$ | runs [1] 77/19 | 145/8 146/2 147/8 149/11 |
| 45/11 86/12 89/17 89/20 | S | $\begin{array}{ll}160 / 19 & 161 / 18 \\ 161 / 24\end{array}$ |
| 92/22 95/22 167/25 <br> 168/10 169/10 169/1 | S-c-h-e-r [1] 5/19 | $\begin{array}{lll}181 / 17 & 186 / 11 & 186 / 17\end{array}$ |
| $\begin{aligned} & 168 / 10 \\ & 187 / 22 \end{aligned}$ | S1 [2] 143/12 151/8 | 191/13 191/13 192/10 |
| rewrite [1] 122/12 | safety [9] 13/1 15/25 | 192/12 196/18 |
| ride [1] 149/20 | 16/3 16/6 16/8 16/20 | saying [8] 55/19 56/11 |


| S | secondly [1] 174/4 | sharp [1] 72/2 |
| :---: | :---: | :---: |
| saying... [6] 116/5 | seconds [1] 192/25 | she [32] 9/24 $33 / 5$ 33/5 |
| 119/14 126/25 133/19 | section [7] 49/20 53/1 | 39/4 74/5 74/5 |
| 134/6 162/20 | 54/19 54/21 61/6 138/1 | 77/13 77/19 77/20 77/21 |
| says [38] 20/24 20/25 | 170/4 | 78/20 79/4 79/9 83/ |
| 50/3 50/17 50/21 55/15 | see [61] 9/9 12/6 14/23 | 83/19 110/7 110/12 |
| 55/15 $74 / 5$ 77/25 111/11 | $\begin{array}{llll}18 / 8 & 19 / 24 & 22 / 6 & 25 / 25\end{array}$ | 110/14 112/15 190/21 |
| 115/18 115/19 115/21 | $31 / 20$ 33/8 33/12 33/16 | 191/9 191/11 191/21 |
| 115/23 116/11 117/5 | 33/23 42/21 48/10 50/4 | 192/14 192/14 192/19 |
| 117/17 117/21 118/3 | 60/20 60/21 61/1 61/3 | 192/19 192/22 192/24 |
| 118/8 119/16 119/17 | 61/4 62/19 63/13 65/10 | 192/25 193/1 |
| 120/14 122/19 129/13 | 65/13 66/10 66/21 70/5 | she's [11] 16/12 38/19 |
| 131/4 131/5 131/15 135/3 | 71/6 71/24 71/25 $73 / 17$ | 110/3 110/9 153/23 |
| 135/12 137/16 173/11 | $\begin{array}{llll}75 / 5 & 75 / 12 & 75 / 19 & 77 / 16\end{array}$ | 180/12 180/13 180/14 |
| 173/12 173/13 173/14 | $\begin{array}{lllll}81 / 12 & 85 / 16 & 87 / 4 & 89 / 24 \\ 93 / 10 & 93 / 14 & 94 / 4 & 98 / 14\end{array}$ | 190/20 190/ |
| 173/15 192/19 193/17 | $\text { 108/3 110/18 } 114 / 7$ | $185 / 9 \quad 186 / 8$ |
| scenarios [1] 75/11 | $\begin{array}{llll}119 / 16 & 124 / 9 & 125 / 5\end{array}$ | sheer [2] 118/25 184/23 |
| scene [1] 112/5 | 125/10 137/19 137/24 | sheet [1] 166/11 |
| schedule [1] 197/16 | 142/4 143/6 146/9 148/9 | shin [1] 12/7 |
| $\begin{aligned} & \text { scheduled [2] 197/20 } \\ & 197 / 22 \end{aligned}$ | 154/25 175/14 186/9 | Shoot [1] 102/4 |
| schematic [1] 65/10 | 191/3 193/12 | short [5] 9/1 22/20 |
| SCHER [46] 3/3 5/5 5/6 | seeing [3] 13/10 77/9 | 56/20 133/2 140/22 |
| 5/18 5/25 15/15 20/19 | 78/9 | shorter [1] 128/8 |
| 49/9 50/19 51/21 52/8 | seems [1] 32/20 | shortest [1] 116/14 |
| $\begin{array}{lllllll}54 / 17 & 55 / 25 & 57 / 10 & 59 / 4\end{array}$ | seen [6] 56/12 72/7 | shorthand [2] 199/9 |
| 67/25 70/24 80/6 125/8 | 4/14 116/13 137/20 | 199/11 |
| 126/1 128/23 129/19 | 148/6 | should [13] 18/11 31/ |
| $\begin{array}{llll}129 / 25 & 132 / 14 & 133 / 9\end{array}$ | sees [1] $117 / 18$ <br> self [2] $121 / 3 \quad 121 / 25$ | 55/21 $134 / 13 \quad 134 / 24$ |
| 133/21 133/22 136/16 | self-fulfilling [1] | 138/22 155/9 161/18 |
| 139/17 141/4 144/9 145/2 | 121/25 | 193/22 |
| 145/4 145/9 145/16 |  | shouldn't [1] |
| 145/19 145/23 147/3 | 121/3 | show [56] 8/11 11/12 |
| 148/16 150/2 171/21 | semantics [1] 184/7 | $20 / 7 \quad 20 / 10 \quad 20 / 17 \quad 26 /$ |
| 175/3 177/5 194/24 196/8 | send [1] 178/14 | $\begin{array}{lllll} 32 / 14 & 34 / 13 & 35 / 19 & 37 / 5 \end{array}$ |
| 197/9 | $\begin{array}{lrrr}\text { send [1] } & 178 / 14 & \\ \text { sense [3] } & 21 / 10 & 33 / 18\end{array}$ | $\begin{array}{llll} 39 / 10 & 40 / 1 & 40 / 22 & 41 / 5 \end{array}$ |
| Scher's [3] 49/13 54/2 | $158 / 20$ | $\begin{array}{llll}43 / 10 & 43 / 12 & 54 / 13 & 54 / 14\end{array}$ |
| 125/22 | sensitive [2] 125/14 | 61/1 62/2 63/6 63/16 |
| school [3] 46/16 46/17 | 125/18 | 64/2 64/4 64/25 65/4 |
| 48/1 | sensitivity [3] 75/9 | 65/24 65/24 66/1 70/2 |
| science [2] 18/16 135/18 | 125/3 125/9 | 70/5 70/17 70/21 79/2 |
| scientific [23] 16/7 | separate [3] 43/3 44/2 | 88/10 90/3 90/23 91/15 |
| $\begin{array}{llll}17 / 7 & 37 / 19 & 38 / 4 & 45 / 12\end{array}$ | 140/5 | $\begin{array}{llll} 93 / 4 & 93 / 17 & 93 / 24 & 95 / 2 \end{array}$ |
| 46/7 84/12 87/5 89/20 | separation [1] 44/20 | $97 / 1 \quad 98 / 1 \quad 99 / 7 \quad 112 / 3$ |
| 92/22 109/18 123/10 | sequence [1] 187/15 | 118/20 118/21 131/18 |
| 123/21 128/19 130/12 | series [1] 26/8 | 155/6 167/12 167/15 |
| 130/25 134/18 135/5 | serve [1] 103/24 | 185/9 185/11 186/19 |
| 141/17 141/18 142/16 |  |  |
| 168/21 170/9 | server [1] 54/4 | 187/10 |
| scientifically [4] 41/12 | set [10] 26/12 39/18 <br> 40/9 81/7 81/22 81/24 | showed [6] 62/11 65/1 $\text { 68/12 } 110 / 15 \quad 186 / 21$ |
| 84/22 106/8 169/7 | 105/16 108/23 193/20 | $187 / 2$ |
| $\begin{aligned} & \text { scientists [2] 123/13 } \\ & 125 / 9 \end{aligned}$ | 199/17 | showing [4] 11/16 43/21 |
| scope [7] 28/8 64/7 | setup [1] 87/14 | 95/7 135/4 |
| 104/24 112/19 161/22 | several [3] 129/1 134/23 | shown [4] 70/10 70/11 |
| 178/17 193/3 | 197/22 | 165/14 166/20 |
| screen [5] 35/14 60/24 | severe [2] 45/4 120/11 | shows [6] 111/12 112/3 |
| 61/2 66/10 93/11 | severity [10] 14/6 43/5 | $122 / 6 \text { 136/18 163/ }$ 185/24 |
| screws [1] 67/4 | $\begin{array}{llll} 43 / 8 & 44 / 7 & 45 / 7 & 45 / 21 \end{array}$ | $\begin{array}{cc} \text { 185/24 } \\ \text { shut [1] } & 35 / 7 \end{array}$ |
| scuffs [1] 191/2 | 116/4 120/8 151/20 182/1 | $\begin{array}{llll}\text { side [62] } & 12 / 5 & 38 / 25\end{array}$ |
| se [2] 176/17 195/16 | shackle [1] 141/16 | 41/10 66/13 66/18 66/20 |
| seat [2] 19/7 157/15 | shaded [1] 41/6 | 66/23 79/6 91/20 91/20 |
| $\begin{array}{\|l} \text { seated }[4] \quad 4 / 13 \quad 43 / 6 \\ 56 / 23 \text { 58/18 } \end{array}$ | shall [1] 5/12 | 93/13 94/19 94/20 94/22 |
|  | shape [2] 108/7 108/15 | 94/23 95/9 95/10 95/12 |
| second [3] 72/21 88/11 | SHAPOVAL [1] 2/9 | 95/18 95/19 98/17 98/20 |
|  | share [1] 6/14 | 99/14 100/15 100/15 |


| S | slow [2] 158/14 163/12 | $85 / 6 \text { 85/8 103/15 103/23 }$ |
| :---: | :---: | :---: |
| side... [37] 100/20 | small [9] 12/7 67/4 | 106/13 147/8 161/13 |
| 105/15 106/25 107/3 | 159/7 163/10 163/18 | 162/19 |
| 107/4 107/14 $108 / 5 \quad 108 / 7$ | 186/8 186/10 186/11 | source [1] |
| 108/19 108/20 108/21 |  | so |
| 108/22 109/1 117/24 | SMITH [2] 2/3 52/9 | south [9] 2/4 2/ |
| $\begin{array}{llll}120 / 2 & 123 / 7 & 149 / 11 \\ 149 / 12 & 149 / 13 & 149 / 19\end{array}$ | snow [3] 15/24 16/6 | 2/20 38/16 73/15 73/20 |
| $\begin{array}{llll}149 / 12 & 149 / 13 & 149 / 19 \\ 163 / 23 & 167 / 4 & 182 / 15\end{array}$ | 16/20 | 149/2 186/25 |
| $163 / 23167 / 4 \quad 182 / 15$ $186 / 7 \quad 186 / 7 \quad 187 / 4 \quad 187 / 5$ | snow-sport [3] 15/24 | southbound [1] 180/12 |
| $\begin{aligned} & 186 / 7 \text { 186/7 } 187 / 4 \quad 187 / 5 \\ & 188 / 14 \quad 188 / 15 \quad 189 / 2 \end{aligned}$ | 16/6 16/20 | Southern [1] 135/25 |
| 189/8 189/9 189/11 190/8 | snowboarding [1] 16/ | space [1] 63/25 |
| $190 / 12 ~ 190 / 14 ~ 190 / 25 ~$ | so [331] | sparse [1] 46 |
| sided [2] 181/24 182/25 | Society [1] 16/7 | special [1] |
| sides [3] 99/12 123/11 | software [10] 24/2 | specific [26] 27 |
| 124/22 | 26/10 29/1 29/4 29/5 | 36/16 53/13 55/21 59/7 |
| sideswipe [1] 167/4 | 29/21 30/9 59/6 111/12 | 59/24 67/9 81/12 81/21 |
| sideways [1] 151/13 | 147/25 | 81/22 90/19 90/21 91/7 |
| significance [6] 61/15 | Sol [4] 38/22 69/12 82/5 | 92/7 94/24 100/25 101/22 |
| 172/7 172/9 172/22 174/1 | $3 /$ | 102/15 109/8 111/6 13 |
| 174/21 | solely [2] 142/15 | 155/13 156/16 157/5 |
| significant [1] 185/6 | solemnly [1] 5/11 | 160/9 166/25 |
| similar [6] 26/1 52/25 | solution [1] 86/10 | specifically [7] 21/19 |
| 137/21 138/24 182/21 | solutions [7] 72/19 | 22/9 25/24 73/3 82 |
| 182/22 | 74/10 76/5 84/24 85/ | 92/15 193/24 |
| simplified [1] 91/23 | /3 106/ | specifications [5] 83 |
| simply [2] 43/13 43/21 | ve [4] 101/13 105/24 $30 / 24 \quad 165 / 21$ | 109/7 109/11 172/10 |
| simulation [14] 24/25 |  |  |
| 28/23 80/20 118/5 118/7 | $10 / 19 \quad 11 / 18 \quad 14 / 19 \quad 19 / 3$ | specs [7] 81/25 101/25 |
| 118/9 118/13 118/20 | $21 / 3 \quad 21 / 12 \quad 34 / 21 \quad 57 / 17$ | $\begin{array}{llll} 102 / 1 & 129 / 3 & 145 / 24 \end{array}$ |
| 125/22 126/16 126/17 | $\begin{array}{lllll}60 / 23 & 67 / 20 & 69 / 13 & 71 / 22\end{array}$ | 178/25 195/4 |
| 131/6 184/1 193/19 | $\begin{array}{lllll}741 & 90 / 13 & 95 / 10 & 111 / 9\end{array}$ | speculating [1] |
| since [6] 17/24 117/21 | $\begin{array}{llllll}111 / 14 & 112 / 4 & 114 / 1 & 132 / 8\end{array}$ | speculation [4] 115/7 |
| $129 / 20 ~ 146 / 14 ~ 188 / 3 ~$ $195 / 25$ | 132/9 133/17 144/21 | 119/1 121/3 122/9 |
| 195/25 | 147/21 172/6 173/2 180/5 | speculative [1] 135/6 |
| single [3] 118/11 119/11 | 182/8 183/9 183/10 186/8 | speed [61] 76/8 78/5 |
| 182/14 | 186/18 | 83/9 83/18 83/21 |
| singular [1] 50/21 | some-odd [2] 34/21 69/13 | 86/1 86/9 99/17 10 |
| sir [4] 5/7 79/14 99/19 | somebody [1] 57/1 | 100/7 100/9 104/22 |
| 111/16 $62 / 2463 / 2$ | $\begin{array}{llll}\text { someone [7] } & 21 / 4 & 21 / 4\end{array}$ | 105/16 105/22 107/9 |
| sister [2] 62/24 63/2 | $\begin{array}{lllll} & 25 / 3 & 30 / 2 & 30 / 13 & 43 / 7\end{array}$ | 107/19 107/21 115/10 |
| situation [1] 149/24 | 93/12 | 115/14 115/17 116/2 |
| six [1] 83/2 | someplace [1] 111/13 | $\begin{array}{lllll}116 / 18 & 119 / 5 & 121 / 4 & 121 / 4\end{array}$ |
| size [4] 30/13 145/25 | something [25] 21/6 | 121/10 121/12 121/14 |
| 157/3 170/23 | $\begin{array}{llll} \\ 22 / 11 & 24 / 22 ~ 48 / 1 ~ 56 / 11 ~\end{array}$ | 125/4 125/16 125/18 |
| skeleton [1] 185/14 | 57/12 90/7 95/22 96/12 | 128/12 128/15 129/2 |
| ski [2] 12/19 16/8 | $\begin{array}{llllll}97 / 11 & 106 / 7 & 131 / 2 & 140 / 4\end{array}$ | 129/6 129/10 129/13 |
| skid [4] 75/16 75/19 | 140/18 143/9 151/10 | 129/15 129/15 135/21 |
| 75/21 128/9 | $\begin{array}{llll}151 / 18 & 154 / 14 & 163 / 16\end{array}$ | $137 / 17 \text { 137/23 } 138 / 4$ |
| skiing [2] 16/1 21/4 | $172 / 15$ 172/19 174/15 | 138/16 $140 / 1 \quad 147 / 4$ |
| skills [1] 70/25 | 189/17 189/18 192/19 | 150/18 153/20 153/2 |
| slicker [2] 74/21 75/23 | Sometime [1] 55/4 | $156 / 7 \quad 158 / 14158 / 20$ |
| slide [41] 8/11 8/15 | $\begin{array}{lll}\text { Sometime } \\ \text { somewhere [1] } & 136 / 24\end{array}$ | 178/2 178/20 181/8 |
| 11/12 11/16 $12 / 6$ 13/11 | sorry [27] 4/20 28/4 | 181/11 184/20 188/2 |
| $\begin{array}{lllll}11 / 110 & 20 / 17 & 20 / 20 & 20 / 24\end{array}$ | $\begin{array}{llll}\text { sorry } & 33 / 20 & 50 / 2 & 52 / 24 \\ 62 / 3 / 3\end{array}$ | 195/25 196/25 |
| $\begin{array}{lllll}20 / 25 & 26 / 14 & 32 / 14 & 35 / 19\end{array}$ | $\text { 62/13 } \quad 73 / 16 \quad 94 / 16 \quad 96 / 13$ | speedometer [2] 129/1 |
| $37 / 5$ 39/10 $39 / 14 \quad 39 / 19$ | 112/25 114/22 127/20 | $129 / 22$ |
| $\begin{array}{llll}\text { 40/22 } & 41 / 2 & 41 / 8 & 41 / 11 \\ 43 / 10 & 43 / 18 & 43 / 21 & 54 / 13\end{array}$ | 139/11 148/23 159/2 | speeds [35] 59/9 59/17 |
| $\begin{array}{llll}43 / 10 & 43 / 18 & 43 / 21 & 54 / 13\end{array}$ | 160/5 168/22 169/14 | 76/7 76/10 77/23 81/10 |
| $\begin{array}{lllll}60 / 19 & 68 / 18 & 70 / 8 & 70 / 11\end{array}$ | 173/18 178/3 185/15 | 81/25 83/2 83/10 83/12 |
| $\begin{array}{rrrrr}72 / 2 & 72 / 4 & 73 / 24 & 77 / 17 \\ 88 / 16 & 93 / 2 & 93 / 8 & 93 / 21\end{array}$ | 189/4 189/10 194/1 194/9 | 83/13 84/2 84/14 85/18 |
| 88/16 93/2 93/8 93/21 97/4 98/5 186/20 | 197/8 | 104/14 105/10 106/4 |
| $\begin{aligned} \text { 97/4 } & 98 / 5186 / 20 \\ \text { Slide } & 19\end{aligned}$ | sort [2] 11/23 11/23 | 117/16 118/1 118/3 |
| $\begin{array}{lllll}\text { Slide } & 19 & {[1]} & 97 / 4 & \\ \text { slides [2] } & 110 / 24 & 186 / 19\end{array}$ | sound [3] 99/3 99/5 | 123/19 128/20 129/18 |
| $\begin{array}{llll}\text { slides [2] } & 110 / 24 & 186 / 19 \\ \text { slight [3] } & 72 / 24 & 79 / 11\end{array}$ | 103/10 | 129/19 130/13 130/18 |
| slight [3] 72/24 79/11 | sounds [10] 84/1 84/6 | 131/13 131/20 132/22 |


| S | 136/8 138/17 142/17 | structures [10] 10/22 |
| :---: | :---: | :---: |
| speeds... [6] 134/10 | $197 / 21$ starts [2] | 11/5 12/4 13/8 13/23 <br> 21/11 21/19 31/6 33/1 |
| $\begin{array}{lllll} 135 / 8 & 136 / 9 & 137 / 2 & 137 / 12 \end{array}$ | state [8] 5/16 17/15 | $87 / 10$ |
|  | 141/13 141/16 190/13 | stuck [1] 149/21 |
| spell [1] $5 / 16$ <br> spent $[1]$ $15 / 1$ | 199/2 199/5 199/18 | studied [2] 6/20 89/12 |
| spin [17] 142/7 142/24 | stated [1] 194/21 | studies [13] 11/20 12/16 |
| 149/2 $149 / 8$ 149/9 149/10 | statement [2] 20/12 53/3 | 12/17 13/21 37/19 38/4 |
| 149/20 150/1 150/4 151/3 | statements [2] 166/4 | 46/3 46/8 89/16 92/22 |
| 151/5 151/9 153/20 159/6 | 170/19 | 137/6 169/10 169/14 |
| 160/9 161/5 195/2 | states [1] | study [4] 8/2 11/8 15 |
| spinal [1] 160/15 | tic [1] 70/11 | 18/18 |
| spine [58] 8/23 9/7 9/8 | statically [1] 9/5 | stuff [6] |
| 9/19 9/20 10/1 10/4 | statics [1] 7/14 | 179/4 |
| $\begin{array}{llll}10 / 12 & 24 / 18 & 24 / 20 & 25 / 11\end{array}$ | stics [1] 15 | subject [14] |
| $\begin{array}{lllll}10 / 19 & 28 / 23 & 29 / 25 & 30 / 5\end{array}$ | s [1] 52/22 | $\begin{array}{cccccl}\text { 45/11 } & 47 / 8 & 47 / 21 ~ 60 / 5\end{array}$ |
| $\begin{array}{llllll}30 / 6 & 30 / 15 & 30 / 23 & 30 / 24\end{array}$ | statute [1] 122/14 | $\begin{array}{llll} \\ 63 / 21 & 64 / 18 & 64 / 23 & 113\end{array}$ |
| $\begin{array}{llll}31 / 4 & 31 / 6 & 33 / 1 & 33 / 2 \\ 33 / 12 & 33 / 16 & 33 / 24 & 34 / 2\end{array}$ | stay [3] 61/17 100/16 | $\begin{array}{llll}113 / 16 & 134 / 17 & 137 / 8\end{array}$ |
| $\begin{array}{llll}33 / 12 & 33 / 16 ~ 33 / 24 ~ 34 / 2\end{array}$ | 140/23 | 182/21 |
| $\begin{array}{llll}34 / 5 & 34 / 8 & 34 / 12 & 34 / 12 \\ 34 / 20 & 34 / 23 & 35 / 12 & 35 / 17\end{array}$ | staying [2] 163/22 187/7 | subjected [3] 19/17 |
| $\begin{array}{llll}34 / 20 & 34 / 23 & 35 / 12 & 35 / 17\end{array}$ | steering [13] 77/20 | 41/14 142/23 |
| $\begin{array}{lllll}35 / 18 & 126 / 7 & 126 / 20 & 142 / 5 \\ 142 / 7 & 142 / 14 & 143 / 2 & 150 / 3\end{array}$ | 79/11 110/12 110/12 | subjective [1] 11/1 |
| $\begin{array}{llll}142 / 7 & 142 / 14 & 143 / 2 & 150 / 3\end{array}$ | 112/13 163/10 163/16 | subjects [1] 143/2 |
| 150/14 150/15 151/8 | 163/19 163/24 164/1 | submit [4] 18/1 |
|  | 174/24 187/14 193/1 | 130/22 132/2 |
| 157/23 158/16 182/11 | stent [1] 19/11 | submitted [2] 47/22 |
|  | step [4] 5/8 42/10 126/5 | 113/17 |
|  | 70/21 | subparagraph [1] 122/18 |
| $\begin{array}{llll}\text { 143/15 } & 150 / 19 & 159 / 23\end{array}$ | steps [1] 88/ | substantially [1] |
| spins [3] 142/11 149/18 | stick [1] 80/25 | such [5] 18/9 86/5 99/2 |
| 151/14 | stiffness [7] 91/8 91/12 | 121/21 136/8 |
| spiral [2] 12/10 12/14 | 92/12 92/15 93/1 93/8 | sudden [2] 124/9 124/13 |
| sport [5] 15/24 15/24 | 94/5 | sufficient [2] 138/5 |
| 16/6 16/20 16/20 | [11 |  |
| sports [2] 16/1 17/5 | 14 58/25 133/4 140/11 | suggest [1] 133 suggestions [1] |
| spring [1] 53/19 | 196/24 197/16 | suggests [2] 129 |
| $\begin{array}{lllll}\text { spun [4] } & 39 / 4 & 75 / 17 & 79 / 3\end{array}$ | stipulate [3] 4/15 58/20 | 129/23 |
| 58/19 | 70/4 | Suite [1] 2/10 |
| squared | stop [6] 47/1 70/14 | Summaries [1] |
|  | 71/12 116/23 142/12 | summarize [4] 40/6 82/2 |
| 73/16 118/16 | 143/19 | 84/1 106/13 |
| 136/16 145/3 147/15 | stopped [2] 156/11 | summarizes [1] 26/15 |
| standard [19] 7/13 23/11 | 158/19 [11] 33/7 41/9 | summarizing [1] |
| 23/13 25/1 37/25 45/9 | straight [11] 33/7 41/9 | summary [2] 39/14 85/7 |
| 84/13 85/16 86/17 92/24 | 50/10 69/16 69/20 69/22 | summing [1] 101/10 |
| 95/24 99/25 109/12 | 71/23 77/21 116/13 167/3 | summon [1] 34/24 |
| 109/19 $122 / 12 \quad 133 / 13$ | 190/6 | sunk [1] 141/1 |
| 138/11 141/22 144/18 | STRASSBURG [21] 2/19 3/4 | super [1] 124/10 |
| standardly [1] 123/23 | 3/6 5/3 5/21 46/22 54/9 | super-credible [1] |
| standards [3] 138/23 | 67/25 68/11 70/20 80/3 | 124/10 |
| 139/4 167/24 | $\begin{array}{llll}127 / 22 & 137 / 1 & 144 / 9\end{array}$ | superseded [1] 141/18 |
| standing [2] 5/9 143/19 | 146/21 147/1 178/9 | supplement [1] 58/2 |
| standpoint [1] 183/5 | 178/13 178/15 178/19 | supplemental [1] 133/5 |
| Stanford [1] 18/21 |  | support [1] 87/1 |
| start [15] 36/6 47/24 | $\begin{array}{llr}\text { Strassburg's [1] } & 137 / 4 \\ \text { street [4] } & 2 / 15 & 158 / 14\end{array}$ | supposition [1] 135/18 supreme [3] 122/13 |
| 48/4 83/15 84/16 84/17 | $163 / 23 \quad 190 / 21$ | $\begin{aligned} & \text { upreme [3] 122/1 } \\ & 128 / 17 \begin{array}{l} 134 / 21 \end{array} \end{aligned}$ |
| 85/14 91/10 103/15 | strength [2] 7/14 34/24 | sure [60] 6/15 8/2 8/18 |
| ```106/14 143/7 154/3 189/5 197/12 198/2``` |  | $\begin{array}{lllll} \\ 9 / 14 & 14 / 8 & 19 / 6 & 20 / 23\end{array}$ |
| started [8] $32 / 2$ 50/23 | stringent [1] 122/12 | 24/14 25/9 26/24 27/8 |
| 78/15 83/10 137/1 137/13 | strong [3] 33/8 33/13 | 28/21 30/7 31/3 31/11 |
| 163/6 164/16 | 34/20 | 31/15 32/8 32/24 41/23 |
| starting [13] 17/21 50/8 | strongman [1] 8/19 | 46/1 46/23 59/7 60/5 |
| 66/12 84/3 84/20 128/20 | structure [3] 14/9 14/21 | 64/17 65/10 70/6 71/2 |
| 130/13 130/18 135/7 | 22/13 | 73/7 73/18 $74 / 23$ 78/3 |


| S | 188/11 | 136/19 136/23 137/13 |
| :---: | :---: | :---: |
| sure... [29] 78/24 79/17 | talking [19] 30/8 44/11 | 144/24 147/21 148/22 |
| 79/24 81/2 86/16 88/5 | 50/18 50/22 53/13 56/6 | 166/8 170/13 173/18 |
| 89/2 91/4 92/18 100/13 | $77 / 23$ <br> $110 / 9$ <br> $120 / 14$ <br> $110 / 511 / 25$ | 176/18 191/17 191/25 |
| 105/1 110/19 111/8 | 110/9 120/14 141/25 | 192/19 195/16 195/22 |
| 155/20 156/1 159/16 | 161/3 175/5 175/23 | 196/8 |
| 160/1 166/1 171/2 171/2 | $\begin{array}{\|cccc} \text { 175/25 } & 176 / 1 & 188 / 24 \\ \text { talks [3] } & 115 / 3 & 137 / 16 \end{array}$ | $\begin{array}{\|l} \text { testing [2] 138/23 } \\ 172 / 11 \end{array}$ |
| 183/24 184/16 185/15 | $\begin{gathered} \text { talks } \\ 138 / 6 \end{gathered}$ | tests [4] 52/18 901 |
| 186/17 $187 / 6$ 189/14 | tape [1] 63/14 | 92/13 171/25 |
| 190/15 190/17 194/13 | $\begin{array}{lll}\text { tear [1] } & \text { 179/24 }\end{array}$ | text [3] 47/16 113/11 |
| $\begin{array}{ll}\text { surface [1] } & 142 / 12 \\ \text { surfaces [1] } & 75 / 1\end{array}$ | tearing [1] 10/23 | 182/17 |
| surfaces [1] 75/1 <br> suspension [1] 62/17 | technical [1] 4/21 | than [40] 10/3 10/5 |
| sustain [4] 22/22 31/24 | technique [6] 37/16 | 14/25 15/1 15/2 29/8 |
| 64/11 182/20 | 37/25 45/9 84/13 138/21 | $\begin{array}{llll}34 / 11 & 35 / 16 & 66 / 18 & 66 / 21\end{array}$ |
| Sustained [5] 34/17 35/6 | 138/24 | 68/21 74/21 75/23 76/12 |
| 35/24 85/21 104/19 | television [2] 47/12 | 88/24 106/8 111/14 |
| Suzuki [29] 27/18 36/8 |  | 120/10 121/13 122/5 |
| 36/21 38/24 39/22 40/7 |  | 17 |
| $\begin{array}{lllll}\text { 49/7 } & 49 / 15 & 49 / 16 & 50 / 4\end{array}$ | $\begin{array}{lll}25 / 8 & 68 / 14 & 76 / 16 / 85 / 6 \\ 87 / 23 & 110 / 19 & 139 / 13\end{array}$ | 135/18 139/6 139/24 |
| 50/20 50/25 51/7 51/15 | 139/15 159/20 171/5 | 140/15 143/4 $155 / 4 \quad 159 / 6$ |
| 52/2 54/2 55/6 56/1 56/7 | 174/15 185/19 185/21 | 166/8 172/18 173/24 |
| 65/20 66/7 66/19 67/3 | 186/12 | 179/17 182/16 186/5 |
| 92/8 94/25 95/18 121/18 | telling [2] 115/20 | 196/17 |
| 148/4 148/5 | 193/16 | Thank [24] 4/12 5/20 |
| swear [2] 5/11 45/25 | tells [3] 89/7 104/13 | $\begin{array}{lllll} & 33 / 5 & 32 / 3 & 32 / 3 & 48 / 10\end{array}$ |
| swerve [3] 77/19 192/20 | 108/13 | 58/17 58/24 67/21 122/10 |
| 2 | ten [1] 159/19 | 127/21 140/20 144/1 |
| 124/6 190/21 | tend [1] 10/4 | 160/4 160/24 171/17 |
|  | tended [1] 162/24 | 174/20 176/13 177/1 |
| $190 / 20 \quad 193 / 7$ | term [10] 10/8 10/18 | 181/15 181/21 189/24 |
| sworn [1] 5/10 | 11/10 11/22 13/3 13/17 | 193/9 194/10 |
| system [8] 8/3 8/25 | 22/10 46/12 62/20 69/11 | thanks [4] 96/7 189/23 |
| 19/19 66/23 81/9 103/25 | terms [6] 104/12 105/21 | 197/9 198/4 |
| 125/2 143/1 | 134/8 148/22 148/24 | that [838] |
| systems [5] 6/22 8/5 | 193/23 | that's [249] |
| 13/5 19/7 97/8 | test [5] 37/21 38/6 | their [13] 21/8 33 |
| T | testable [2] 134/16 | 130/18 131/17 135/8 |
| T-bone [1] 106/20 | $\begin{array}{\|ccc\|} \hline 137 / 8 \\ \text { tested [8] } & 75 / 5 & 75 / 7 \end{array}$ | $135 / 23$ $196 / 18$ |
| $\begin{aligned} & \text { table }[4] \quad 49 / 23 \\ & 50 / 15 \\ & 183 / 22 \end{aligned}$ | $\begin{array}{lllll}\text { tested } \\ 97 / 13 & 103 / 5 & 134 / 16 & 137 / 8\end{array}$ | them [24] 17/2 19/12 |
| Table 2 [3] 49/23 | 168/20 170/9 | 25/13 29/21 38/8 40/20 |
| 50/15 | testified [18] 39/4 | 43/14 $48 / 1$ 53/15 $64 / 21$ |
| tables [4] 105/3 121/5 | 39/15 69/9 72/9 83/24 | 65/2 69/7 70/17 72/20 |
| 121/6 182/17 | 124/17 124/23 125/3 | 89/23 102/2 121/7 147/17 |
| take [21] 5/1 22/10 | 125/17 126/8 128/23 | 156/18 156/18 171/5 |
| 24/11 29/20 35/11 47/3 | $\begin{array}{llll}133 / 21 & 133 / 23 & 134 / 3\end{array}$ | 192/9 192/11 195/3 |
| $\begin{array}{llllll}47 / 25 & 48 / 5 & 76 / 15 & 86 / 19\end{array}$ | 136/23 137/18 138/13 | themselves [3] 26/9 |
| 87/2 92/2 112/24 122/3 | 195/23 | 85/17 87/6 |
| 124/25 133/1 171/4 184/6 | testifies [6] 77/22 | then [133] 6/3 6/19 6/24 |
| 197/5 197/15 197/19 | 110/3 110/14 112/15 | 9/2 $14 / 614 / 2115 / 2$ |
| taken [5] 16/9 56/20 | 115/13 191/9 | 24/24 25/12 26/11 27/13 |
| 133/2 136/15 140/22 | testify [16] 57/18 69/7 | 29/17 29/20 29/24 30/4 |
| takes [10] 12/18 13/22 | 112/17 119/11 132/14 | 30/14 31/1 31/6 31/10 |
| 15/20 88/3 91/10 92/15 | $\begin{array}{llll}138 / 10 & 140 / 2 & 140 / 10\end{array}$ | $\begin{array}{llll}31 / 12 & 31 / 18 & 33 / 1 & 34 / 7\end{array}$ |
| 159/22 165/8 166/16 | 140/11 146/14 146/19 | $\begin{array}{lllll}34 / 12 & 34 / 19 & 34 / 22 & 35 / 10\end{array}$ |
| 187/3 | 191/11 191/18 191/21 | $\begin{array}{lllll}35 / 11 & 35 / 17 & 38 / 18 & 39 / 24\end{array}$ |
| taking [1] | 196/3 196/4 | 42/3 43/7 $44 / 1$ 47/5 49/2 |
| talk [16] 32/5 36/19 | testimonies [1] 27/9 | 50/21 51/3 51/16 51/24 |
| 47/7 47/15 49/19 81/4 | testimony [35] 5/12 | 57/8 57/22 59/8 62/16 |
| 113/2 113/10 115/1 121/5 | 52/11 69/5 73/12 77/12 | 62/23 63/20 64/19 69/22 |
| 121/6 140/7 140/17 $142 / 1$ | 82/7 83/10 83/11 83/16 | 70/21 73/4 73/4 77/6 |
| 159/25 187/20 | 84/2 84/14 85/15 100/7 | $\begin{array}{llll}77 / 8 & 78 / 12 & 78 / 17 & 80 / 19\end{array}$ |
| talked [7] 82/17 102/13 | 112/5 114/1 114/13 | 81/15 81/15 84/5 86/23 |
| 105/1 121/4 137/2 166/14 | 131/10 131/25 136/18 | 87/16 87/17 88/4 88/6 |


| T | 190/24 191/15 191/17 | 20/6 22/22 35/15 45/24 |
| :---: | :---: | :---: |
| then... [69] 89/1 89/4 | $\begin{array}{ll}\text { thereafter [1] } & \text { 199/8 } \\ \text { therefore [2] } & 34 / 23\end{array}$ | 46/19 48/8 $48 / 21$ 49/1 |
| 91/12 91/18 92/4 92/13 | herefore [2] 34/23 132/1 | 57/24 65/12 65/23 69/12 |
| $\begin{array}{llll}92 / 17 & 93 / 16 & 94 / 18 & 98 / 13\end{array}$ | Thereupon [1] 198/5 | $\begin{array}{lllll} \\ 70 / 9 & 71 / 10 & 71 / 11 & 71 / 14\end{array}$ |
| $\begin{array}{lllll}98 / 22 & 99 / 2 & 99 / 3 & 100 / 8 \\ 101 / 5 & 101 / 8 & 101 / 9 & 102\end{array}$ | $\begin{array}{llll}\text { these [53] } & 8 / 19 & 9 / 13\end{array}$ | $\begin{array}{llllll}73 / 7 & 76 / 24 & 76 / 24 & 83 / 7\end{array}$ |
| $\begin{array}{lll}101 / 5 & 101 / 8 & 101 / 9 \\ 102 / 18 & 102 / 24 & 103 / 10\end{array}$ | 12/16 $19 / 14121 / 1 \quad 22 / 25$ | 84/9 84/21 86/17 87/25 |
| 103/16 103/19 104/12 | 25/15 $37 / 12$ 41/3 $41 / 19$ | 89/2 90/5 94/14 103/2 |
| 105/9 106/3 106/11 | $\begin{array}{llll}42 / 8 & 43 / 12 & 52 / 4 & 52 / 6\end{array}$ | 104/3 105/12 122/17 |
| 106/23 107/2 110/14 | 66/13 83/3 85/9 85/17 | 130/1 130/4 132/25 |
| 117/4 117/19 120/6 | 85/25 86/13 88/8 96/8 | $\begin{array}{lll}133 / 17 & 133 / 20 & 136 / 20 \\ 136 / 23 & 137 / 21 & 138 / 5\end{array}$ |
| 120/15 120/22 122/3 | $98 / 6 ~ 98 / 15$ $106 / 24 \quad 122 / 1 l^{\prime} 122 / 23$ | $\begin{array}{llll} 136 / 23 & 137 / 21 & 138 / 5 \\ 138 / 7 & 138 / 8 & 138 / 11 & 139 / 5 \end{array}$ |
| $\begin{array}{llll}123 / 20 & 127 / 16 & 129 / 4\end{array}$ | 122/24 123/1 123/11 | 139/19 139/21 139/25 |
| 130/15 131/2 138/21 | $\begin{array}{llll}123 / 21 & 125 / 7 & 126 / 18\end{array}$ | $\begin{array}{lll}140 / 18 & 145 / 22 ~ 146 / 7\end{array}$ |
| 144/20 145/2 145/22 | 126/19 127/2 $129 / 8$ 129/8 | 146/19 151/19 151/20 |
| $\begin{array}{llll}145 / 22 & 146 / 23 & 147 / 24\end{array}$ | 130/22 135/4 138/3 | 152/16 153/21 155/7 |
| $\begin{array}{llll}150 / 14 & 155 / 24 & 156 / 4\end{array}$ | 141/20 146/20 147/6 | 157/19 162/3 163/14 |
| $\begin{array}{llll}156 / 6 & 157 / 22 & 159 / 6 \\ 159 / 20 & 162 / 4 & 166 / 18\end{array}$ | 152/20 160/7 178/8 | 175/11 179/21 186/5 |
| $\begin{array}{llll}159 / 20 & 162 / 4 & 166 / 18 \\ 173 / 12 & 173 / 13 & 176 / 14\end{array}$ | 182/13 182/15 183/9 | 186/6 186/18 193/6 |
| 182/18 183/22 183/25 | 183/21 184/16 | 196/23 197/1 197/6 |
| 184/23 185/21 186/18 | they [86] 4/24 6/22 10/3 | 197/10 |
| 190/4 191/24 192/15 | $\begin{array}{llll}13 / 4 & 13 / 8 & 15 / 12 & 17 / 14\end{array}$ | thinking [3] 48/4 100/12 |
| there [82] 6/18 8/22 | $\begin{array}{lll}19 / 1 & 19 / 2 & 21 / 5 \\ 21 / 5 & 21 / 5\end{array}$ $21 / 14 \text { 21/16 21/17 23/22 }$ |  |
| $\begin{array}{llll}13 / 11 & 13 / 20 & 13 / 21 & 18 / 8\end{array}$ | $23 / 23 \quad 24 / 3 \quad 26 / 1 \quad 26 / 13$ | this [324] |
| $\begin{array}{lllll}18 / 13 & 18 / 17 & 18 / 19 & 19 / 19\end{array}$ | $\begin{array}{llll}29 / 9 & 33 / 13 & 39 / 20 & 42 / 21\end{array}$ | $\begin{array}{lllll}\text { those [55] } & 9 / 4 & 12 / 9 & 13 / 7\end{array}$ |
| $\begin{array}{llll} 21 / 6 & 21 / 12 & 25 / 25 & 26 / 1 \\ 26 / 14 & 26 / 16 & 27 / 9 & 27 / 10 \end{array}$ | $\begin{array}{lllll}44 / 2 & 45 / 20 & 45 / 20 & 46 / 9\end{array}$ | 13/9 16/3 17/20 19/8 |
| 26/14 26/16 27/9 27/10 $34 / 1 \quad 41 / 12 \quad 44 / 10 \quad 49 / 6$ | 46/9 46/10 46/10 51/14 | 19/9 19/12 21/8 22/20 |
| 49/15 50/24 51/5 52/2 | 53/9 53/20 54/11 56/12 | $\begin{array}{lllll}29 / 20 & 30 / 10 & 31 / 7 & 32 / 25\end{array}$ |
| 53/5 53/8 53/10 54/14 | 62/11 69/9 70/25 72/16 | 33/3 34/25 49/24 50/7 |
| 55/4 55/15 55/16 61/2 | 78/10 79/15 80/21 85/17 | 50/10 50/12 85/3 86/10 |
| 61/17 $61 / 25 \quad 62 / 15 \quad 62 / 16$ | 87/18 87/19 88/5 88/5 | 91/7 91/8 92/10 92/15 |
| 63/25 64/23 66/11 70/14 | /3 100/16 | 99/24 100/23 102/9 |
| 71/9 72/24 75/16 75/25 | 07/3 10 | (03/11 103/24 106/12 |
| 80/10 86/8 86/12 86/12 |  | /8 $121 / 22$ 123/6 |
| 88/24 89/16 89/20 90/8 | $\text { 123/13 130/8 } 131 / 24$ | 128/5 136/24 140/5 |
| 90/12 95/10 95/13 97/22 | $\begin{array}{llll}132 / 13 & 135 / 14 & 135 / 17\end{array}$ | $\begin{array}{llll}142 / 13 & 146 / 8 & 149 / 23\end{array}$ |
| 98/14 105/19 108/12 | $\begin{array}{lllll}136 / 1 & 137 / 14 & 139 / 6 & 141 / 8\end{array}$ | $\begin{array}{llll}150 / 21 & 152 / 18 & 164 / 5\end{array}$ |
| 109/6 114/4 119/23 124/6 | 141/8 $141 / 21$ 143/3 $147 / 8$ | 164/5 172/14 183/2 |
| $\begin{array}{lll}124 / 16 & 127 / 7 & 128 / 4\end{array}$ | 148/9 149/20 152/19 | 186/19 188/14 195/2 |
| 134/23 136/20 140/3 | 160/1 162/24 166/18 | though [7] 35/5 75/17 |
| 148/3 155/9 156/13 | $\begin{array}{ll}167 / 15 & 168 / 2 \\ 168 / 3\end{array}$ | 102/5 108/11 110/14 |
| 157/12 157/16 173/2 | 197/14 197/17 | 115/14 122/2 |
| $\begin{aligned} & 179 / 22 \text { 182/7 } 185 / 3186 / 8 \\ & 187 / 21 \end{aligned}$ | they're [11] 40/19 44/21 | thought [4] 46/17 46/17 |
| there'd [1] 98/13 | 56/11 85/10 85/12 86/16 | 192/3 193/12 |
| there's [70] 13/24 18/13 | 92/7 118/22 129/21 | three [5] 9/23 55/9 |
| 30/9 34/17 38/17 43/5 | 138/22 138/23 | 93/11 134/16 135/8 |
| 43/25 44/10 51/11 51/12 | thin [1] 84/11 | through [25] 4/22 8/22 |
| 52/24 61/4 $63 / 13 \quad 66 / 20$ | thing [16] 8/21 42/12 | $\begin{array}{llll}23 / 20 & 41 / 24 & 48 / 4 & 50 / 4 \\ 53 / 16 & 54 / 13 & 59 / 16 & 61 / 19\end{array}$ |
| 68/4 74/3 75/22 77/5 | $70 / 21 \quad 105 / 18 \quad 127 / 18$ | $\begin{array}{llll} 53 / 16 & 54 / 13 & 59 / 16 & 61 / 19 \\ 87 / 25 & 88 / 17 & 89 / 21 & 100 / 8 \end{array}$ |
| 79/18 80/11 80/12 86/3 | 129/16 132/5 160/20 | $\begin{array}{lllll}81 / 25 & 128 / 5 & 143 / 20 & 151 / 2\end{array}$ |
| 88/24 88/24 89/24 89/25 | 177/7 177/9 177/13 | 151/4 153/2 165/21 |
| 90/14 92/14 94/4 94/5 | 177/15 | 166/15 166/17 195/ |
| 97/22 99/2 99/14 102/2 | things [29] 16/2 16/8 | $198 / 3$ |
| $\begin{array}{lll}104 / 14 & 105 / 4 & 108 / 20 \\ 114 / 8 & 115 / 14 & 117 / 10\end{array}$ | 16/20 25/18 $27 / 13$ 42/13 | throw [1] 120/23 |
| 114/8 115/14 117/10 <br> 118/11 121/20 122/2 | 52/23 53/11 53/24 60/23 | THURSDAY [3] 1/22 4/1 |
| $\begin{array}{llll}122 / 8 & 124 / 5 & 124 / 20\end{array}$ | 68/4 73/2 74/10 81/14 | 199/7 |
| $\begin{array}{llll}131 / 10 & 132 / 6 & 139 / 19\end{array}$ | 99/3 109/9 109/9 114/5 | tibia [7] 12/6 12/8 |
| 140/18 149/25 158/15 | 119/4 122/1 130/23 | 12/10 12/14 12/22 13/15 |
| 159/19 163/15 166/9 | 133/16 134/23 137/9 | 13/23 |
| 167/4 173/11 175/24 | 150/22 179/7 18 | $\begin{array}{lllll}\text { till [2] } & 47 / 4 & 48 / 6\end{array}$ |
| 176/20 179/21 180/14 | 183/21 184/21 hink [79] 10/5 | time [44] 6/25 15/18 |
| 182/13 $182 / 14182 / 16$ | $10 / 22 \quad 17 / 9 \quad 17 / 21 \quad 17 / 22$ | $\begin{array}{llll} 15 / 20 & 16 / 9 & 21 / 2 & 28 / 4 \\ 37 / 21 & 38 / 6 & 38 / 21 & 42 / 6 \end{array}$ |
| 186/18 188/19 188/19 | 10/22 17/9 17/21 17/22 | 37/21 38/6 38/21 42/6 |


| T | Tradewinds [4] 134/22 | 131/5 145/19 |
| :---: | :---: | :---: |
| time... [34] 46/14 49/5 | $\begin{array}{cccc} 135 / 3 & 135 / 12 & 194 / 21 \\ \text { traffic } & {[7]} & 79 / 5 & 90 / 1 \end{array}$ | twisting [2] $12 / 14$ 12/20 two [40] 6/1 $12 / 8 \quad 16 / 5$ |
| 50/20 50/23 51/3 51/24 | $\begin{array}{\|cccc} \text { traffic [7] } & 79 / 5 & 90 / 1 \\ 90 / 1 & 106 / 19 & 145 / 14 & 173 / 5 \end{array}$ | two [40] 6/1 $12 / 8 \quad 16 / 5$ $16 / 15 \quad 23 / 25 \quad 24 / 2 \quad 25 / 14$ |
| $\begin{array}{llll}52 / 6 & 55 / 2 & 59 / 14 & 59 / 15 \\ 72 / 3 & 81 / 19 & 86 / 7 & 111 / 15\end{array}$ | $175 / 12$ | $26 / 8 \quad 31 / 4 \quad 37 / 13 \quad 38 / 18$ |
| $72 / 3$ 81/19 86/7 111/15 $124 / 24129 / 12 ~ 129 / 16$ | transcribed [1] 199/8 | $\begin{array}{lllll}38 / 20 & 40 / 16 & 41 / 3 & 42 / 20\end{array}$ |
| $\begin{array}{lll}124 / 24 & 129 / 12 & 129 / 16 \\ 129 / 21 & 130 / 19 & 135 / 9\end{array}$ | transcript [2] 1/17 | 44/20 49/8 $74 / 24$ 92/2 |
| $\begin{array}{llll}129 / 21 & 130 / 19 & 135 / 9 \\ 135 / 21 & 136 / 9 & 141 / 11\end{array}$ | 199/10 | 96/9 98/12 98/14 99/11 |
| 141/15 168/22 176/23 | transcription [1] 199/11 | 106/2 124/22 132/17 |
| 184/15 184/16 189/5 | transfer [1] 61/3 | 134/5 134/15 135/8 |
| 192/22 192/23 192/23 | transferring [1] 180/24 | $\begin{array}{llll}136 / 24 & 146 / 3 & 149 / 23\end{array}$ |
| 196/2 197/11 | anslate [1] 126/6 | 160/13 175/25 176/2 |
| times [9] 35/15 87/3 | Transportation [1] 23/21 | 180/3 182/ |
| 88/1 97/20 97/25 104/3 | vel [2] 82/2 186/25 | 186/19 193/17 two-part [1] $26 / 8$ |
| 129/1 154/13 159/19 | traveled [5] $115 / 25$  <br> $116 / 8$ $116 / 9$ $116 / 15$ | type [6] 9/15 9/21 12/14 |
| TIMOTHY [1] 2/8 | 116/22 | $\begin{array}{lll}\text { 21/3 } & 92 / 4 & 186 / 4\end{array}$ |
| TINDALL [1] 2/20 | traveling [5] 38/16 | types [5] 23/25 40/14 |
| tire [4] 64/1 67/1 67/1 | 116/18 179/20 180/9 | 41/4 53/11 135/4 |
|  | 180/12 | typewriting [1] 199/9 |
| ```lire-track [1] 157/4``` | treading [1] 20/19 | typewritten [1] 199/10 |
| tissue | treat [1] 40/20 | typical [2] 10/1 75/3 |
| to -- to [2] 123/2 | treated [1] 21/15 | typically [3] 74/16 |
| to [2] | treatment [1] 21/2 | 84/18 103/12 |
| today [8] 5/1 32/12 | trial [12] 1/19 47/8 $47 / 1047 / 21 \quad 50 / 24 \quad 53$ | U |
| 49/10 51/14 51/21 115/13 | $113 / 3 \text { 113/5 113/16 }$ | U shape [1] 108 |
| 142/2 176/22 | $\begin{array}{llll}131 / 13 & 131 / 15 & 139 / 9\end{array}$ | U.S [1] 16/5 |
| together [3] 98/9 101/13 | trial-and-error [1] | UC [1] 6/19 |
|  | 131/13 | Uh [5] 102/11 102/14 |
|  | tried [5] 120/1 131/18 | 106/16 107/16 156/25 |
| $178 / 2 \text { 178/7 178/20 }$ | 192/20 193/18 196/22 | Uh-huh [5] 102/11 102/14 |
| $\begin{array}{llll}178 / 23 & 178 / 25 & 183 / 25\end{array}$ | trip [1] 21/5 | 106/16 107/16 156/25 |
| 184/21 | truck [1] 143/18 | ultimately [1] 134/10 |
| tolerance [3] 13/18 | trucks [1] 19/8 | unable [1] 131/ |
| 14/20 14/24 | true [21] 58/4 68/16 | uncommon [1] 111/16 |
| tolerate [2] 14/3 103/25 | 72/12 83/4 85/11 98/18 | uncontested [1] 142/ |
| Tom [2] 159/25 171/4 | 98/19 101/7 107/23 | undamaged [2] 52/24 |
| tomorrow [5] 47/25 171/5 |  |  |
| 197/12 197/15 197/24 | $\begin{array}{llll} 161 / 12 & 162 / 23 & 162 / 25 \\ 163 / 5 & 178 / 5 & 181 / 6 & 183 \end{array}$ | 58/25 85/4 109/19 119/22 |
| too [13] 12/21 45/17 | 187/24 199/10 | $122 / 13 \quad 124 / 14 \quad 126 / 18$ |
| 61/1 62/18 102/7 106/4 | truth [3] 5/13 5/13 5/13 | $\begin{array}{llll}132 / 1 & 133 / 14 & 134 / 11\end{array}$ |
| 109/6 141/20 157/6 $157 / 16159 / 5159 / 7171 / 3$ | try [12] $12 / 18$ 12/22 | 146/17 160/11 163/15 |
| 157/16 159/5 159/7 $171 / 3$ | 16/3 56/15 68/2 71/6 | 163/25 167/24 175/13 |
| $\begin{array}{\|l\|llll} \text { took } & {[6]} & 7 / 15 & 27 / 13 & 53 / 2 \\ 57 / 10 & 64 / 18 & 184 / 1 \end{array}$ | 88/23 106/5 119/4 125/25 | underestimate [1] 115/11 |
| top [5] 65/10 74/2 $76 / 16$ | 146/22 169/2 | underestimating [2] |
| 76/20 187/22 | trying [13] 44/8 78/8 | 120/22 121/1 |
| top-down [1] 65/10 | 84/25 118/20 118/21 | undergoes [1] 150/9 |
| topic [1] 128/16 | 119/8 119/13 120/25 | undergrad [1] 6/15 |
| topics [1] 83/2 | 121/24 135/1 $142 / 4 \quad 142 / 5$ | underneath [4] 137/25 |
| torque [12] 12/17 12/21 | 143/5 | 137/25 145/11 166/11 |
| 12/23 13/22 14/13 14/21 | turn [10] 38/19 38/24 | underscore [1] 163/16 |
| 42/4 61/20 153/7 154/14 | 39/23 71/22 72/11 86/23 | understand [6] 11/9 |
| 154/15 165/10 | 117/9 191/7 192/15 | 11/22 24/14 148/10 |
| $\begin{aligned} & \text { torques [4] } 13 / 7 \text { 13/7 } \\ & 13 / 925 / 11 \end{aligned}$ | $\begin{array}{\|l} \text { 192/23 } \\ \text { turned [12] } 69 / 17 \text { 69/19 } \\ 73 / 173 / 4 \quad 73 / 977 / 13 \end{array}$ | $\begin{aligned} & \text { 170/15 196/21 } \\ & \text { understanding [2] 5/2 } \\ & 17 / 9 \end{aligned}$ |
| torsion [2] 12/13 13/12 | $77 / 20 \quad 78 / 16 \quad 110 / 13$ | understands [3] 76/6 |
|  | 117/22 117/22 192/14 | 120/4 120/4 |
| totally [3] 161/8 161/11 | $\begin{array}{clll}\text { turning [8] } & 67 / 1 & 69 / 23 \\ 71 / 19 & 109 / 4 & 109 / 5 & 117 / 5\end{array}$ | undertake [1] $41 / 17$ <br> undisputed [3] $131 / 25$ |
| touched [1] | 117/17 190/4 | 182/23 182/25 |
| $\begin{aligned} & \text { toward [3] } 73 / 23 \text { 108/22 } \\ & 185 / 25 \end{aligned}$ | $\begin{aligned} & \text { turns [3] 69/20 117/18 } \\ & 190 / 12 \end{aligned}$ | $\begin{aligned} & \text { unfortunately [2] 196/23 } \\ & 197 / 3 \end{aligned}$ |
| towards [1] 149/13 <br> track [1] 157/4 | Tweet [2] $47 / 15$ $113 / 10$ <br> twice [4] $54 / 11$ $116 / 18$ | universal [1] 123/1 <br> universally [1] 98/17 |

universe [1] 143/13 universities [1] 18/18 University [4] 6/15 7/3
7/5 18/22
unknown [2] 138/18 196/1
unless [1] 105/4
unlikely [1] 182/19
unreliable [2] 126/13 131/19
until [6] 47/21 50/23
53/24 69/17 113/16
176/15
unto [1] 89/20

| $u p$ | $[92]$ | $5 / 7$ | $5 / 8$ | $7 / 1$ |
| :--- | :--- | :--- | :--- | :--- | 15/20 16/9 20/13 23/11

25/16 25/17 $26 / 13 \quad 28 / 11$
$34 / 24 \quad 35 / 8 \quad 36 / 23 \quad 42 / 19$
42/20 51/12 51/14 53/10
54/3 61/1 62/10 64/8
64/21 65/25 66/14 67/7
67/16 70/14 71/7 76/13
77/9 78/9 78/10 79/13
79/16 79/19 82/6 83/12
84/19 86/14 88/4 88/22
92/2 92/17 92/20 95/23
96/6 103/8 112/21 114/1
115/20 116/16 117/2
117/7 117/9 117/10
117/23 120/5 121/1 121/7
121/20 121/22 122/2
122/4 122/6 129/9 129/14
129/19 131/1 131/10
131/16 131/24 131/24
134/7 146/18 149/24
159/23 $162 / 8$ 163/4 $164 / 6$
$\begin{array}{lllll}166 / 19 & 167 / 3 & 182 / 2 & 188 / 5\end{array}$
191/4 192/8 192/12
192/17 193/8 194/6
upon [35] 21/7 22/16
51/21 51/24 52/1 53/3
$\begin{array}{lllll}53 / 7 & 53 / 12 & 53 / 12 & 53 / 23\end{array}$
$\begin{array}{llll}58 / 3 & 74 / 24 & 114 / 11 & 114 / 12\end{array}$
115/4 123/19 136/3 141/8
141/9 142/15 142/17
142/18 $142 / 20 \quad 144 / 10$
145/9 146/9 151/8 164/21
168/14 169/10 170/12
170/18 172/13 196/2 196/9
upper [16] 10/10 20/24
$\begin{array}{llll}76 / 17 & 76 / 19 & 88 / 23 & 105 / 7\end{array}$ 120/7 126/15 126/16 126/19 127/1 127/3 162/2 179/18 183/19 183/21 us [41] 6/14 8/1 9/12 $\begin{array}{llll}11 / 7 & 11 / 19 & 16 / 10 & 17 / 1\end{array}$
$\begin{array}{llll}11 / 4 & 20 / 20 & 22 / 19 & 25 / 8\end{array}$
$\begin{array}{llll}32 / 18 & 32 / 21 & 34 / 4 & 37 / 9\end{array}$ 39/14 51/24 53/4 53/9 $\begin{array}{llll}53 / 14 & 53 / 19 & 54 / 10 & 54 / 11\end{array}$ 59/4 67/6 87/23 88/15 88/16 91/2 91/3 96/4 97/4 101/25 107/24 139/15 154/7 154/8 172/24 174/15 177/5 193/16
$\begin{array}{llll}\text { USC } & {[1]} & 6 / 25 & \\ \text { use } & {[67]} & 10 / 18 & 10 / 18\end{array}$
$\begin{array}{llll}13 / 5 & 14 / 2 & 14 / 15 & 14 / 18\end{array}$ 20/20 23/10 23/23 24/25 28/5 29/1 30/10 36/14
$\begin{array}{llll}37 / 24 & 38 / 8 & 42 / 17 & 44 / 12\end{array}$
45/17 46/8 53/8 55/17
59/21 59/21 60/1 60/9
60/18 62/8 63/3 63/11 63/20 77/5 85/25 89/10 90/21 91/21 91/24 94/24 96/2 96/10 96/21 96/24 99/5 101/8 102/24 109/11 111/9 114/2 114/15
115/19 116/6 128/7
137/22 141/6 142/2
145/16 150/3 151/15
167/17 167/18 168/10 187/25 189/17 189/17 189/19 192/7 194/2 used [36] 23/24 26/8 27/23 34/21 46/9 46/13 59/6 60/6 75/2 75/4 77/1 83/9 84/2 103/2 103/7 111/10 115/14 115/15 115/19 119/19 120/15 133/11 136/24 136/25 138/11 138/21 145/17 168/9 170/17 172/19 179/13 183/14 192/3 195/2 195/6 195/6
useful [1] 6/11
user [1] 19/13
uses [10] $46 / 19$ 59/7 59/9 81/15 90/9 91/7 115/22 117/6 129/4 138/15
using [14] 24/23 24/25 25/9 26/10 26/12 28/21 46/14 65/25 98/5 116/21 138/3 145/21 177/17 183/18
usual [1] 143/4
usually [2] 21/1 86/8
utilization [2] 45/6 160/7
utilize [6] $23 / 8 \quad 32 / 10$ 64/15 87/11 109/17 168/18
utilized [14] 9/9 27/6 45/14 59/5 90/16 99/21 103/10 107/21 107/25 $\begin{array}{lllll}109 / 7 & 123 / 23 & 125 / 7 & 169 / 4\end{array}$ 169/15
utilizing [2] 82/23 85/8
V
v's [3] $118 / 17$ 182/10 183/8
vague [2] 51/10 51/11
vagueness [1] 191/25
valid [18] 17/8 46/6 80/23 80/24 81/23 82/15 82/23 82/24 84/11 84/22 97/10 103/4 105/16 105/16 106/8 127/1 168/10 169/7
validate [7] 77/8 78/8
87/12 89/11 119/14
121/24 193/18
validated [13] 37/18
38/3 46/8 84/12 89/14
92/21 95/21 100/23
123/24 $124 / 15$ 126/14
142/16 168/20
validates [3] 87/13
87/24 131/6
validating [6] 45/12
86/13 89/17 121/3 169/10 169/14
validation [1] 102/6
validity [2] 46/3 124/24
value [3] 14/20 14/24 168/19
values [3] 50/16 107/11 167/17
variable [4] 82/18 86/9 130/25 174/23
variables [11] 81/22
85/1 86/15 122/1 122/23
122/24 129/9 131/1 132/9
132/10 133/11
variety [1] 84/25
various [4] 25/11 30/12 92/3 112/13
vary [1] 75/10
vast [1] 46/17
vector [1] 156/7
Vegas [6] $2 / 4 \quad 2 / 10 \quad 2 / 16$ 2/21 4/1 76/2
vehicle [258]
vehicle's [4] 61/21
128/19 143/1 149/15
vehicle-specific [12]
27/14 59/7 81/12 90/21 91/7 94/24 101/22 109/8 155/13 156/16 157/5 160/9
vehicles [153] 6/3 17/6
19/9 24/5 24/24 26/9 27/7 27/11 27/15 27/16 27/21 27/23 27/25 28/3 28/6 28/7 29/1 29/10 $\begin{array}{llll}29 / 15 & 36 / 6 & 36 / 7 & 36 / 11\end{array}$ $\begin{array}{lllll}36 / 13 & 36 / 15 & 36 / 16 & 37 / 10\end{array}$ $\begin{array}{lllll}37 / 13 & 37 / 14 & 37 / 16 & 37 / 24\end{array}$ $\begin{array}{lllll}40 / 14 & 41 / 19 & 42 / 13 & 42 / 19\end{array}$ 42/23 $43 / 3$ 43/13 $43 / 25$ 44/1 44/9 44/20 50/16 50/18 $52 / 13 \quad 52 / 24 \quad 52 / 25$ 53/1 55/16 55/20 59/8 59/9 59/10 59/13 59/16 59/19 59/20 59/21 59/23 59/24 62/24 64/18 67/7 68/14 75/17 77/10 78/6 $\begin{array}{llll}78 / 9 & 78 / 18 & 79 / 15 & 79 / 19\end{array}$ 80/11 80/13 81/11 81/13 81/20 86/25 87/1 87/6 87/16 87/17 88/3 88/8 88/20 88/21 88/21 89/5 89/8 92/19 95/16 96/9 97/17 98/7 98/15 98/23 98/24 99/1 101/15 101/16 101/17 104/4 106/2


| W | 70/12 75/4 77/25 78/4 | wi |
| :---: | :---: | :---: |
| what's... [6] 147/20 | 85/2 99/15 101/16 104/10 | 5/1 $5 / 3$ 5/8 $47 / 18$ 48/24 |
| 149/7 149/7 158/25 | 110/20 113/10 115/4 | $\begin{array}{lllll}66 / 12 & 66 / 14 & 67 / 14 & 78 / 24\end{array}$ |
| 171/10 175/1 | 116/3 116/6 119/5 119/10 | 113/13 113/23 118/5 |
| whatever [4] 21/5 | 119/21 121/6 121/14 | 118/10 118/11 119/11 |
| 147/18 164/17 | 122/1 122/25 123/8 | 124/10 124/23 125/17 |
| whatsoever [1] 129/25 | $\begin{array}{lll}123 / 14 & 123 / 23 & 124 / 2\end{array}$ | 129/11 146/7 146/8 $147 / 2$ |
| wheel [19] 27/14 61/8 | 125/15 128/21 130/14 | 147/6 148/10 155/14 |
| $\begin{array}{llll}\text { 62/16 } & 62 / 17 & 66 / 16 & 77 / 20\end{array}$ | 130/16 130/20 130/21 | 170/18 190/20 194/15 |
| 81/14 94/17 108/8 109/9 | 131/19 132/12 132/16 | 194/15 195/22 196/16 |
| 110/13 143/15 150/22 | 132/18 $132 / 18$ 133/19 | 199/17 |
| 152/16 $157 / 1$ 164/1 179/3 | 135/10 138/5 139/22 | witnesses [9] 4/25 48/ |
| 190/24 191/1 | 145/24 147/11 150/10 | 111/14 124/18 125/23 |
| WHEELER [1] | 152/14 154/1 154/17 | 126/12 158/2 193/21 |
| when [67] 10/17 10/21 | 166/3 173/5 174/9 182/3 | 197/13 |
| 13/3 $13 / 3$ 13/4 $20 / 1 \begin{array}{llll} & 20 / 1\end{array}$ | 182/23 182/25 186/13 | woman [2] 9/14 9/17 |
| 24/9 26/3 27/2 28/18 | /14 191/9 195/5 195/ | wondered [1] 70/25 |
| $28 / 21 ~ 28 / 25 ~ 30 / 16 ~ 30 / 22 ~$ | 197/21 | word [3] 7/25 78/1 123 |
| 43/5 49/7 49/10 50/17 |  | ds |
| 50/21 51/22 53/9 54/10 |  | 194/2 |
| 55/3 55/5 59/16 67/11 | who [18] | $18 / 25$ |
| 68/23 $73 / 6$ 73/9 75/7 | $19 / 11$ 124/6 126/ | $5 / 20 \quad 26 / 5 \quad 26 / 11 \quad 45 / 23$ |
| 76/21 84/5 92/1 103/14 | $\begin{array}{llll}126 / 12 & 133 / 25 & 145 / 17\end{array}$ | $\begin{array}{lllll} \\ 72 / 19 & 86 / 8 & 106 / 11 & 117 / 12\end{array}$ |
| 105/23 107/8 110/5 | 147/1 $147 / 3$ 147/5 178/12 | 117/15 191/6 192/17 |
| $\begin{array}{lllll}113 / 18 & 114 / 9 & 123 / 3\end{array}$ | $178 / 14178 / 16$ | worked [1] 85/17 |
| $\begin{array}{llll}123 / 12 & 124 / 12 & 133 / 17\end{array}$ | who's [3] 5/3 129/12 | ing [1] |
| 137/1 142/10 143/16 | 143/5 | works [1] 125 |
| $\begin{array}{lll}145 / 18 & 146 / 16 & 149 / 10 \\ 149 / 18 & 149 / 21 & 154 / 12\end{array}$ | whole [8] 5/13 70/17 | worth [2] 167/13 167/1 |
| 149/18 149/21 154/12 | 70/18 70/21 92/5 103/25 | would [127] 5/4 6/14 8/1 |
| $\begin{array}{lllll}154 / 14 & 158 / 13 & 158 / 18 \\ 163 / 9 & 163 / 11 & 163 / 24\end{array}$ | 105/11 192/18 | $\begin{array}{lllllll}9 / 13 & 9 / 15 & 9 / 25 & 10 / 2 & 10 / 3\end{array}$ |
| $\begin{array}{llll}163 / 9 & 163 / 11 & 163 / 24 \\ 163 / 24 & 175 / 5 & 175 / 5\end{array}$ | Whoops [1] 117/8 | $\begin{array}{lllllll} & 10 / 4 & 10 / 7 & 10 / 7 & 10 / 8 & 10 / 9\end{array}$ |
| 163/24 175/5 | whose [2] 124/18 125/23 | 10/12 11/7 13/8 13/13 |
|  | why [26] 26/21 40/18 | 14/11 21/25 22/10 23/13 |
| where [57] 6/8 6/16 6/1 | $\begin{array}{llll}43 / 1 & 43 / 8 & 45 / 3 & 48 / 23\end{array}$ | $\begin{array}{llllll}15 / 8 & 26 / 1 & 30 / 13 & 30 / 14\end{array}$ |
| 12/12 20/24 22/14 30/8 | 54/25 64/2 84/21 99/19 | $\begin{array}{llll}30 / 14 & 31 / 20 & 32 / 18 & 34 / 12\end{array}$ |
| 43/14 51/2 57/2 60/7 | 112/12 126/8 131/3 141/4 | 37/9 41/6 41/13 41/14 |
| 61/9 63/14 68/14 71/6 | 148/18 150/17 152/2 | 46/7 48/18 49/20 51/25 |
| 74/17 77/19 78/9 79/4 | 152/25 153/4 157/25 | 53/12 54/10 55/9 57/22 |
| 79/9 79/15 79/19 82/4 | 158/11 162/12 163/7 | 61/12 61/17 62/12 62/14 |
| 91/23 95/8 95/10 | 164/15 173/8 189/17 | 62/15 64/14 65/23 67/2 |
| 108/15 110/25 116/9 | Wick's [2] 128/12 128/13 | 73/7 73/11 73/25 75/6 |
| 119/24 128/5 1 | width [3] 91/18 91/24 | 75/24 75/25 78/5 78/19 |
| 131/24 138/20 149/20 | 157/4 | 78/25 80/6 87/2 87/14 |
| 149/24 151/1 153/11 | WIESE [1] 1/20 | 87/23 91/2 91/2 92/2 |
| 153/16 153/16 156/11 | will [17] 14/10 20/7 | 96/9 96/21 97/23 98/9 |
| 158/2 163/4 163/6 164 | 28/14 38/19 65/1 71/10 | 105/10 111/16 114/5 |
| 164/15 173/6 176/3 176/7 | 79/15 100/19 104/15 | 114/17 116/3 116/17 |
| $\begin{array}{ll}176 / 17 & 177 / 6186 / 19\end{array}$ | 108/25 119/11 121/12 | 119/5 120/11 127/22 |
| 189/18 1 | 153/22 163/13 171/15 | 127/23 130/21 132/1 |
| 197/1 | 172/12 181/13 | 132/21 133/9 133/15 |
| WHEREOF [1] 199/17 | willing [1] 197/16 | 141/2 141/3 141/15 142 |
| Whereupon [3] 56/20 | wind [2] 9/6 149/24 | 147/19 150/7 154/11 |
| 133/2 140/22 | Windshire [1] 135/24 | 155/18 155/24 156/1 |
| herever [1] | wish [1] 163/8 | 156/4 156/6 158/17 |
| whether [28] 9/16 19/1 | withdraw [1] 28/14 | 159/18 159/20 159/25 |
| 21/3 55/17 86/20 88/2 | Withdrawn [1] 191/20 | 160/20 161/7 161/10 |
| 125/10 128/12 133/11 | within [10] 34/15 52/5 | 161/10 163/8 164/21 |
| $\begin{array}{llll}133 / 11 & 133 / 12 & 134 / 12\end{array}$ | 75/13 84/14 86/9 100/21 | 165/16 167/17 177/12 |
| 134/14 135/15 137/6 | 125/1 134/14 161/18 | 181/1 182/20 183/22 |
| 137/7 138/8 138/ | 174/9 | 185/24 186/4 186/17 |
| 139/23 143/19 143/19 | without [12] 14/4 20/19 | 187/3 187/11 187/14 |
| 146/9 148/25 153/1 158/1 | 31/5 33/3 47/12 55/25 | 187/21 188/10 190/8 |
| 167/12 167/21 191/25 | 56/6 56/6 113/7 117/2 | 190/11 191/2 191/13 |
| which [68] 6/4 7/12 | 35/7 183/11 | 1/24 192/12 196/10 |
| $\begin{array}{llll} 27 / 16 & 29 / 21 & 29 / 25 & 47 / 15 \\ 50 / 15 & 53 / 16 & 69 / 18 & 70 / 8 \end{array}$ | $31 / 4 \quad 31 / 7$ | $158 / 10 \text { 158/22 167/17 }$ |


| W | yet [1] 35/24 | 178/3 178/4 178/14 |
| :---: | :---: | :---: |
| wouldn't... [3] 191/13 | you [769] | 179/13 180/3 181/22 |
| 192/10 192/17 | you'd [1] 71/17 | 182/4 184/1 184/5 184/18 |
| Write [2] 156/18 156/20 | you'll [4] 12/6 46/12 | 185/5 185/6 185/9 185/23 |
| wrong [11] 17/22 21/14 | 70/4 77/16 | 186/23 186/23 187/9 |
| 77/24 105/5 131/20 | you're [37] 5/12 14/23 | 187/16 188/3 189/4 |
| 131/21 131/22 137/14 | 32/11 35/17 41/9 42/17 | 189/14 189/19 192/6 |
| 137/16 147/9 159/20 | 47/6 47/20 57/6 58/25 | 192/8 193/16 193/18 |
| wrote [3] 57/12 133/23 | 68/13 72/17 76/6 76/6 | 193/18 194/9 194/10 |
| 177/20 | 76/6 76/7 78/8 100/14 | 197/11 |
| wwhgd.com [1] 2/11 | 103/14 110/5 $110 / 6$ 110/9 | yourself [3] 11/9 18/2 |
|  | 113/1 113/15 114/2 130/4 | 18/10 |
| X | 130/6 138/1 141/24 | Z |
| X ray [2] 11/17 12/6 | 151/15 157/20 162/20 164/8 170/17 180/20 | zero [6] 44/18 44/21 |
| Xxx [1] 1/21 | $182 / 2 \text { 193/16 }$ | $\left\lvert\, \begin{array}{cccc} \text { zero } & {[6]} & 44 / 18 & 44 / 21 \\ 50 / 2 & 50 / 8 & 91 / 19 & 183 / 12 \end{array}\right.$ |
| $Y$ | you've [17] 9/9 71/22 | zero inches [1] 50/2 |
| Y-e-z-h-i-a-z-a-r-i-a-n | 72/7 72/22 73/22 79/2 |  |
| y-e-z-h-i-a-z-a-r-i-a-n [1] 127/25 | $\begin{array}{ll}116 / 13 & 120 / 17 \\ 147 / 18\end{array}$ |  |
| yaw [1] 184/9 | 149/19 155/9 183/17 |  |
| yeah [27] 11/23 31/11 | 187/8 187/17 188/12 |  |
| 45/18 $46 / 23$ 56/3 70/4 | 189/12 191/6 |  |
| $\begin{array}{llll}71 / 14 & 72 / 1 & 78 / 24 & 81 / 24\end{array}$ | your [190] 4/17 4/18 |  |
| 100/13 100/14 110/21 | $\begin{array}{lllll}4 / 19 & 5 / 3 & 5 / 9 & 5 / 16 & 7 / 4\end{array}$ |  |
| 110/23 112/24 142/1 | 7/9 7/18 7/21 8/12 11/13 |  |
| 152/11 $156 / 1158 / 9163 / 8$ | $16 / 13$ $17 / 17$ <br> $17 / 24$ $22 / 16$ |  |
| 178/4 179/25 182/13 | $\begin{array}{llll}23 / 3 & 23 / 7 & 23 / 11 & 24 / 10\end{array}$ |  |
| 187/11 195/12 197/19 | $\begin{array}{ll}24 / 14 & 25 / 20 \\ 26 / 3 & 26 / 4\end{array}$ |  |
| 197/23 | $\begin{array}{lllll}26 / 24 & 28 / 2 & 28 / 17 & 30 / 23\end{array}$ |  |
| year [4] 23/23 37/13 | $\begin{array}{llll}30 / 24 & 32 / 22 & 32 / 22 & 34 / 14\end{array}$ |  |
| 62/23 141/24 | $\text { 36/3 35/21 35/12 } 0 .$ |  |
| years [4] 17/3 34/22 |  |  |
| 62/25 141/18 |  |  |
| Yeghiazarian [9] 127/25 |  |  |
| 130/6 130/9 132/6 132/7 |  |  |
| 132/19 132/21 133/12 | $\begin{array}{llll} 54 / 21 & 54 / 24 & 55 / 7 & 55 / 11 \\ 55 / 25 & 56 / 18 & 58 / 72 & 58 / 2 \end{array}$ |  |
| 136/11 |  |  |
| yellow [1] 34/15 | 60/13 60/15 63/4 64/6 |  |
| yes [95] $4 / 17$ 4/18 $4 / 19$ | $\begin{array}{llll}64 / 15 & 65 / 1 & 65 / 5 & 67 / 14 \\ 67 / 21 & 68 / 1 & 68 / 8 & 68 / 9\end{array}$ |  |
| 6/13 7/6 8/10 11/11 | 67/21 68/1 68/8 68/9 |  |
| 16/25 20/3 22/18 23/18 | $\begin{array}{llll}75 / 8 & 76 / 21 & 77 / 24 & 78 / 8 \\ 78 / 9 & 79 / 14 & 79 / 22 & 80 / 22\end{array}$ |  |
| 24/2 25/7 32/13 37/12 | $\begin{array}{llll}78 / 9 & 79 / 14 & 79 / 22 & 80 / 22\end{array}$ |  |
| 39/4 39/17 $40 / 8 \quad 40 / 11$ | 82/15 82/22 84/5 86/20 |  |
| $\begin{array}{llllllll} & 41 / 5 & 41 / 16 & 42 / 25 & 44 / 19\end{array}$ | 87/12 87/24 88/11 88/18 |  |
| 45/10 45/13 50/6 52/24 | 90/16 92/24 99/12 106/23 |  |
| 56/2 56/18 58/22 58/23 | 107/22 107/25 109/19 |  |
| 60/3 63/5 64/6 65/3 | 109/19 111/11 112/6 |  |
| 65/21 68/10 68/22 72/24 | 113/9 113/25 114/14 |  |
|  | 114/20 114/22 115/1 |  |
| $\begin{array}{lllll}\text { 80/16 } & 80 / 18 & 82 / 11 & 83 / 22\end{array}$ | 121/17 122/10 127/18 |  |
| 87/13 87/19 87/22 93/23 | 129/13 130/10 132/5 |  |
| 95/1 95/15 96/25 100/2 | 132/21 134/3 139/18 |  |
| 100/6 100/23 102/8 | 141/3 141/5 141/9 143/25 |  |
| 106/21 107/17 107/22 | 144/12 144/17 145/8 |  |
| 109/14 109/21 143/23 | $\begin{array}{lllllll}146 / 6 & 146 / 11 & 148 / 1\end{array}$ |  |
| 152/8 153/14 157/7 | 148/18 150/3 150/18 |  |
| 160/24 161/16 164/6 | 155/8 155/12 156/15 |  |
| $\begin{array}{lllll}165 / 17 & 167 / 18 & 168 / 4\end{array}$ | 157/18 157/22 160/7 |  |
| 168/13 168/17 169/9 | 160/14 161/19 164/1 |  |
| 169/17 170/11 172/21 | 165/16 166/12 167/3 |  |
| 176/8 176/9 177/18 | 167/8 167/14 167/21 |  |
| 178/10 179/9 179/12 | 167/23 168/1 168/9 |  |
| 179/15 180/6 180/22 | 168/11 168/19 169/8 |  |
| 181/10 182/16 183/24 | 169/19 169/19 170/14 |  |
| 185/20 186/16 187/2 | 171/22 171/24 172/18 |  |
| 194/12 | 172/19 173/3 174/21 |  |
| yesterday [2] 9/22 52/5 | 176/6 177/1 177/6 177/20 |  |



APPEARANCES :
For the Plaintiff:
GLEN J. LERNER \& ASSOCIATES
BY: ADAM D. SMITH, ESQ.
4795 South Durango Drive
Las Vegas, Nevada 89147
(702) 977-1500
asmith@glenlerner.com

- AND -

WEINBERG, WHEELER, HUDGINS, GUNN \& DIAL, BY: D. LEE ROBERTS, JR., ESQ.
BY: TIMOTHY MOTT, ESQ.
BY: MARISA RODRIGUEZ-SHAPOVAL, ESQ.
6385 South Rainbow Boulevard Suite 400
Las Vegas, Nevada 89118
(702) 938-3838
lroberts@wwhgd.com

For the Defendant Andrea Awerbach:
MAZZEO LAW, LLC
BY: PETER MAZZEO, ESQ.
BY: MARIA ESTANISLAO, ESQ.
631 South 10th Street
Las Vegas, Nevada 89101
(702) 382-3636

For the Defendant Jared Awerbach:
RESNICK \& LOUIS
BY: ROGER STRASSBURG, ESQ.
BY: RANDALL W. TINDALL, ESQ.
5940 South Rainbow Boulevard
Las Vegas, Nevada 89118
(702) 997-3800

I N D EX

WITNESS :
PAGE
CURTIS POINDEXTER, M.D.
Direct Examination by Mr. Mazzeo
Cross-Examination by Mr. Strassburg 89
Cross-Examination by Mr. Roberts122

Redirect Examination by Mr. Mazzeo 154
Recross-Examination by Mr. Strassburg 181
Recross-Examination by Mr. Roberts 182
Further Redirect Examination 184
by Mr. Mazzeo
Further Recross-Examination
186 by Mr. Strassburg

IAAS VEGAS, NEVADA, FRIDAY, FEBRUARY 26, 2016;
8:34 A.M.


THE COURT: We're back on the record, Case No. A637772. We're outside the presence of the jury.

What do we got, guys?
MR. STRASSBURG: Judge, the defendant, Jared Awerbach, would move into the record Court Exhibits 9, 10, and 11, which are the reports of Dr. Scher and his PowerPoint from yesterday.

THE COURT: Okay. I think that's important for appeal. It will be part of the Court record.

What else?
MR. SMITH: We just wanted to briefly discuss Dr. Poindexter's opinions before he takes the stand this morning just to alert the Court to the prior order that was entered by Judge Allf.

There was an order on February 25th of 2015. It's an order that Judge Allf wrote herself. There is a portion of it in response to a -- ordering on a motion to strike where she explains on page 3 of the
order beginning at line 18, "As to Dr. Poindexter, the Court grants the motion to strike as to the billing records because they were not timely disclosed. Dr. Poindexter is limited to opinions set forth at the time of the expert disclosure deadline. To remain consistent with previous rulings, Dr. Poindexter is allowed to consider the opinions of others as part of his opinion, but they are foundational only."

There are two parts of that that I just want to bring to your attention. The first is on the billing records. His only billing record or billing opinion that he offers prior to the expert disclosure deadline is that he agrees with Dr . Oliveri's opinions regarding Pacific Hospital and Dr. Gross. As you've heard, Dr. Oliveri says that he agreed with the Pacific Hospital record bill, and he had some changes to Dr. Gross's bills. But Dr. Poindexter can't just parrot Dr. Oliveri's opinion. I guess he could say that he agrees with it if he's on the stand, but that's the extent of the billing opinions.

With respect to other opinions, he has some detail of what other defense experts say in his report, some of whom have been excluded, including Nurse Rockholt and Dr. Scher. He can't repeat their opinion because he doesn't have any foundation to offer
accident reconstruction, biomechanical, or billing opinions.

And, in fact, with respect to the bills, I also want to bring to the Court's attention that he admitted in his deposition he had not actually reviewed the line items on the bills or reviewed them in any detail. So before the defense attempts to offer any billing opinions, if they want to -- and we haven't discussed this and they may not. But if they intend to offer any billing opinions, they have to lay some foundation because he admitted in his deposition, which was after the expert disclosure deadline, that he had not actually reviewed the line item list.

THE COURT: Okay.
MR. MAZZEO: Yes. And I -- and I -- I
appreciate Mr. Smith bringing this up prior to his testimony. I'm aware of the scope of -- scope of the orders that limit Dr. Poindexter's opinions at trial, and I believe his testimony will be within the confines of the orders that were provided.

THE COURT: Okay. If there's an issue, just raise it when it happens.

Anything else, guys?
MR. MOTT: One housekeeping, Your Honor. And we can replace these at some other point, but just to
get it on the record real quick.
We had to make additional redactions to some of the medical records -- so Exhibits 26, 22, and 8 -for reference to insurance on them. And one of them had social security number on them. So I -- it's Dr. Lemper's records, Dr. Gross's records, and the Ultimate Collision Repair Center.

I don't know that any will come up. So I don't know that it's necessary to do it now and actually get started and we can --

THE COURT: We can do it during a break.
MR. MOTT: Okay. Thank you.
THE COURT: All right. We ready, guys?
MR. MAZZEO: Ready. Ready, Your Honor.
THE COURT: All right. Let's go.
(Discussion was held off the record.)
THE MARSHAL: Jury entering.
(The following proceedings were held in the presence of the jury.)

THE MARSHAL: Jury is present, Judge.
THE COURT: Thank you, Tom.
Go ahead and be seated. Good morning, ladies and gentlemen. We're back on the record, Case No. A637772.

Do the parties stipulate to the presence of
the jury?
MR. ROBERTS: Yes, Your Honor.
MR. MAZZEO: Yes, Your Honor.
MR. STRASSBURG: Yes, Judge.
THE COURT: Okay. Folks, so you got stuck out in the hallway yesterday, and then I sent you home without bringing you back in. Sometimes things like that happen. And I know I told you at the beginning of trial, sometimes scheduling things like that -- and it's just outside of our control.

I'm going to tell you that the Court concluded yesterday that there was inadequate foundation for Dr . Scher's testimony. So you're instructed to disregard his testimony that you heard yesterday.

This morning -- we are still not finished with the plaintiff's case, but I believe the defense has another expert that is scheduled to be here. So we're going to take that expert out of order.

Mr. Mazzeo, go ahead.
MR. MAZZEO: Yes, Your Honor. Thank you.
At this time we call Dr. Curtis Poindexter.
THE COURT: Come on up, Doctor. If you come all the way up on the witness stand. Once you get there, please remain standing and raise your right hand
to be sworn.
THE WITNESS: Good morning.
THE CLERK: You do solemnly swear the testimony you're about to give in this action shall be the truth, the whole truth, and nothing but the truth, so help you God.

THE WITNESS: I do, yes.
THE CLERK: Please state your name and spell it for the record, please.

THE WITNESS: Curtis Poindexter, P-o-i-n-d-e-x-t-e-r.

MR. MAZZEO: May I proceed, Your Honor?
THE COURT: You may.

## DIRECT EXAMINATION

BY MR. MAZZEO:
Q. Dr. Poindexter, thank you for taking time out of your schedule to be with us today.
A. Welcome.
Q. And would you please -- we're going to go over some preliminary background information from you. Would you please state your occupation to the jury.
A. I'm a specialist in physical medicine and rehabilitation. We're called physiatrists also. Let
me tell what that encompasses.
We deal with any neuromuscular problem from head to toe. Could be neck, back problems. Could be strokes. My subspecialty is brain injury rehab. I deal with a large number of -- excuse me -- patients that have spinal problems, pre and postsurgery. I deal with any person with joint problems pre and postsurgery.

So a variety of things that would incur any kind of nerve or bone or muscle damage.
Q. Thank you. By the way, Dr. Poindexter, is the monitor blocking your vision or view of any of the jurors?
A. No.
Q. You're fine. Okay. Great.

And would you please tell the jurors your educational background from high school on.
A. I attended college at the University of Texas, San Antonio. Obtained a biology degree -- a bachelor of science degree in biology. I then went to the University of Texas Health Science Center in San Antonio for medical school and obtained an MD degree there.

And then I went to a four-year residency in rehab medicine in New Orleans, Louisiana, in the LSU

Medical Center and Charity Hospital System and graduated from there as a rehab doctor and then came to Las Vegas, worked for a doctor for a year, and then went on my own -- in my own practice starting in about January of 1993 until now.
Q. Okay. Thank you. And would you please describe and tell the jurors any postgraduate training and experience you have in your area of specialty.
A. I didn't go to a fellowship. I've gone to a couple of different courses for certain parts of the specialty but didn't attend a fellowship. After I went to practice here, didn't have any more time; had a very busy practice since then.
Q. Now, Doctor, are you board-certified?
A. I am board-eligible. And in rehab medicine, I have certification in -- with the American Academy of Pain Management, which is a multidisciplinary academy.
Q. And you -- you gave us a description of your -- the scope of your work as a physiatrist, physical medicine and rehabilitation doctor.

How does that -- how is that different from a pain medicine doctor?
A. Well, a pain medicine doctor can cover essentially two specialties: my specialty in rehab medicine or an anesthesiologist, which does pain
management.
Anesthesiologists, their route would be to deal with the same kind of patients, but they likely would provide a variety of spinal injections, epidurals, nerve blocks whereas -- and some in my field of rehab medicine can do the same thing if they have the training. A small percentage of rehab doctors do that. And the vast majority of the rehab doctors in pain management don't perform those injections, but we deal with the same kind of patients for pain disorders in trying to decrease their pain and improve their functioning.
Q. And what, if any, consultant positions have you held during the course of your career?
A. I've had a few of those. I'm a medical director for a brain injury program, the Nevada Community Enrichment Program. And I've been their only medical director for the last 22 years.

I was a medical director for a place called NeuroRestorative, which is owned by The MENTOR Network out of Illinois, but I worked in Florida for about three and a half years and resigned from that position in March of last year. And I've worked with brain injury patients there with all of their care for brain injury rehab and some very intense problems with
psychosis-associated brain injury also there.
I was a comedical director for Horizon
Specialty Hospital here in Las Vegas back in the '90s for two or three years and helped to coordinate care for the inpatient -- inpatients in the hospital.

I was the -- a medical director for an outpatient facility at HealthSouth years ago, when they had their facilities here in town. And that was back also in, I think, the '90s.
Q. Thank you, Doctor. And by the way, when did you -- what states do you have -- are you licensed to practice medicine?
A. Nevada and Florida.
Q. And what -- what year did you obtain your license?
A. Nevada was in September 1991. Florida was approximately four years ago, four and a half years ago.
Q. Okay. Thank you. And as a medical doctor, are you required to complete continuing medical education courses?
A. Yes. We have to provide 40 continuing medical credits per two years. That could be done at a conference, or it could be done online. There's a variety of sources we can go through to get those.
Q. Now, during the course of your career, have you given any presentations?
A. Only a couple. One was in Florida about two years ago for various case managers concerning the brain injury program there and what we offered there. I can't remember the other one. Several years ago, I presented something in a conference.
Q. Thank you. And what professional associations and affiliations do you belong to?
A. AMA; ACRM is Academy of Rehab Management; AAPM\&R is a rehab academy also. And then a couple societies here in Las Vegas: Clark County Medical Society; one other I can't remember now.
Q. Do you consider yourself well versed in the anatomy of the spine?
A. Yes.
Q. And would you tell the jurors your -- the nature and scope of your medical practice.
A. The vast majority of my practice is evaluating and treating patients with all the types I've mentioned before and including covering medical director of services for the entities that I've talked about.

Three fourths of my practice is patient care. About a fourth is medical-legal situations where I do
record reviews; IMEs where I see a patient one time, look at their records, give an opinion; second opinions in a medical-legal setting; or second-opinion IMEs for a work comp patient or injury.
Q. And would you describe your experience in diagnosing and treating spinal injuries and conditions.
A. Vast. I've seen thousands and thousands of patients with spinal problems, neck, mid back, and lower back, and dealing with the vast majority of diagnoses and problems.
Q. And what percentage of the forensic work that you do, the medical-legal work that you do, is for plaintiffs versus defendants?
A. About 85 percent would probably be defendant -- defendant-type work. And about 15 percent, maybe 20 percent of the times would be plaintiff work where I have a treating patient and I'm -- I've come to court for them.
Q. And how do you account for that discrepancy, or why do you think there is that discrepancy? Why do you -- why do you do more for the defense than the plaintiff?
A. In rehab medicine, we -- we are trained to provide a very conservative approach for treatment, to help people move along in their care as conservatively
as possible with limited procedures, limited surgeries, and try to improve their functioning without a -- an evasive procedure. Sometimes that's not possible.

But we're the ones that work up patients to a point where they're either plateaued and they're finished with their care and they're good or they're -they need something else like a surgery. But we work them up completely until they get to that point.
Q. Now, are the terms "physiatrist" and "physical medicine and rehab physician" interchangeable?
A. Yes.
Q. They are. Okay.

And -- and -- and I'm not sure if I caught your answer earlier when you were talking about the scope of your role as a PM\&R doctor.

Does your work include designing
comprehensive pain-centered treatment plans or, in other words, life-care plans or medical plans for patients?
A. I have performed four or five life-care plans for patients for catastrophic or lifelong problems.
Q. Okay. And do you have -- what is your -what special training, education, and experience do you have in performing medical record reviews, as you've
done in this case?
A. All of my training up to this point led me to have the ability to do those things. We have -- we're the most comprehensive doctors that look at the whole picture in a patient and look at everything they possibly could need for treatment to get to the end of their care.

MR. MAZZEO: Your Honor, at this time I'll -going to move the Court to recognize Dr. Poindexter as an expert in physical medicine and rehabilitation.

THE COURT: Any objection?
MR. ROBERTS: Yes, Your Honor. We don't agree.

THE COURT: I think he's laid the proper foundation. He'll be recognized.

MR. MAZZEO: Thank you, Judge.
THE WITNESS: Pardon me. Is there any more water, by any chance?

THE COURT: Is that empty?
THE WITNESS: It's empty, yes, sir.
MR. MAZZEO: Here. I'll leave this up for
you.
BY MR. MAZZEO:
Q. Okay. Doctor, in this case, would you tell the jurors the nature of your assignment.
A. I was asked to provide a record review of a vast -- a vast amount of records concerning an auto accident case which Ms. Garcia was involved in, to review all of what has occurred in her case, to review her -- any problems related to the accident and any appropriate treatment plan, trying to see how she would get to the end of care for any injuries that incurred.
Q. And did your record review include an assessment for the necessity of Dr. Oliveri's life-care plan?
A. Yes.
Q. Thank you. And as a result of your record review, you drafted a report from that record review dated October 13th of 2014; correct?
A. Yes.
Q. Okay. And then after that, you had also reviewed additional records through -- treatment records for Ms. Garcia through December of 2015; correct?
A. Yes.
Q. Okay. And by the way, did your subsequent review of the -- of the additional records through December of 2015 change any of the opinions that you made with respect to your original findings from your record review?
A. No.
Q. Okay. Now, would you tell us what a forensic medical record review consists of. And I -- and I know you -- I know you touched upon it. Or is it the same answer?
A. It just looks at everything available to you concerning the initial event of the accident, whatever information you have available to you, any initial treatments, substance treatment testing, symptoms the patient experiences, objective findings or lack of objective findings, what the tests showed, what the next step might be for treatments, and how the plan of care should go along to get a patient to fruition and end their care.
Q. And what is your responsibility as a -- as a physician when you perform a medical record review?
A. To give a in-depth and objective impartial opinion.
Q. What assumptions do you make prior to undertaking a medical record review in a medical-legal claim case?
A. I don't make any assumptions.
Q. Okay. And what steps do you take to ensure an objective evaluation is performed?
A. Well, I practice -- I practice every day. So

I consider that -- I do that same thing in record review. So I look at what occurred.

And in my training, I -- I am well versed in spinal problems and back problems and what should occur in a case, just to go through the process and see what did occur and if it's appropriate or I agree with it or don't agree with it.
Q. Thank you. And, of course, you were paid to perform this medical record review; correct?
A. Yes.
Q. How much were you paid?
A. I don't actually know the exact figure.
Q. If not exactly, if you can't find the bill, then at least approximation.
A. Approximately $\$ 2,000$. I don't remember the exact figure for the record review. Subsequent review might have been $\$ 700, \$ 800$.
Q. Okay. And are you paid to offer any particular opinion as you testify here in court today?
A. No.
Q. Okay. But you are paid for your time to testify in court; correct?
A. Yes.
Q. What are you being paid for your time today?
A. I charge, for a half day, $\$ 3,500$.
Q. Okay. Thank you. And are all the opinions you'll express today to a reasonable degree of medical probability?
A. Yes.
Q. Thank you. What percentage of spinal care is provided by nonsurgeons?
A. The vast majority, probably 80 to 85 percent.
Q. And what practitioner provides the most spinal care, in your estimation?
A. The most would be physiatrists like myself. You can have some primary care doctors taking care of their own patients in their practice. But if they have a complicated situation or problem, they would usually refer out to somebody like myself.
Q. Okay. And just -- we have to be mindful of the court reporter. She's straining now. I see her.
A. I'm from Texas. I apologize.
Q. So if you would -- and I might remind you at times just to slow it down a little.
A. Yes.
Q. Okay. Thank you. And what percentage of people -- of patients with axial skeletal spine problems submit to elective fusion surgery? Just an approximation, if you know.
A. Submit to it, you're saying?
Q. Yeah.
A. Small percentage. Probably 20, 25 percent.
Q. Okay. And who do you think is the best diagnostician for diagnosing spinal injuries and conditions?
A. I think a doctor like myself, a physiatrist, because we do a comprehensive evaluation of a patient. And we look at the whole picture, and we look at everything a patient might need.
Q. Okay. Thank you. Now, what is the -- what is the physician's primary obligation in evaluating a patient complaining of symptoms and -- and pain?

So when a patient comes to you, not necessarily in a medical-legal setting but in your own practice, a patient comes to you, what is -- what is your primary obligation when you evaluate a patient?

MR. ROBERTS: Objection. Irrelevant.
MR. MAZZEO: Foundation, Judge, and background.

THE COURT: I'm going to allow it for
foundational basis.
MR. MAZZEO: Thank you, Judge.
THE WITNESS: My goal is to try to determine if -- what -- where the source of pain they have comes from.

Pain is subjective. I need to look at their subjective complaints, and I need to look if there's an objective nature to the complaints or a cause for that. And if I can't find something objective, I reassure them and we may do some treatment. And then we move their care along if I don't have any evidence of major acute problems and neuromuscular deficits and try to achieve the highest level of functioning for them. And hopefully that is a decrease or resolution of their pain.

BY MR. MAZZEO:
Q. Okay. And -- and can you further describe what you mean by, I guess, objectifying a patient's subjective complaints?
A. Objective findings could be on examination. If you see things on examination or you -- when you're working with a patient, if you have some weakness that shouldn't be there, if you have a loss of a reflex that -- that's supposed to be equal, if you have atrophy of muscle that's gotten smaller, if you have a distribution of numbness or tingling that you can document as certain dermatome, we call it, a certain area that comes from a certain nerve. Could be bruising. Could be a fracture. Could be obvious things that we can see or things we determine when we
examine somebody and look at their level of how their nerves and muscles operate.
Q. Thank you. And what sort of tests do you do -- do you perform to assist you in objectifying a patient's subjective complaints?
A. If indicated, you might do X rays, you might do CT scans or MRI scans. If there's a concern for a nerve involvement or nerve damage, you might do what's called an EMG, which is a electrical test to determine pathology to a nerve.
Q. Okay. And just as an aside, were any EMG testing done in this case -- in this case?
A. I did not see any, no.
Q. Okay. So, now, I want to ask you about -we've heard terms during trial about radiating pain and radiculopathy and radicular pain.

Can you tell the jury the difference between radiating pain and radiculopathy?
A. Well, radiculopathy is a true problem in pathology to a nerve. The term is misused in many, many cases.

There's referred pain or radiating pain that is subjective. The patient's complaining of a pain from one spot to another spot or numbness or tingling and burning that's in an area. But that's not
radiculopathy.
The term "radiculopathy" I see in many, many diagnoses and many, many records that I review that have -- has never been proven. But that's a common term that's misused or a misnomer, we say. You have to really prove radiculopathy or damage to a nerve when you label person with that.
Q. Okay. Thank you. And how do you test for and confirm radiculopathy if a patient is -- has true radicular symptoms?
A. Well, the ultimate test is an EMG. That is the most sensitive test for looking for radiculopathy. That's -- you can determine -- you can see certain things on the testing that show you positive findings or -- or irritation or nerve damage.
Q. Now, what about -- what would you attribute a patient's complaints of numbness running down the legs to? Would that be radiculopathy, radiating pain, or something else?

MR. ROBERTS: Objection. Incomplete hypothetical.

THE COURT: I'm going to allow him to answer.
Overruled.
THE WITNESS: It is a complaint they have. We have to see if it's something that's worrisome,
something that I would be concerned about. And that's when we go into an examination. We go into the how an accident might occur, how the pain started. And we look at -- if we can objectify that symptom, a lot of us can have numbness sometimes after you have a sprain. You can have tingling after you have a sprained arm or ankle or leg.

That can easily go away in a couple of days, or it can go away in a few weeks or months. It doesn't mean there's radiculopathy there. And a lot of -- most symptoms like that are temporary unless you have a proven radiculopathy.

BY MR. MAZZEO:
Q. Now, what experience do you have in diagnosing and treating patients with spondylolytic spondylolisthesis?
A. It's not as common a problem, but I have done that in my practice for 24 years. It's not as common you would have, say, a bulging disk or herniated disk, but you would say a slippage of -- of a vertebral area.
Q. Okay. And -- and would you tell us, what is the -- what would be the constellation of symptoms associated with trauma to a preexisting spondylolisthesis?
A. Trauma to preexisting?
Q. Yes.
A. Well, you're going to have acute pain. You're going to have edema noted on testing. You're going to have a person that can't range their back very well. They can't -- they possibly have to sit down. They can't walk very well. They may have sharp shooting pain down their leg. And they may have numbness, tingling, and burning from that acute event. That would happen without a preexisting listhesis or it can happen with a preexisting degenerative listhesis that has worsened.
Q. Okay. And in what way does traumatic injury to a preexisting spondylolisthesis impact one's functionality? I know you just -- you gave us some examples.
A. It would change your ability to -- to do the things you were already doing before that. You would not be able to walk as far. You would not be able to bend as far. You would not be able to -- your endurance for sitting and standing would be changed. You would have to seek treatment. You would have to take pain medications. You would have to possibly begin the therapy and try to work on things the -- the problem that occurred.
Q. Okay. And -- and what diagnostic test are
used to confirm an acute trauma to a spondylolisthesis?
A. That's -- in general, could be starting off with $X$ rays. $C T$ scan can be utilized because it helps -- you can see the bones really easily on CT scan. And in many cases MRI scan is done also. You can tell if that's -- if there's an acute nature of the problem or to assess the -- the problem that's there.
Q. Okay. Now, based on your training and experience that you've had in diagnosing and treating patients with spondylolytic spondylolisthesis, what is your opinion whether traumatic injury to a preexisting spondylolisthesis will or can result in a gradual worsening of symptoms over days, weeks, or months?

MR. ROBERTS: Objection. Foundation.
THE COURT: Overruled. I'm going to let him answer.

THE WITNESS: A gradual onset doesn't occur. It's an acute event that would cause problems and sharp pain and difficulty the patient did not have before that.

BY MR. MAZZEO:
Q. When you say it's not gradual but it's an acute event, what -- what -- what is your opinion regarding the onset of symptoms following a -- an injury to a -- an acute injury to a spondylolisthesis?
A. It should occur immediately. Should occur within the first few minutes or couple hours. It should -- and the gradual nature of something happening would be more of the degenerative process that you expect to increase if it's a gradual-type onset or worsening.
Q. What is your opinion whether -- whether, based on your review of the records in this case, whether Ms. Garcia had any discogenic or facet joint injury related to the motor vehicle accident?
A. I did not see that from her injury.
Q. Okay. And what objective medical evidence have you reviewed in this case, based on the medical records you reviewed, which might support Ms. Garcia's theory that she had discogenic or facet injury related to the motor vehicle accident?
A. What objective testing?
Q. What objective medical evidence have you reviewed in this case that might support her theory that she has discogenic or facet joint injury related to the motor vehicle accident, if any?
A. I didn't see any objective evidence of acute injury from her accident in regards to the spondylolisthesis.
Q. And regards to the disks or facet joints.
A. Not in the disk -- she has small disk bulges that are degenerative in nature that occur with time and aging, as does facet arthropathy or hypertrophy occurs with aging.
Q. Thank you. Now, during the course of your review of the medical records, is it correct to say that you were also provided with reports of various diagnostic and imaging studies?
A. Yes.
Q. Okay. And would those have included X rays as well MRIs that were taken on $1 / 26$ of '11, $8 / 19$ of 2011, and $11 / 19$ of 2012 ?
A. Yes.
Q. Okay. Now, with respect to the -- the report that you reviewed for the imaging study performed on January 26 of 2011, what notable findings were made by the radiologist regarding the L4-5 and L5-S1?
A. I don't have it. I need to pull that. But she had a couple of small -- very small disk protrusions, I would consider minuscule disk protrusions, like 2-millimeters, I think they were. She had a degenerative spondylolisthesis of the slippage, which is probably considered Grade I to II.
Q. Let me just stop you for a second, Doctor, since I put something up on the screen.

This is in evidence. This is the Las Vegas Radiology report for the MRI taken on January 26th of 2011. And that's Plaintiff's 19, page 5 and 6. So it's for your review.
A. In the first, the top three, the first disks were normal. L1-2, L2-3, L3-4 were normal. No signs of degenerative changes.

She had also, in the lower thoracic spine, some disk desiccation, which is considered -- as mild is considered degenerative changes also.

The area where we normally have the most degeneration in our lumbar spine would be the last three levels, L3 through S1. That's where the majority of bending occurs when we do activities. And -- and with repetitive bending or various bendings over years of our life, we're going to have more degenerative changes there. Not everyone has a listhesis or slippage, but some people do.
Q. Okay. And I'm going to show you both -- this is the second page of the report. And we're not going through all the findings. We've gone through these findings a number of times with treating physicians for the plaintiffs. So I'm not going to go through this, each and every one.

But the question I want to ask you is, are
there any findings on this -- this particular MRI report that are indicative of -- that pertain to acute injury or a preexisting condition?
A. There's no signs of acute injury. There's -there's definitely findings of preexisting condition and problems.
Q. Okay. And when it refers to -- just a couple of references. When it refers to facet joint hypertrophic changes, is that something that's long-standing, or is that something that arises from an acute injury?
A. That's long-standing.
Q. Okay. And the reference to mild narrowing of the lateral recess and to neuro foramina, is there any indication that that's an acute event or preexisting age-related change?
A. That's preexisting age-related-type changes.
Q. Okay. What is -- what is the most
susceptible structure in the spine in a patient who has a spondylolytic or pars defect spondylolisthesis?
A. The most susceptible -- adjacent nerves would -- could be susceptible to compression or irritation.
Q. Okay. And as well as the pars, would you include the pars defect on that? Is that susceptible
A. Right. Pars defect led to the listhesis or the slippage, and that could be worsened.
Q. Okay. Is there any indication on -- on -- on this MRI finding taken two weeks, a little -- I guess more than two weeks after the subject event that there is -- that the pars defect or the spondylolisthesis would be deemed unstable?
A. No.
Q. Okay. I want to show you the MRI report from November 19th of 2012. And that's Plaintiff's 19, page 13. And I want to direct your attention to the -about the bottom half of the page referring to the "L1-2 disk demonstrates a posterior bulge."
A. Yes.
Q. That's -- those are bulges at -- at both L1-2, L2-3, L3-4?
A. Yes.
Q. And, based on what you're reading and from your prior review, any indication that those were -occurred as a result of an acute injury or age-related change or something else?
A. If it's an acute injury, something that occurred from the first one to the second one, most likely it's degenerative changes, and they've
developed. And they weren't there before on the prior MRI scan. There's no evidence of an acute injury that occurred on this -- with this MRI finding either.
Q. Okay.

MR. ROBERTS: Objection. Foundation. He hasn't reviewed the prior MRIs.

THE COURT: I think I've got to sustain that, at least at this point.

BY MR. MAZZEO:
Q. Okay. Based on -- based on what the -and -- based on the radiologist's statements and impressions on this MRI -- and I'm going to go to the second page. With respect to the -- did the radiologist note any -- did he indicate that the bulges that appeared at L1-2, L2-3, and L3-4 were traumatically induced?
A. No.
Q. Did he indicate, make any reference to any finding that might be considered an acute event, such as edema, swelling, or something else?
A. No.
Q. Okay. And after reviewing that report, any -- any -- do you have any opinion as to whether the -- the findings on this pathology or this MRI report are based on a -- an acute trauma or age-related
change?
A. So it's not related -- there's no evidence of acute trauma. They're highly suggestive of degenerative change and some worsening of the spinal elements.
Q. Okay. Now, following a -- an acute event, what is the most significant time for -- for -- for -when is the most significant time for taking a history of a present illness?
A. If you can, immediately, you have really good recall from a patient. If you can't, very shortly after that within the same few -- three hours of the same day.
Q. Okay. And what medical records -- when you're doing a medical record review or even evaluating a patient for the first time, what medical records would contain the most accurate reporting of the history of a present illness following an event?
A. The first doctor that saw the patient.
Q. Okay. And what is the importance of a patient's recalling events and reporting symptoms contemporaneous with an event versus reporting events and symptoms more remote -- remote from the event?
A. In general, the human behavior and memory issues, the first -- the first immediate recall is the
best. The farther away from an event, you're going to have some memory issues and things that are forgotten or patient cannot remember exactly how something occurred.
Q. And how would you characterize the accuracy of self-reports made closer to an event versus those that are made more remote in time from the event?
A. Much more accurate.
Q. Okay. And how does a patient's self-report of -- regarding symptoms impact causation typically?
A. Well, they -- they help you with determining causation. They're -- they're not always accurate. You have to determine if a -- and pain is subjective, so people are sometimes fearful, sometimes angry, sometimes upset describing pain, describing something that occurred if it's an acute event.

You have to -- that's why you have to objectify things you're hearing and try to find as much information as you can to determine what occurred that led to them having -- experiencing pain.
Q. Okay. Now, one of the records that you reviewed in this case was the record from MountainView Hospital; is that correct?
A. Yes.
Q. All right. We're going to talk about that
for a few minutes.
And I'm going to put that up on the screen for you. I'm not asking you to recall all the information that's contained within.

So this is Plaintiff's 18, page 1. And this is one of the records that you reviewed in connection with your record review; correct?
A. Yes.
Q. Okay. And can you tell us, what did Ms. Garcia report and what did you ascertain that she reported as to when the symptoms started following the accident on January 2nd of -- of 2011.
A. Well, note here says she felt fine after the accident. She was pain-free after the accident, and her symptoms started that day of being seen, which was January 5th of 2011.
Q. Okay. I'm going to move right now to the physical examination that is on the second page. And what is the -- from what -- I'm not going to ask you about each one. I'd rather you tell us. What is the significance of the physical examination and the -- the findings that are indicated in this report with respect to Ms. Garcia?
A. They're essentially all normal findings. She was in no acute distress per the ER doctor's note.

We -- it's a -- we do a visual exam and a physical exam. So we visually see how the patient's responding, how they're acting, if they can sit still, if they have to sit and stand, or they have to move around a lot.

She essentially, throughout the whole entire exam, had a normal exam. Normal range of motion. There was no evidence of neurologic deficits. Motor function was good. Sensory function was normal. Nothing that was -- that I could see that was positive on exam -- for exam findings.
Q. Okay. One second, Doctor.

I know some of the words are -- are small, so I just want to bring this closer to the jury.

Okay. What's the significance of "no motor deficit with no sensory deficit"? What does that mean?
A. Those help you determine the severity of a problem, if you have a concern as a doctor, to do more things. If she -- that means she has normal strength. She has no weakness in certain areas of arms or legs. The -- the doctors said they were equal. And no -essentially no deficits. The sensation of -throughout her body, when he examined her, was normal -- or she examined her was normal.
Q. Okay. And what was the -- what was the emergency room physician's clinical impression?
A. Mentioned low back strain, and there's a mention of motor vehicle accident.
Q. And -- and what was Ms. Garcia's status at discharge, if you can tell from this report? I don't know if you can see the whole thing.
A. It just went out.

Condition was stable, and she was discharged from the ER.
Q. Doctor, takes a little while to get into a groove of slowing it down for the court reporter.
A. Yes.
Q. We want to make sure we get all of your testimony today. So --

Okay. Now, you also reviewed Dr. Gulitz's consultation report from January -- January 12th of 2011; is that correct?
A. Yes.
Q. And that would be -- just put on the screen. That would be this document, Plaintiff's 15, page 1.
A. Yes.
Q. This is just one page of it, of course. And put on page 4 of Dr . Gulitz's report. And I know it's hard to see. I apologize. There we go. Is that better? Try to have the whole thing in there.

So what was -- what is the -- the result or significance of the lumbosacral exam?
A. Can you move that back to the side? Just part of it's cut off on the left side.
Q. This way?
A. Or you can't get it all. Now I see.
Q. I can -- I can decrease it. There we go. Does that help?
A. I'm sorry. Your question now?
Q. Just the significance or the result of Dr. Gulitz's lumbosacral exam.
A. Mentioned of $2+$ tenderness in the paraspinal region, which is the muscles along the lower lumbar spine on both sides. Mentioned positive for muscle spasm. Kemp's test positive. Testing on left and right elicited local back pain, the note said. Consisted of lumbar facet inflammation and lumbosacral strain/sprain. The straight leg raise test was -- on the right was positive 20 degrees, which would be extremely positive and very low level of range of motion. It's positive on the left -- I'm sorry. Let me see here. And positive for lumbar pain at 45 degrees, which can be a positive -- a common finding. With a straight leg raise testing, you can have low back pain that's -- makes it a negative test.

If you don't have radicular pain, it's not a positive test.
Q. Okay.
A. Left side was positive again at 20 degrees and positive for local back pain at 45 degrees, same as the other side. It's -- it's highly unusual to -- for me to review this note, after I've reviewed the note from the ER doctor that had normal exam, and try to explain how this exam could be this way on this note.
Q. Okay.
A. It's highly unusual. I -- I see many, many spinal patients. I do these exams all the time. It's unusual for days to lapse and then have this kind of exam and positive straight leg raise testing.
Q. Sure. And, now, the doctor notes "radiating pain." What's the significance of that finding, if any?
A. It's just a complaint of pain. You're trying to -- again, you have to localize where that might be coming from or where the source is.
Q. Okay. And what is the -- what is the significance of the lack of neural signs?
A. Then you're looking for evidence of neurologic -- positive neurologic findings. There were no -- with the statement of lack of neural signs, means
there's no concern for a neurologic deficit that would be worrisome concerning motor function or -- or sensory function.
Q. Okay. Now, also -- in addition, you also reviewed Dr. Cash's report of -- of $2 / 16$ of 2011 ?
A. Yes.
Q. And let me just put that on the screen for us. This is Plaintiff's 23, page 23. Again, the wording is -- it's kind of small. Let me see if I can put this on the screen. That's kind of tight. So let me reduce that.

All right. I know it's kind of small, but, anyway, this -- so what I want to ask you about -- and I want to direct your attention, actually, to Dr. Cash's physical examination of the lumbar spine. And what physical examination did Dr . Cash perform on Ms. Garcia's lumbar spine on this day?
A. Palpation for -- which mentioned of tenderness and muscle spasms. And then there was a range of motion exam with what I would consider extremely limited range of motion and unusual findings.
Q. And so specifically what Dr . Cash has on the report is 20 degrees flexion, 10 degrees extension.
A. Yes.
Q. Right? And -- and -- and you contend that's
A. That would be considered very poor range of motion that the patient did not have in the ER.
Q. Okay. And would you please stand up and -and show for the jury what 10 degrees extension would look like, what 20 degrees flexion would look like, if you can stand with your profile to the jury?
A. If you're straight up like this, you're neutral position. If you're looking at -- forward flexion of full would be if you're going all the way down 90 degrees. Some people can touch the toes; some people can't touch the toes. That's considered full flexion.

If you're going to 20 degrees of flexion, you're probably doing something like this. That's -that means a person can't put their clothes on, can't bend over touch their toes, can't put their shoes and socks on, have a hard time doing most things.

Extension of 10 degrees would be even less than that, maybe something like this where you're hardly even able to move.

That's unusual for -- in this setting to have that kind of findings with another doctor and nobody else before that saw that on examination.
Q. And when you saw this in the report, did you
have any question about the accuracy of Dr. Cash's -this -- this finding or his ability to calculate 20 degrees flexion, 10 degrees extension? Did you have any -- what -- what -- did this raise any red flags for you?
A. Yes. I have a concern for what led to that exam finding. Is the patient holding back, not performing full effort? Is the doctor not assessing it properly? A variety of things can go on.
Q. And what's your understanding as to whether Ms. Garcia was working full-time at about the time that she saw Dr . Cash on $2 / 16$ of 2011 ?
A. The whole time through the records that I saw, she was working full-duty and full-time.
Q. Okay. And based on Dr. Cash's flexion and extension range of motion for the lumbar spine, what is your opinion as to whether Ms. Garcia would be able to engage in activities of daily living as well as perform her full eight-hour work duties if her -- she had a range of motion of only 20 degrees flexion, 10 degrees extension?

MR. ROBERTS: Objection. Foundation.
THE COURT: I'm going to sustain that till you lay some foundation about what he knew about that. MR. MAZZEO: Oh, okay.

BY MR. MAZZEO:
Q. Do you have any knowledge -- in the course of your reviewing records, did you -- did you come to learn that Ms. Garcia worked as a cage cashier at Aliante Casino?
A. Yes.
Q. Okay. And did you learn to any extent what the nature and scope of her duties included?
A. I've seen a lot of cage cashiers for treatment. They have to -- used to be, years ago, they had to carry bags of coins, which we have now ticket machines. They have to still carry bags of money. They have to do a lot of bending, pulling things out of drawers, stacking things on shelves in various areas. So it's a fairly physical job.
Q. Okay. Now -- so, now, getting back to my prior question, based on Dr. Cash's finding of 20 degrees flexion, 10 degrees extension, do you have an opinion as to whether or not Ms. Garcia, if she, in fact, was limited to that -- to those numbers, would be able to engage in her duties of activities of daily life as well as performing her work duties?

MR. ROBERTS: Objection. Foundation. MR. MAZZEO: Just laid it, Judge.

THE COURT: You laid it as to the work but
not to the activities of daily living.
MR. MAZZEO: Oh, okay.
THE COURT: Sustained.
MR. MAZZEO: Fair enough.
BY MR. MAZZEO:
Q. And, Doctor, when -- when -- do you know what I mean when I refer to "activities of daily living"?
A. That's part of my specialty, assessing activities of daily living.
Q. And so why don't you tell the jury what is meant by that term, "activities of daily living"? What activities are we talking about?
A. You know, getting out of bed, taking a shower, putting your clothes on, caring for yourself, grooming, eating, all of the things you would do at your home before you got ready to leave your house. Going to the restroom -- not being graphic -- wiping yourself after you go to the restroom. Those kind of things are issues that you look at what the person is able to do in their daily activities around their house.
Q. Okay. Would activities of daily living include driving, walking, pushing, pulling?
A. They -- yes, they could.
Q. Okay. All right. So based on Dr. Cash's
evaluation that was performed on February 16 of 2011 and his -- his indication that Ms. Garcia only had a 20-degree flexion and a 10-degree extension, do you have any opinion as to whether, if Ms. Garcia did, in fact, have that restricted range of motion, whether she would be able to engage in, let's say, her work-related duties that you described a minute ago?
A. If she truly had those findings in that -that examination of her lack of -- of a range of motion, she wouldn't be able to take a shower, put her clothes on. She definitely wouldn't be able to work full-duty as a cage cashier if that was true -- if that were true findings.
Q. Okay. And what is your opinion as to whether Ms. Garcia should have received a surgical consultation from Dr. Cash six weeks post motor vehicle accident based on your review of the records up to that point?
A. Completely unnecessary.
Q. And what is your opinion as to whether Ms. Garcia was a candidate for spinal reconstructive surgery recommended by Dr. Cash and Dr. Gross?

MR. ROBERTS: Objection. Beyond the scope of his expertise.

MR. MAZZEO: Judge, I'll withdraw that. I can lay a foundation for that.

THE COURT: Okay.
MR. MAZZEO: Thank you.
BY MR. MAZZEO:
Q. So during the course and scope of your work as a physiatrist, did -- does there come a time when you will make a determination whether you will refer a patient for a surgical consultation?
A. Yes.
Q. Okay. Tell us about that.
A. As I said before, we're the doctors that work the patient up fully to try to improve their care and improve their functioning and do it in as conservative a manner as possible. There are times people are going to -- to need surgery or they're going to have a problem -- if it's a surgical problem, we try to treat and we try to keep them out of surgery. Sometimes we can't, and we've maximized their benefit, and we send them off to a surgeon for an opinion to see if they can arrange surgery if we know they're probably going to need it.

And that could be with a herniated disk.
That could be with nerve damage. That could be with spondylolisthesis like this. And there's four grades of spondylolisthesis, 1 to 4. Grades I and II don't have spinal ligament rupture. Grades III and IV have
led to spinal ligament rupture, meaning more chance for instability, more chance for slippage, and more chance for nerve damage.

Throughout my whole entire career, I send people on to surgery when it's indicated or to get an opinion, see what their thoughts are, if they think surgery would benefit them, and see if they agree with me whether it would or would not benefit them.
Q. And so what is your opinion as to whether Ms. Garcia was a candidate for a spinal fusion surgery that was recommended by Drs. Cash and Dr. Gross?

MR. ROBERTS: Objection, Your Honor. Beyond the scope of his expertise.

He's never performed a spine surgery. He's not qualified to perform a spine surgery. And he just said, if one of his patients needed a recommendation --

THE COURT: Come on up, guys.
MR. MAZZEO: Thank you, Judge.
(A discussion was held at the bench, not reported.).

THE COURT: Withdraw that one.
MR. MAZZEO: Yes, Your Honor.
THE COURT: Okay.
MR. MAZZEO: Thank you.

BY MR. MAZZEO:
Q. Now, in addition, Doctor, in conjunction with your record review, you had reviewed various records from -- that were given to you with respect to treatment provided by Dr. Lemper; is that correct?
A. Yes.
Q. And in the -- in -- and if you recall -- if not, I can show you any records -- what was -- what is the significance of Ms. Garcia complaining and reporting to Dr . Lemper of radiating pain in the neck and in the low back?
A. Well, it could be significant or it could not be significant. That's why we have -- as I stated before, you have to evaluate if there is a radicular nature of a problem.
Q. No, not -- I said radiating pain.
A. Well, the same -- a radiating pain-type situation, you have to determine if that's happening. It could be something that's going to be temporary and go away. You have to figure out if that's a -- from a spinal element and a spinal problem. And in many -- in the vast majority of cases, it's not.
Q. Okay. And earlier you gave us the distinction between what's referred to as radiating pain and pain that would be -- originate from a
radiculopathy or radicular pain; correct?
A. Radiculopathy is true pathology that does --
Q. Slow down.
A. Sorry.

Radiculopathy is true pathology to a nerve that can -- that usually causes radiating symptoms: pain, numbness, tingling, and burning. Radiating pain or referred pain is a symptom subjectively that may not be coming from a spinal element and it doesn't confirm radiculopathy.
Q. Okay. And so -- and you've reviewed all the records from Dr. Lemper; is that correct?
A. Yes.
Q. And he treated Ms. Garcia from June 29th of 2011 through June of 2012?
A. If I remember, yes. Yes.
Q. Okay. And -- and you know that Dr. Lemper had provided several injections, one on August 30th of 2011, which was a selective nerve root block?
A. Yes.
Q. Okay. And Dr. Lemper contends that -- that Ms. Garcia obtained relief from this selective nerve root block when she reported a relief in symptoms shortly following the procedure.

Would you agree that this was diagnostic of
any condition?
MR. ROBERTS: Objection. Beyond the scope of his expertise.

THE COURT: I think this is within his expertise. Overruled.

MR. MAZZEO: Thank you, Judge.
THE WITNESS: I, first of all, don't know -I cannot explain what Dr . Lemper was doing the whole time at the time he saw the patient.

If this was my patient, I'm not certain what nerve I'd ask for a selective nerve block with. Why is he doing that test -- that -- that -- that injection? There's nothing confirmed that she has pathology, nothing confirmed she has the need for injecting around a certain nerve.

If you inject around a certain nerve, you've got to put numbing medication there, it's going to feel better. You're going to numb the area. That's not diagnostic at all. And then why is it being done on this patient?
Q. Okay. And okay --

MR. ROBERTS: Objection. Move to strike.
Beyond the scope of his expertise.
THE COURT: Come on up for a minute.
(A discussion was held at the bench, not reported.)

THE COURT: All right. I'm going to strike the answer for now, folks. There's going to be questions that may get into parts of that. BY MR. MAZZEO:
Q. Doctor, can you tell us your experience in working with --

No, actually, tell us your -- tell us your knowledge and experience and involvement with procedures such as selective nerve root blocks and medial branch blocks.

How does that -- do you come across these procedures in the course of -- of your treating patients with spinal problems?
A. Yes, throughout my entire career.

If I can indulge the Court and explain more what a physiatrist does, that would help out probably.
Q. Please do that. Thank you.
A. As I said before, in physiatry we are the doctors that are the most skilled in physical examination and working a patient up. And we -- I encompass all these things in my practice.

To work a patient up to a point where, if you think they need an injection -- okay. I don't perform
injections. I don't perform the surgery. But I'm the most skilled person to determine if they're going to need an injection, if they're going to need a surgery. Then I send them on to somebody else.

We assess these things daily. And for thousands of patients, I have addressed these things. Again, I don't perform them, but I know when somebody's going to possibly need a nerve root block or possibility of epidural injection. Or I know, if I've worked them up, they're going to need surgery because nothing else has worked for them.

We encompass this every day in my practice, and all physiatrists do.

MR. ROBERTS: Objection. Foundation. Move to strike.

THE COURT: I'm going to allow it.
MR. MAZZEO: Thank you, Judge.
BY MR. MAZZEO:
Q. And is it correct to say or can you tell us whether or not you understand the mechanics behind a selective nerve root and a medial branch block?
A. I understand the -- the -- what we're trying to achieve, the mechanics of the -- where you're injecting and what you're doing at the time of the needle insertion. I don't deal with them, so I can't
explain all that to you.
But what we're trying to achieve is
improvement in symptoms and some diagnostic information in that area to -- to prove that a nerve is being compressed or has been damaged.
Q. Okay. Thank you. Now, based on your review of Ms. Garcia's medical records prior to this selective nerve block by Dr. Lemper, would it be your opinion -what would be your opinion as a physiatrist whether or not Ms. Garcia would have needed a selective nerve root block and/or whether you would have recommended her for a selective nerve root block?
A. I don't see her, from all the records I reviewed, needing one. I don't see -- what concerns me in this case is that she -- her symptoms were never the same. They were different with all healthcare providers. They were sometimes tender and sometimes a long list of symptoms that were not present before.

It looks to me like the vast majority of things that occurred in this case were done because of her complaints subjectively without anything being proven or objectified. And a lot of these things go on in these kind of cases, which is embarrassing to me as a doctor. A vast majority of these things that are done in this kind of case is not needed, and there's no
objective reasoning for doing it.
Because if you look at her examinations, they're totally normal. She has 5 out of 5 strength in many cases. That is excellent strength. She has no neuromuscular deficits. There's no signs of spinal problem or nerve damage or any kind of limitations from the spine except that she has a listhesis that's been there and that was not traumatic in nature.

MR. ROBERTS: Objection. Beyond the scope of his report. Move to strike.

May we approach, Your Honor?
MR. MAZZEO: It's within his qualifications, Judge.

THE COURT: Come on up.
(A discussion was held at the bench, not reported.)

THE COURT: All right. We're going to give you a quick little break, folks.

During our break, you're instructed not to talk with each other or with anyone else, about any subject or issue connected with this trial. You are not to read, watch, or listen to any report of or commentary on the trial by any person connected with this case or by any medium of information, including, without limitation, newspapers, television, the

Internet, or radio.
You are not to conduct any research on your own, which means you cannot talk with others, Tweet others, text others, Google issues, or conduct any other kind of book or computer research with regard to any issue, party, witness, or attorney involved in this case.

You're not to form or express any opinion on any subject connected with this trial until the case is finally submitted to you.

Let's take about 10 or 15 minutes. My plan is to give you a break now and then probably another break around lunchtime. And then we'll go till 2:00, like I told you yesterday.
(The following proceedings were held
outside the presence of the jury.)
THE COURT: All right. I'll go ahead and excuse you.

We're outside the presence of the jury.
Just to memorialize the bench conference, at least this one, that -- there's an objection to the scope of the doctor's opinion as it relates to his criticism of the pain management treatment. My understanding is that he testified contrary to that, that he wasn't critical of Dr. Lemper's treatment in
the deposition.
If there's something in the report -- and I don't know how many reports he did. But if there's something in his report where he's critical of the pain management, just let me know that.

MR. MAZZEO: I have it -- well, something in his deposition testimony where he does definitively state it was unnecessary.

THE COURT: Okay.
MR. STRASSBURG: Reading from page 100.
"QUESTION: Do the records that you received from Dr. Klein affect your opinions in any way?
"ANSWER: They definitely conform with my opinions, and I would agree wholeheartedly with Dr. Klein's recommendation and reports except for maybe we disagree on the recommendations of Dr. Lemper's injections.
"QUESTION: What do you mean by that?
"ANSWER: He said they were okay to do, and I don't think they were necessary.
"QUESTION: You don't think they were necessary in relation to the motor vehicle accident; right?
"ANSWER: Correct. For any injuries from
the accident.
"QUESTION: Okay."
MR. ROBERTS: And, Your Honor, that conforms with what we said at the bench where he said, one -- I believe it was on page 29 and 30 -- that his opinions were limited to whether the treatment was caused by the accident --

MR. SMITH: Page 66, Your Honor.
MR. ROBERTS: -- where he said, "Your
opinions are limited to whether the treatment Ms. Garcia received was necessitated by the accident?"
"ANSWER: Yes."
In what was just read by Mr. Strassburg, he was saying it was not necessary as a result of the accident, not that it was inappropriate.

And, in fact, he specifically said just a -just -- so Mr. Smith was clarifying the scope of his opinions, whether it wasn't necessary because of the accident or whether it wasn't appropriate at all.

He was asked at the bottom of page 60, "Okay. Without tying it to the auto accident, was there any treatment that was not appropriate for Dr. Lemper to perform?"
"ANSWER: No."
And what he just clearly stated was, without
regard to the accident, without including any preamble that I didn't think it was necessary because of the accident, he said it wasn't appropriate. He even went so far as, I believe, to express ethical concerns with the fact that it was done.

And that's clearly beyond the scope of his report
(Multiple speakers)
MR. ROBERTS: -- well, then it was a compound answer, and he answered beyond the question he was asked.

But, Your Honor, this was not in his report. And it was specifically disclaimed as an opinion when it was clarified in his deposition, so he shouldn't be able to offer it now for the first time.

THE COURT: I think the --
MR. MAZZEO: Judge -- Judge -- I'm sorry.
THE COURT: I think the deposition testimony is at least equivocal. I think he at least offered an opinion that he didn't agree with the treatment. So I think you're on notice of the opinion, and you can deal with it on cross.

MR. MAZZEO: Thank you, Judge.
THE COURT: I'm not going to strike that
answer.

MR. MAZZEO: Thank you.
THE COURT: Anything else that we need to make a record on now, guys?

MR. MAZZEO: No.
MR. ROBERTS: Can't tell you anything right now, Judge.

THE COURT: Okay. Off the record.
(Whereupon a short recess was taken.)
THE MARSHAL: Jury entering.
(The following proceedings were held in the presence of the jury.)

THE MARSHAL: Jury is present, Judge.
THE COURT: Thank you, Tom.
Go ahead and be seated. Welcome back, folks.
We're back on the record, Case No. A637772.
Do the parties stipulate to the presence of the jury?

MR. ROBERTS: Yes, Your Honor.
MR. MAZZEO: Yes, Your Honor.
THE COURT: Doctor, just be reminded you're still under oath.

THE WITNESS: Yes, sir.
THE COURT: Mr. Mazzeo, go ahead.
MR. MAZZEO: Thank you, Judge.

BY MR. MAZZEO:
Q. And, Doctor, just let me remind you just to slow it down a little bit because everything that's being said in the courtroom is being recorded. So ...
A. Yes.
Q. And it's my remiss for not, you know, directing --
A. I have done this for years. It's not your fault. I'm trying to work on it.
Q. Okay. All right. Great. Thank you. So, Doctor, in addition to the treatment records from Dr. Lemper that you reviewed, is it correct that you also reviewed Dr. Kidwell's consultation and treatment records for that time period that we had discussed earlier?
A. Yes.
Q. Okay. And -- and with respect to the treatment and care rendered by Dr . Kidwell, between August of 2012 and February of 2014, what is your opinion as to whether the care rendered by Dr. Kidwell was reasonable and necessary with regard to the subject accident?
A. I don't think it was necessary at all in regards to the accident.
Q. Okay. And on -- September 27th, 2012 -- just
directing your attention to that date, which was the date that Dr. Kidwell had performed the selective nerve root block bilaterally at L5-S1.

And based on your review of all the medical records, what's your opinion as to whether that selective nerve root block would have been appropriate for Ms. Garcia?
A. I don't think it was necessary or appropriate in regards to the -- any injuries that might have occurred in the accident. And if it was my patient, I probably -- I would not have sent her for those either.
Q. Okay. Now, Dr. Kidwell had -- also Dr. Kidwell had referred to Ms. Garcia's fusion as a failed low back surgery syndrome, and he referred to that as a garbage bag diagnosis that was really not applicable.

Can you tell the jurors what is meant by this term "failed low back surgery syndrome"?
A. Yeah. It's a term -- it's a thing that patients are lumped into when they have a back surgery that doesn't go well, that doesn't heal well, have ongoing problems, ongoing issues that didn't get corrected.

We see it a lot. I think it's a term that got generated from surgeons because all surgeons
suggest their surgery was perfect but the patient didn't get better. So one of those terms that people are lumped into. And we see a lot of problems postfusion with these kind of issues.
Q. Okay. And when you say you see a lot of these problems, as a physiatrist, as a treating physician, you see a lot of these problems postfusion?
A. Yes.
Q. Okay. And -- and so basically this -- failed low back surgery syndrome, does it refer to a constellation of symptoms or pain complaints following a surgical procedure?
A. It could be the same or similar complaints as before the surgery. It could be a total set of different complaints after the surgery. It could be various similarities. Could be a worsening of the condition. The patient in that setting is not better and are usually worse off, and their functioning has decreased.
Q. And based on your -- your experience and training as a physiatrist and all the years of experience you have in treating patients postfusion, what are some of the reasons for the pain complaints that might arise following a fusion surgery as to -- as to the cause of the pain, I should say?

MR. ROBERTS: Objection. Beyond the scope of his report.

MR. MAZZEO: Within the scope of his expertise, Your Honor. And it came out in trial testimony by Dr. Kidwell.

THE COURT: I think I'm going to allow it.
THE WITNESS: The reasons for --
MR. MAZZEO: I'm sorry. Go ahead.
THE WITNESS: The reasons for it could be -have a lot of factors. In general, when you're changing the anatomy of a patient that was there from birth, you're adding either a plate and screws, you're adding a bone from their own -- a piece of their own bone, you're adding a cage, you're adding some type of metal -- usually, nowadays, titanium -- that's a source of pain.

Even if you have a reason to do surgery and you stabilize an area, rarely is a patient going to have -- be pain-free afterwards. In many cases, they're significantly worse off, and they have to deal with those issues.

BY MR. MAZZEO:
Q. Okay. So before we continue with

Dr. Kidwell's treatment, I want to show you -- go through some records. The other day, while Dr. Kidwell
was on the stand, I showed him a number of records from -- the treatment records for the first couple of months following the subject accident. And I was specifically showing him the reporting of pain symptoms by Ms. Garcia to the various medical providers.

So the first record I'm going to show you is -- and we looked at this earlier. This was Plaintiff's 18, page 1. And what I want to direct your attention to, Doctor, is -- is what you already testified to, that -- what Ms. Garcia reported when she reported her symptoms -- according to this record, she reported them -- that the symptoms started that day on January 5th of 2011.
A. Yes.
Q. Right? Okay. And -- and then I want to show you -- this is Dr. Gulitz's record from January 12th of 2011. And can you identify -- just under mechanism of injury, just want to direct your attention to what Ms. Garcia says regarding the -- regarding the onset of symptoms following the accident.
A. Stated that she was -- the highlighted area stated that "After the collision she was shaky, nervous, in pain, and upset." That --
Q. And what -- oh, go ahead.
A. -- doesn't correlate well at all with
other -- what occurred day one in the ER or at all with what the records show.
Q. Okay. And then I want to show you Dr. Cash's report. This is Plaintiff's 23, page 3. This is from -- let me reduce the -- the size here. This is from 2/16 of 2011.

What does -- and I also have it highlighted. What does Ms. Garcia report to Dr. Cash approximately six weeks after the accident as to when the -regarding her symptoms?
A. "The patient fought through the pain over the next four days because she did not want to miss work."
Q. Okay. Now, this statement -- as a physiatrist in your -- reviewing this record, what would you -- what would you -- what would the statement mean to you as to when she's indicating the pain symptoms started?
A. To Dr. Cash, she stated the pain -- she's referring to the pain starting immediately after the accident and she fought through it for four days.
Q. Okay. And then I'm going to show you Dr. Gross's report of May 31st of 2011 and just direct your attention to history of illness. Read this and identify where -- what she states to Dr. Gross as to the -- her symptoms starting after the accident and
what they were.
A. Well, it states, "She recalls being jerked side to side with forward flexion of her body. She was dizzy, dazed, confused, and nauseated. She was in shock."
Q. Okay.
A. That, again, does not correlate well with the other records.
Q. And that statement to Dr. Gross on this date, when she makes this reference, what is your understanding as to what she is saying as to -- as to when she's indicating that the symptoms started following the accident?
A. Immediately, because then she refers to the police coming to the scene.
Q. Okay. And -- and the reference to dizzy, dazed, confused, and nauseated, does that comport with what she reported to the emergency room physician on January 5th of 2011?
A. No.
Q. Dr. Kidwell testified the other day, indicating that those various statements that she made regarding when the symptoms started after the accident was not really significant.

Would you agree?
A. I don't know how a doctor could state that. Those are important things we look at when we assess a patient's condition and when things started. Whether it's an injury or whether it's something else that occurred, you have to know, you know, what is -- what was -- the source be and how -- when they started and how -- how they affected her.
Q. And so with -- would you consider these statements to be consistent with one another or inconsistent?
A. Her statements to various healthcare providers were very inconsistent. The most important one is the ER doctor, and none of these things were going on. But every time she saw a healthcare provider, it's a constellation of symptoms that seemed to be -- have an expanding list, some similar but a whole lot of different things going on that doesn't make a lot of sense.
Q. Now, as a physiatrist, whether you're doing a medical record review or evaluating a patient and you've reviewed these records, what's the takeaway from the inconsistency in these statements for you as a physiatrist in evaluating a patient?
A. I'd like to get to the bottom of it, but it's less concerning for a -- an acute problem or for a
significant problem because, obviously, she was experiencing pain from an emotional standpoint, and they're not consistent from what -- having these records available, not consistent. I'd like to find out what occurred from day one and how -- being inconsistent is a real problem. They should not occur that way. If you had a true traumatic event, you're going to have consistent findings and symptoms.
Q. Okay. What's your understanding, after reviewing Dr. Kidwell's records for all of the follow-up consultations he had with Ms. Garcia, as to what was the primary purpose for the consultations that he had? What was the form of treatment he provided to her on each visit?
A. Spinal injections, for the most part.
Q. Well, on each and every visit?
A. Not each visit, but he -- there was -- he -he was also providing her pain -- pain meds but spinal injections intermittently throughout the time he saw her.
Q. Well, yeah. And we identified -- I think I identified one for you. The jury's -- has seen the various procedures he's -- he's provided.

But I'm -- I'm not talking about procedures. I'm talking about the consultation visits that

Ms. Garcia had with Dr. Kidwell. And I know you reviewed his records through -- well, through the December of 2015.
A. Right. I've reviewed records through then. I'm not sure -- I don't understand your question. I apologize.
Q. Fair enough. Okay. Give me one moment.

Doctor -- okay. Doctor, so I'm going to show you the synopsis of -- of the medications that -- this is for the consultations, not procedures. Okay? And so is it -- what -- is your understanding that -- that the primary purpose for consultation with Dr. Kidwell was for pain prescription medications?
A. Right. This is what it looks like through the -- throughout treatment, plus he did, like, intermittent spinal injections. He provided her with regular refills for medications that changed at times.
Q. Okay. And we will go to the bottom of the page. Okay.

MR. ROBERTS: Objection, Your Honor. He's just displayed something that's excluded.

THE COURT: You got it down now, so...
MR. ROBERTS: Thank you. Withdrawn.
MR. MAZZEO: Okay.

BY MR. MAZZEO:
Q. And, Dr. Poindexter, so from reviewing Dr. Kidwell's records, what is your opinion as to why he provided monthly medication management prescriptions to Ms. Garcia from -- from the time that he saw her through, let's say, February of 2014?
A. He's essentially seeing her for monthly pain management, which, you know, I do myself for a certain situation. But he's seeing her for monthly pain meds, refills, and adjustments of those meds, but other meds were given that were not -- that were for depression or anxiety, variety of things like that too, during his visits.
Q. Okay. And, now, moving on, directing your attention to Dr. Gross's operative report of 12/26/2012, did you review that in conjunction with your medical record review?
A. Yes.
Q. Okay. And do you have -- as a physiatrist, do you have an understanding -- and I think you've -well, strike that.

As a physiatrist, do you have an understanding as to the success rate for patients who receive a one- or two-level fusion surgery, low back?
A. Success rate in the terms of stabilization
or -- or symptom relief?
Q. It's a good question. Both.
A. Well, there's a fairly high level of success rate for stabilization, but there's a very low level for success rate for improvement of symptoms and -and -- and functioning.
Q. And what is your understanding as to -- in addition to the -- strike that.

In addition to the operative report, you also were provided records from follow-up consultations with Dr. Gross after the fusion surgery; correct?
A. Yes. So, many times after the surgery.
Q. Okay. And what is your -- what is your understanding of any new symptoms that Ms. Garcia experienced after Dr . Gross's fusion surgery in December of 2012?
A. It's my understanding -- were they still present?
Q. Well, of -- of -- of whatever pain complaints Ms. Garcia made following the -- the surgery.
A. She still had a variety of pain complaints -low back pain, some leg pain, some numbness issues -that varied in nature at different times and varied in intensity at different times.
Q. Okay. And -- and just backing up to -- to
that reference to the failed low back surgery syndrome. Based on your review of -- of the records and Ms. Garcia's continuing reporting of pain complaints, would her postsurgery pain reporting fall within the classification for failed low back surgery syndrome? MR. ROBERTS: Objection. Beyond the scope of his report.

THE COURT: I'm going to allow this. I think it's general.

THE WITNESS: Yes. She had a lot of symptoms beforehand, and she had a lot of symptoms -- variety of symptoms afterwards, and she's been lumped into the term of failed low back syndrome.

BY MR. MAZZEO:
Q. Okay. And did you come to any -- did you formulate any opinions as to why Dr . Gross was doing these follow-up consultations with Ms. Garcia after the surgery continuously?
A. Well, my experience in medical practice is highly unusual. Usually a surgeon performs a procedure. They have two or three follow-ups at times, and the patient is then released and discharged from care. You don't have a scenario where surgeons continue seeing patients for multiple visits for a long period of time afterward. They're -- that's just --
scenario doesn't occur. It's not normal, not customary.
Q. Now, Dr. Gross and Dr. Kidwell contend that the fusion surgery was successful despite Ms. Garcia having continued pain come -- pain in the back and the buttocks.

Would you agree with that opinion?
A. I don't know how it's successful. It didn't really change her overall pain complaints.
Q. Okay. Now, moving on to another area. What is the correlation between smoking and its impact on the spine?
A. Smoking can affect the small capillaries that feed -- course blood supply it to an area, and that's going to affect healing rates and going to -- could lead to nonunion of a fusion.
Q. What's your understanding of Ms. Garcia's smoking history at the time of the accident and around the time of the surgery?
A. There were some reference in records of -suggesting that she stopped smoking. I think there was some record -- a record that stated she stopped for some time prior to surgery. I don't know exact time frame.
Q. Okay. I'm going to show you a record here
from Dr. Kidwell. And it's Plaintiff's 26, page 66. And this is from November 7th of 2012. And in this record it indicates "The patient does not smoke."

Do you see that?
A. I see it, yes.
Q. Okay. And I'll have a question for you in one moment.

I also want to show you Dr. Gross's report of November 13th, which is six days later, where she indicates to Dr. Gross in less than a week that "She agreed to fully quit smoking to enhance the fusion rate, and I explained that to her."

Do you see that?
A. Yes.
Q. And do you find a -- an inconsistency between what she told Dr. Kidwell on November 7th of 2012 and then Dr. Gross on November 13th of 2012 regarding her reporting -- representation about smoking or not smoking?
A. It seems opposite concerning the act of smoking.
Q. Okay. And is that something that is significant or it's not a big deal; don't worry about whether she made a mistake or reported something inconsistent like that?
A. Well, it's very big deal for surgical healing.

MR. ROBERTS: Objection. Move to strike. He said the opposite thing in his report.

THE COURT: I -- I'll let you deal with it on cross.

MR. MAZZEO: Thank you, Judge.
BY MR. MAZZEO:
Q. Now, following your medical record review, did you come to any conclusions about the injury sustained by Ms. Garcia?
A. I stated that she had suffered only soft tissue -- mild soft tissue strain/sprain-type injuries.
Q. Okay. And what -- what injuries and diagnoses do you believe are attributable to the subject accident?
A. Usually what I -- what I would say further in regards to this accident, it would be minimal in nature, but they were cervical -- which is neck -- and lumbar -- which is the low back -- and -- but they'd be minimal in nature, and they would require a shortened treatment plan.
Q. What -- what did -- what opinion do you have as to whether or not Ms. Garcia suffered an identifiable permanent injury to her neck or low back?
A. She did not suffer that in relation to the accident.
Q. Given Ms. Garcia's constellation of symptoms postaccident, what is your opinion as to the appropriate treatment Ms. Garcia needed in connection with her injuries?
A. She should have been seen by initial doctor if she had a concern. And she later did, at the ER. Normally you don't go to the ER; you see a primary care doctor, clinic doctor, and they can refer you out or -and they can start treating you. But you assess them and likely would be put -- place a patient in physical therapy and work on their condition, try to improve their symptoms.
Q. Okay. Now, in the course of your record review, you were also provided with Dr. Oliveri's comprehensive medical evaluation and life-care plan; correct?
A. Yes.
Q. And you were asked to -- to evaluate whether Dr. Oliveri's life-care plan was necessary and appropriate with respect to any injuries Ms. Garcia sustained in connection with this accident --
A. Yes.
Q. -- correct? Okay.

Now, Dr. Oliveri associates all of
Ms. Garcia's diagnoses, treatment, injections, surgery, and future medical needs to the motor vehicle accident.

Do you agree? And if not, why not?
A. I don't agree at all. I think that's kind of absurd. That's not taking into account all the aspects of the medical records and the patient's problems and complaints from day one.
Q. Dr. Oliveri testified that he never created a life-care plan for any patient not in litigation.

In your experience, are there patients
with -- who do not have a legal claim who might need a life-care plan?
A. Yes.
Q. Tell us about that.
A. Could be a person that falls in their house and has a head injury and they need -- if they have health insurance, they may determine what their needs were down the road the rest of their life, and you can do a life-care plan for that to determine what services they're going to need, because they're going to need lifelong service in that situation.

It's not just always due to an accident.
Q. Okay. Dr. Oliveri estimated the life-care plan for 40 years out for Ms. Garcia.

Have you formulated any opinions that -- with regard to Dr. Oliveri's recommendation that she needs future medical treatment for 40 years out from -- from this point?
A. In regards to accidents, it's completely unnecessary and absurd to suggest that from this accident.
Q. Okay. Now, Dr. Oliveri also testified that he noted that all the findings on the January 26th, 2011, MRI were age-related or degenerative in nature.

Do you agree?
A. Yes.
Q. Okay. Dr. Oliveri note -- stated that there was no indication on any of the imaging studies showed -- which showed any acute or traumatic injury to any structures.

Do you agree?
A. I agree, yes.
Q. Now, Dr. Oliveri had testified that neither Dr. Cash nor Dr. Gross ever identified any objective finding of an acute injury from any imaging study.

Do you agree with that?
A. I do, yes.
Q. Dr. Oliveri stated that the McGill Pain Questionnaire and the Oswestry Low Back Disability

Questionnaire are both very subjective self-appraisals. Would you agree with that?
A. Yes.
Q. Do you -- by the way, in the course of your treating patients who complain of low back pain, do you administer either a McGill questionnaire or Oswestry Low Back Disability Questionnaire?
A. I do at times. I don't with every patient, but I do at times utilize that. It is still something you have to take into account, subjective nature, and see if there's improvements over a period of time with those -- each entity.
Q. Okay. Now, also, Dr. -- Dr. -- during the course of your review of Dr. Oliveri's comprehensive medical evaluation, he referred to a primary diagnosis of motion segment injury with aggravation of a previously asymptomatic spondylolytic spondylolisthesis based on Ms. Garcia's complaints and his review of the MRI and X ray reports and Dr. Lemper's blocks.

Two questions. Do you agree that -- with Dr. Oliveri that Ms. Garcia's sustained a motion segment injury?
A. No.
Q. And do you know what the term refers to when I say "motion segment injury"?
A. My assumption is they're referring to the segment of the spine where she has spondylolisthesis and changes there that occurred from the accident or from a trauma.
Q. Okay. And have you ever reviewed Dr. Oliveri's -- any other reports from Dr. Oliveri that he's created in the medical-legal claim setting?
A. Yes.
Q. How many times?
A. Multiple. I don't know a number, but multiple times.
Q. Okay. And this reference to motion segment injury, is this the first time you've seen it in one of Dr. Oliveri's reports?
A. I don't think it's the first time. It's -each time I reviewed one of the reports was not the same scenario as this, but I don't think it's the first time I have seen that.
Q. Okay. And Dr. Oliveri testified the other day to the jury, and he said the motion segment injury included an implication of both facet joints and the disks.

And do you -- what is your opinion as to whether Ms. Garcia sustained a motion segment-type injury, as described by Dr. Oliveri, to her facet
joints and the disks?
A. That's just not present in this case. So you have -- from day one, you don't see that scenario, and you don't -- and not -- and not concerned about that scenario from day one.
Q. Now, Dr. Oliveri testified that the relief that Mr. -- Ms. Garcia experienced within 30 minutes or 40 minutes after Dr. Lemper's procedure could be due to the effects of anesthesia and narcotics as well as Ms. Garcia's non-weight-bearing position on the gurney prior to discharge.

Do you agree with that? And if so, why?
A. I do. You can see improvement by positioning. You can see improvement with -- just the numbing agents can help you feel better. It's not diagnostic, but you can see those things on a regular basis.
Q. Now, Dr. Oliveri also testified on the stand that he contends that the motor vehicle accident caused an aggravation of a preexisting condition but that he did not do any apportionment.

If -- if an injury -- if an incident, traumatic event, caused an aggravation of a preexisting condition, in your experience as a physiatrist and -would apportionment be appropriate or inappropriate?
A. Apportionment is required. You have to do apportionments. It's -- you're dealing with a preexisting problem; you're dealing with a postinjury accident problem. You have to do apportionments. To not do it is highly unusual.
Q. Okay. Now, Dr. Oliveri also recommended that Ms. Garcia needed -- will need future lumbar fusion surgery for an adjacent segment breakdown.

Can you tell us what that means and whether you agree or not?
A. Adjacent segment breakdown could be a level above or below where you have a fusion site. And because of the fusion, you're going to move -- that's going to start moving together, to stable.

Above and below you're going to have bending and motion there. So you are going to expect to have more motion there and aggravation or -- or changes there with time and, depending on the person's activities, whether at work or home.

So that's -- an adjacent segment breakdown could occur.
Q. And do you agree that Ms. Garcia's a candidate for a -- an adjacent segment breakdown as a result of this accident?
A. Not as a result of the accident. Having a
surgery fusion is a common thing you might see but not in all cases. But as a result of the accident, the surgery is unnecessary, shouldn't have been performed. And now she has other problems that she's dealing with because of fusion.
Q. Thank you.

Now, you also -- you reviewed Dr. Oliveri's life-care plan for future medical treatment.

Do you believe -- or what is your opinion as to whether Ms. Garcia will need any future medical treatment related to this accident?
A. I don't agree she has a need for future medical treatment. And the extensive nature that he placed in there is just not appropriate when we look at all the facts of the case.
Q. Okay. What is your opinion as to whether any of the treatment, diagnostic studies that were performed, the interventional injections, or the operational procedures after August 20 -- 2011 were related to the subject accident?
A. After August 2011?
Q. Yeah.
A. I don't -- they're not -- I would not have performed -- they're not necessary.
Q. And are all your opinions that you've stated
today to a reasonable degree of medical probability?
A. Yes.
Q. Have you ever evaluated a patient who did not have a medical-legal claim who was prescribed the amount of treatment recommended and given by the doctors in this case?
A. Outside of a medical-legal claim?
Q. Right.
A. Outside of a personal injury situation?
Q. Outside of medical-legal, personal injury. Outside of medical-legal claim where a third party is being -- sought to be held accountable.
A. It's highly unusual. But it's very, very common in personal injury cases. It's highly uncommon outside of the personal injury arena. It's very common within that arena.

And we're governed by appropriateness of our care and treatment that we ask for and proceed with outside a personal injury claim. You don't see this kind of stuff going on with regular treatment of these kind of problems.
Q. Now, several of Plaintiff's -- Ms. Garcia's treatment providers who've testified here at trial contend that, because Ms. Garcia was, one, asymptomatic prior to the accident; two, that she complained of pain
postaccident; three, which did not resolve within a period of time, within six months or a reasonable period of time, that it was not just a simple sprain and strain that she sustained and that it -- that it was more.

Do you -- do you have an opinion regarding that?
A. Just because -- just because a person has ongoing symptoms doesn't mean it requires a fusion surgery, more extensive workup, more extensive injections or medications and refills.

It may be that patients' subjective complaints you can't quantify or objectify, you don't keep treating their complaints. In this situation, I think that's what occurred. I think that's why she had the surgery, because there's objective complaints that were not verified with objective findings.
Q. Now, Doctor, you've testified -- you testified earlier today that you don't believe that -that you don't believe that Ms. Garcia sustained an acute injury to the preexisting listhesis in her L5-S1 of the low back; correct?
A. Correct.
Q. However, if a patient did sustain an acute injury or has pain associated with a listhesis, what is
the appropriate treatment you would recommend as a physiatrist for that patient?
A. Take this situation. If I saw this patient and I found out she had a listhesis like this and it's Grade I or Grade II, I'd do everything I could from conservative standpoint to strengthen the area and provide core strengthening for her, which is going to include fairly extensive therapy to get her on track, and then transfer her over to, like, a gym setting to prevent possibly that from advancing more and requiring surgery.

Because you can live with this kind of -this kind of situation, and many people do. And we keep them in -- if you keep a person in good shape, flexible, strong core, you -- it cannot advance, and you can deal with things down the road without a problem.
Q. Okay. Now, also Drs. Kidwell, Dr. Lemper, Dr. Gross contend that Ms. Garcia had a progressive worsening of pain which went beyond the six months postaccident which implicated the facet joints and the disks.

Do you agree with that assessment?
A. I do not. She had some facet arthritis. She had minimal disk bulges. They were not bulging onto
anything. There's no neurologic deficits. There's no compression of nerve roots. She had patent foramen, which is the hole where the nerves come out.

I don't understand what occurred in this case and why it occurred. There's no reason for all the things that did occur. She has -- had a stable spine, and she had -- except for listhesis that was already preexisting. And she did not have a worsening condition or acute traumatic event to that condition.
Q. Okay. And all your opinions today are to a reasonable degree of medical probability?
A. Yes.
Q. Thank you, Doctor. MR. MAZZEO: I'll pass the witness. THE COURT: Mr. Strassburg? Mr. Tindall? MR. STRASSBURG: Do you want to go, or you want me to?

MR. ROBERTS: Go ahead. MR. STRASSBURG: Okay.

## CROSS-EXAMINATION

BY MR. STRASSBURG:
Q. Good morning, Doctor.
A. How you doing?
Q. I'm Roger Strassburg. We briefly met
outside. I talk for the defendant Jared Awerbach in this case. And I -- I have a couple of questions as well.

Now, does the term "medical mechanism" have any meaning for you?
A. Well, we -- I -- it's referring to the mechanism of events or injuries. You have to worry about what -- the mechanism that led to a person's problem. So ...
Q. You've given testimony here today and -- and previously that there's no acute event that caused the spondylolisthesis or nerve compression. You recall?
A. Yes.
Q. Can you explain using the analysis of the -the medical mechanisms that are generally known to cause spondylolisthesis to explain the basis for your opinion that none of them occurred here.
A. Well, with a listhesis, that's caused by what's called a pars defect in the person's spine. And that can come from trauma, or you could have a congenitally weak spine and you could have hereditary-type issues in your spine that lead to more advanced degeneration in a more quicker period of time that would lead to a breakage of that and have a pars defect there that could then lead to a slippage that
can gradually become worse.
In general, these are degenerative nature. And they don't happen to everybody's spine, but they do happen in a certain part of the population.
Q. If the pars defect broke in Ms. Garcia's body, would you expect there to be evidence of that fact on the MRIs or the X rays?
A. You may not be able to see it on the X rays. You would see a slippage. But the evidence should be shown on a CT or an MRI scan of acute changes and edema or swelling in the area that would be an acute nature that the radiologist would see and report.
Q. And did you see any evidence of such reports from radiology in her file?
A. No.
Q. Now, what about nerve compression? Are there any recognized medical mechanisms that cause nerve compression of the nerve roots at L5-S1, L4-L5 that you could utilize to explain the basis for your opinion that there wasn't any nerve compression here?
A. Well, her foramen, or the holes where the nerves come out, that we have at each level in our spine were fairly patent, meaning they were fairly open.

Even with the slippage and listhesis that she
had, you didn't see nerve compression. You didn't see any signs of the nerve being irritated or any kind of pathology. And that can come from that listhesis which starts to cause traction on a nerve, or it can come from a large herniated disk. It can come from a tumor. It can come from advanced arthritis changes in the foramen that narrows down completely around the nerve root that can lead to those kind of problems.
Q. All right. Why don't you come down here and, just for review, remind us all what your analysis is here. Let's get -- see if we can get close for everyone's benefit.
A. Okay. This is -- so you have the lumbar part of -- the thoracic spine and the lumbar spinal vertebra, they're stacked here. You have disks between each one of these. In the sacrum, they're usually fused and there's no disk here. Each level, you have nerves coming out of the foramen at each level of your spine.
Q. And the foramen are these holes here?
A. Yes. These are facets where they hook -- the bones hook together. And you get arthritis there. If that's bad enough, that can press onto a nerve root.

If you have a slippage, like we talked about, it can go forward or it can go backwards, retro or
anterior. And you can -- when it goes forward or backwards, then you can start putting traction on these nerves, because the bone is slipped, and narrow down that foramen.

We don't have that in this case. We have a slippage that's stable but not acutely worsened and not causing pressure on the nerve. And there's no acute nature of the event.
Q. Would you expect -- if there was narrowing of a foramen that impinged upon a nerve root, would you expect that to be visible on any of the MRIs or $X$ rays?
A. Yes.
Q. And was it?
A. No.
Q. Now, if you -- there's another way to look at nerve roots, isn't there?

MR. ROBERTS: Objection. He didn't review the X rays or MRIs.

MR. STRASSBURG: It was --
MR. ROBERTS: I think Mr. Strassburg --
MR. STRASSBURG: It was reports, Judge. I
apologize if $I$ was -- for my inaccuracy.
Thank you for your correction. And feel
free.
/ / / / /

BY MR. STRASSBURG:
Q. Let's take off L1.

And can you, using this, looking down from the top -- which you guys call axial; right?
A. Yes.
Q. Okay. And could you explain from this view how a spondylolisthesis might cause nerve root compression that could lead to pain.
A. Well, the same kind of procedure, but you're looking at it from a different view. You're going to be able to see, say, this bone forward on this bone and --
Q. You're indicating the vertebra?
A. Right. The vertebra being -- slipping
forward or sometimes backwards and causing some traction where you have compression on the nerve root that can lead to a radiculopathy or radicular symptoms that -- to prove a radiculopathy, you can do that with further testing like an EMG study. In this case you don't have the slippage causing traction or pressure on a nerve root.
Q. Let's put the disk in -- bring the disk into the picture.

Can that lead to compression on a nerve?
A. Yes. Because you can have a herniation --
usually it's more laterally or anteriorly. You can have pressure to one side. If you have a herniation, it can herniate back -- I'm sorry. The most common -the -- where we have a problem with the nerve is posteriorly. It can posteriorly herniate out to here on a nerve.

In her case she has minimal 2- or 2.2-millimeter disk bulges or protrusions that are -we all see in everybody's spine as we go through life and get older.
Q. Would -- the disk protrusions mentioned in the radiological reports, would -- would they be enough to actually bring the disk protrusion in contact with the nerve root?
A. No.
Q. Now --

MR. ROBERTS: Objection. Beyond the scope of his report.

THE COURT: Overruled. He's talked about the report, so I'm going to let him talk about that. BY MR. STRASSBURG:
Q. All right. Now, would you show everybody where the facets are.
A. Well, they -- this is the area -- well, they're hooked -- the facet joints are here where they
hook together, posterior elements, and they hook together right here for each vertebra going down your spine.

They can help stabilize your spine. And with -- and -- and with movement, you can compress these when you go backwards or extension. If you have arthritis changes there or a tumor there or a fracture there, you can have acute pain extending your back backwards.
Q. And were any of those conditions remarked upon in the radiological reports?
A. Just facet arthritis but no -- it was mild.
Q. Okay. Now, what is the function of these facet joints?

Let me ask it -- I'll withdraw that.
With regard to stabilizing the spine and preventing movement of these disks forward, do the facet joints have any function in that regard?
A. It prevents your move -- it does help prevent some move -- translation, we call it. They're part of -- stabilizing part of the spine. They can help prevent abnormal motion.

It's -- the structures of the spine that we normally have when we're born is a complicated situation, but it -- but -- and it changes with time.

But they are elements that are posterior elements that help with some stability.
Q. And if the forces on the spine try to move the L5 vertebra forward, would the facet joints obstruct that attempted motion or not?
A. Some of them. More likely, you're going to have a -- you have ligaments that are holding things in place also. You have an anterior longitudinal ligament that goes up and down the whole entire spine that helps. When that -- as I mentioned, with a Grade III or IV listhesis, that ligament can be torn.
Q. All right. And would that show up on MRIs?
A. Yes.
Q. And if the facet joints were damaged by a trauma, would that show up on an MRI?
A. Yes.
Q. And would that be the kind of condition that a radiologist would be expected to comment on in the report?
A. Yes.
Q. And did any of them?
A. No.
Q. Okay. You can go back.

Any other medical mechanisms that are known to medicine as having the potential to cause pain that
you haven't mentioned?
A. Well, I did kind of mention tumors. Spinal cord injuries themselves -- damage to the spinal cord can be a problem and cause pain.
Q. And none of that was implicated here?
A. No.
Q. Now, let me get this up here for Mr. Blurton.

Yeah, you know what to do.
JUROR NO. 1: I know what to do.
MR. STRASSBURG: Okay. It's coming. And I'll show everyone else the poster.

Is that up?
THE WITNESS: Yes.
BY MR. STRASSBURG:
Q. Do you mind coming down here, sir?
A. You talking to me?
Q. Huh?
A. Want me to come down?
Q. Yeah, you.
A. Okay.
Q. Now, we -- we've talked about this chart before. And let me just direct your attention to the -- the chart of the -- the course of chiropractic care that's reflected in the medical proof that's been stipulated into evidence here, this chiro care from

January 12th, 2011, after she saw the lawyer, to May 20th, 2011, and then the orthopedic consult with Dr. Cash on February 16 where he gave a recommendation of surgery and noted that her lower back was showing 40 percent improvement from chiro and physical therapy.

But the only thing it would have been would have been the chiro care. But it would have been 40 percent low back improvement.

And then let me direct your attention here to the Select Physical Therapy, which was from August 17th, 2012, to September 15, 2012, consisting of ten visits with Select Physical Therapy. And I'd also draw your attention to this dotted line here which marks on the chart where the surgery performed by Dr. Gross, lumbar decompression with instrumented fusion, L4-5 and S1, when that took place in California.

Now -- and then there were also some assessments performed by --

MR. ROBERTS: Objection. Not in the form of a question.

THE COURT: I guess.
MR. MAZZEO: He's laying the -- laying the foundation, Judge. He's acclimating the witness to the chart.

MR. STRASSBURG: Just shoot me, Judge.
THE COURT: Just get to a question.
BY MR. STRASSBURG:
Q. Given this proof, if she was your patient, at the -- at the end of this physical therapy, would you say, "Okay. Okay. She's a candidate for surgery. I'm not even going to try any more physical therapy" or would you do something else?

MR. ROBERTS: Objection. Beyond the scope of his expertise and report.

THE COURT: The way you asked it was. You have to rephrase the surgery part of the question.

MR. STRASSBURG: What's that?
THE COURT: I'm going to sustain the objection. It's beyond his expertise. You have to rephrase the surgery part of the question. BY MR. STRASSBURG:
Q. Okay. Is -- is part of your expertise to determine when a patient with Ms. Garcia's profile should be referred to a surgeon for surgery?
A. Yes.
Q. All right. And how can you do that if you're not a surgeon?
A. That's the -- that's the biggest part of what we do in physiatry. We manage the patient and we work
them up totally. We are the ones that do the whole picture with a patient concerning testing, examination, giving a history, sending to therapy or a chiropractor, assessing that when they come back for follow-up, determining what they need for future-type treatments.

If -- if I've worked a patient up to that point and they don't need anything else, then I may discharge them and see them at some point in the future. If they have a spinal problem that might be a surgery and I have not get them where they -- the level I want them to be at for level functioning, then -- and if indicated, I would send them to a surgeon for a surgery.

We do that with regularity in physiatry.
Q. So is determining when physical therapy and conservative treatment has run its course and -- and reached a medical plateau, is that part of your discipline, your expertise?
A. It's -- it's part of my entire practice.
Q. Okay. So if -- if you were -- if she was your patient and you got to here at the end of the Select Physical Therapy course and you were seeing some improvement from conservative methods, would you stop all conservative treatment and say she -- that conservative therapy has failed? Or would you keep
trying it longer?
A. I would -- I would -- you could stop and have -- and -- and learn to deal with the pain she has. But I would probably, in her situation, give her more conservative treatment, stabilize her spine more with core strengthening, because you can do that in these situations. You may not make a person pain-free, but you can improve their functioning. And they can go through everyday life even with a listhesis like this.
Q. Can you explain to us what core strengthening is.
A. Essentially, your -- your -- your core is in this area here. So you have to work on anterior and posterior muscles. You're working on abdominal muscles and the lumbar muscles for strengthening that core as a stabilizing force for your spine especially in this kind of situation.

You try to stabilize it best as possible with exercises, weight loss, flexibility exercises, and nutrition to -- to improve that level of functioning in that person's lumbar spine. And you -- you try to keep them from going to surgery or advancing their problem.

In her case, she's essentially Grade I or Grade II. She would not have required surgery with the -- all the information and symptoms that I have
available to look at.
Q. Now, if -- if I direct your attention to the pain self-reporting to Select Physical Therapy at 6 out of 10 .

Do you see that?
A. Yes.
Q. And then go all the way down here to the end, November 2016. Matt Smith Physical Therapy charts are at 7 out of 10 with activity, 4 out of 10 resting. All right.

So comparing these two virtual end points, would you -- can you offer any opinion as to whether the treatment between this point and that point was medically effective?
A. It wasn't effective.
Q. Now, let me direct your attention to this point here. She appears on May 25th, 2011, with Dr. Gross.

MR. ROBERTS: I apologize, Your Honor.
I couldn't see the chart.
MR. STRASSBURG: Huh?
MR. ROBERTS: You said treatment from here to here was not medically effective.

What was the end point?
MR. STRASSBURG: That's fair. That's fair.

I meant -- the "here" is September 15th, 2012, Select Physical Therapy. The "there" is Matt Smith, November 18th, 2016.

MR. ROBERTS: Okay. I would object to anything after 2014 because he hasn't reviewed it at the time of his report.

MR. MAZZEO: Your Honor, can we approach please?

THE COURT: Sure.
MR. MAZZEO: Thank you.
(A discussion was held at the bench, not reported.).

THE COURT: Objection's overruled.
BY MR. STRASSBURG:
Q. And where were we? Here?

May 25th, 2011, Gross charts her as no significant leg pain but some pressure; right?
A. (Witness nods head.)
Q. And there's a break here. So that's really occurring down here.

MR. MAZZEO: Excuse me, counsel. The screen went off.

MR. STRASSBURG: I hate that. No, no. I got it.

I may have to run back and put more money in
the meter. All right.
BY MR. STRASSBURG:
Q. Can you account for -- if you can offer any medical explanation for how come she shows up at Kidwell's office on August 15th, 2012, pain at 8 out of 10; and the last time that Select Physical Therapy puts her through their mill, she's at 6 out of 10.

Are you aware, based on your review of the record, of anything that could account for that difference?
A. Her work activities could be.
Q. Okay.
A. Nothing else other than that that I can think of.
Q. So just normal activities of daily living?
A. And -- and possibly that she doesn't deal with pain very well. She has a -- I think she has an emotional component to her pain. And her pain is kind of a sine wave, and she has expanding list of symptoms.

So I can't explain the reason for all the symptoms or the high level and up-and-down nature of the symptoms.
Q. Now, is that unusual with just Ms. Garcia? I mean, is this -- this is the first time you've -you -- you've had that experience, or is this fairly
common?
A. It can be common. It's not common throughout the whole entire population, but I've seen it happen with people in various situations. And a lot of times, there's an emotional component and/or, like I mentioned, work-related, sports-related, hobby-related-type things that might lead to a higher level of pain.
Q. And when you say there's an emotional component, what do you mean by that?
A. Pain is subjective. We all deal with pain in different ways. We all experience pain in different ways. We -- and in her case, she does have some emotional problems from before. She had some depression. She had anxiety. She was already getting treated for that with Dr. Kidwell -- Prozac, Valium, those kind of medications.

So one of the ways to explain it would be that situation. She doesn't possibly assess her pain very well. She doesn't deal with pain very well. And her level of pain goes up and down, and you get a longer list of symptoms.

It doesn't make a lot of sense. That's why we have to objectify it if we can.
Q. Does pain hurt more when your attention is
drawn to it?
A. Yes.
Q. And is your attention drawn to things that you feel emotional about?
A. Yes.
Q. Now, in this chart, we've charted the evidence from Dr. Kidwell's medical charts showing her self-reports of pain. And we established with Dr. Kidwell that, you know, whatever our disagreements are, that they are highly variable.

Would you agree?
A. Yes.
Q. Can -- bless you.

Can you account for that high degree of -- of variability in terms of a -- a condition that involves physical impingement upon a nerve root?
A. No. If you have true physical impingement or trauma or pathology of a nerve root, you're going to have very consistent symptoms over and over again -leg pain, numbness. It'll be a consistent-type situation.

You may vary a little bit in your pain scale on the day, but you're going to have consistent symptoms, pattern of symptoms. Always going to be there.
Q. And that's not shown on this chart here; right?
A. No. No, it's not shown in the records.
Q. Can you account for this degree of variability in self-reports of pain over this period of time in terms of herniation of a disk pressing upon a nerve root?
A. No. It's not related to that.
Q. Okay. How about degenerative changes of the spine?
A. No. You can have pain from that, but it's not related. It's not -- you wouldn't see it up and down in a sine wave-type thing of symptoms. You'd have consistent symptoms also.
Q. Can you offer any medical mechanism that would account for, in a patient with Ms. Garcia's clinical profile, for this high degree of variability in pain self-reporting from August 15th, 2012, to December 9th, 2015?
A. Not from an objective physical standpoint, no.
Q. Doctor, why don't you go back to the stand, please.

For purposes of -- of your opinions, would it have any relevance to you as to the degree of
effectiveness of the conservative treatment?
A. Yes.
Q. Okay. And how would that -- why would that be?
A. If you're having positive improvements -- and you mentioned earlier 40 percent improvements -you're -- you're expecting that kind of improvements, and you're expecting to work on that and expand on that by addressing those issues from a conservative standpoint.
Q. All right. Let me -- would you come down here and -- and let me just show you this chart of the chiropractic and other conservative records.

And do you see where we've highlighted here the indications of improvement with respect to her complaints for the head, the neck, and the mid back from the beginning of the chiro care to the end, five months later?

Do you see that?
A. That -- that represents improvements with the yellow line?
Q. The highlighting indicates the areas of the records where the chiropractor charts an improvement.
A. Okay.
Q. Now -- and up here you see an MRI report from

August the -- August 18th, 2011, studies and another one from October 17th, 2014, of the neck and back area. And do you see up here that -- well, who can see that? Hold on. Don't go anywhere.
A. Okay. Okay.
Q. Maybe you can see this one where it says there are C5-6, C6-7 mild intervertebral disk bulges.

Do you see that?
A. Yes.
Q. And then there is a -- here's the other one.

Well, let me -- here, let me -- there are mild right lateral annular bulges from T2-T3 through T4-5, mild facet joint hypertrophic changes in the thoracic spine, end plate changes, and Schmorl's nodes in the -- the middle back.

Do you see that?
A. Yes.
Q. And would you tell us, what is a hypertrophic change in a facet joint?
A. That essentially is arthritis in a facet joint. That's another term for it.
Q. And could you tell us what end plate changes are?
A. End plates are the top and bottom of the vertebral body. So you can have degenerative changes
on top or bottom.
Q. And can you tell us what a Schmorl's node is?
A. A Schmorl's node is something identified many years ago. It's a benign node or finding, circular/oval finding, in a bone that is benign and doesn't mean anything, but it's been seen to be in some people's vertebra.
Q. Okay. Now, I'm just going to rotate the chart. And can you see here in March where the chiropractic evidence essentially indicates that she is pain-free for this head, neck, and mid back treatment? Do you see that?
A. Yes. I think -- yes.
Q. Okay. All right. Now, is that surprising to you that a patient that has these radiological conditions in her neck would nevertheless be able to recover from chiro care from her complaints of pain in the neck?
A. Not surprising. You should expect that from the treatments.
Q. Even though there's -- you know, there could be bulges and other abnormalities in the radiology studies?
A. There's sources of pain, but you can also have -- they could be silent. You have no symptoms
from them. They're benign -- they're -- they're minimal and degenerative in nature, and they don't always cause pain.
Q. All right. And as a rehabilitationist, would improvement in this -- this area make you inclined to try more conservative therapy or less?
A. Depends on the improvement. If I have a patient that becomes pain-free or near pain-free, I probably would not be doing any more treatments in that area.

I have to -- we never talked about this, but patient with a spondylolisthesis, which is in the lumbar spine, you kind of avoid chiropractic treatments because you can make it worse and you can have -affect the slippage. In the neck and mid back, you expect to have some improvement.

MR. ROBERTS: Objection. Nonresponsive. Not in his report.

THE COURT: You can't talk over him. She didn't even get what he said, so...

MR. ROBERTS: I apologize, Your Honor.
Objection. Nonresponsive. Beyond the scope of his report. Move to strike.

THE COURT: I'm going to allow it.
Overruled.

Go ahead.
BY MR. STRASSBURG:
Q. And what -- what about chiropractic treatment is -- is contraindicated for spondylolisthesis?
A. Manipulation or adjustments of the spine are expected to make that situation worse. So you avoid those things.
Q. Okay. Now, which is more vulnerable to whiplash injury, a neck -- in an automobile accident with a belted-in driver. Which is more vulnerable, the neck or the lumbar back?
A. The neck.
Q. Why?
A. Because the hypermobility of your head, which is like a bowling ball on top your shoulder -- with improved nature of cars and headrests, high headrests, more security features -- I mean, more safety features, there's less chance for injury. But the hypermobility of the head can lead to a whiplash-type injury in the neck. Much less of a problem in the lumbar spine.
Q. From the standpoint of a rehabilitation medicine expert, which part of the spine has the most robust, strong vertebral structures, the neck or the lumbar region?
A. Lumbar .
Q. Can you characterize the difference in degree?
A. Well, you can see on a spine. It shows lumbar spine. That's much more wider, sturdier, larger. As you go from the neck down, things get wider, sturdier, and larger. You carry -- your center of gravity is right here. You carry all your weight -or most of your weight in this area, so you're going to have to have more stable structures.
Q. Thank you, sir.

Bear with me a moment.
You know, Doctor, why don't you return to the witness box. I'm not going to ask you any more questions.

MR. MAZZEO: Wait, Roger. Sorry.
MR. STRASSBURG: Well, maybe I will be.
Excuse me.
MR. MAZZEO: Do you want to put it on your screen?

BY MR. STRASSBURG:
Q. Mr. Mazzeo has reminded me. Now, another aspect of Kidwell's records -- that you reviewed; right?
A. Yes, sir.
Q. And you don't have to call me sir.
A. I'm from Texas. That's what I do.
Q. What?
A. I'm from Texas. That's what I do.

MR. MAZZEO: Roger, could you put it on your screen, if you don't mind?

MR. STRASSBURG: Yeah, sure.
MR. MAZZEO: Thanks .
MR. STRASSBURG: Let me get it -- get it right.

BY MR. STRASSBURG:
Q. Okay. When you reviewed Kidwell, you saw that little section in there on review of systems?
A. Yes.
Q. Now, is -- when you do medical charting, are there, like, standard approved ways to collect and chart medical information on a patient, or does everybody just kind of do their own thing and it's no big deal?
A. There's a standard approved way that is -we're all supposed to -- trained in and supposed to follow.
Q. And is review of systems analysis part of it?
A. Yes.
Q. And do doctors typically -- is there a generally accepted meaning to the terms "body systems"?
A. Generally accepted. You're looking at all organ systems or sections of the body.
Q. Well, now, Kidwell, in his review of systems, he has a category for musculoskeletal.
A. Yes.
Q. And he had a category for neurological.

Yeah?
A. Yes.
Q. And do you use those categories when you chart review of systems?
A. I do. I have a form in my charting that people -- that the patient fills out -- or if they haven't filled out, we'll go over it with them -- and it will go over various organ systems and body systems -- to see if they have any problems with those at the time that we're seeing them.
Q. Well, are you familiar with how the term "musculoskeletal," used in the context of review of systems, what -- what that term is generally deemed to mean in the -- the medical -- in medicine?
A. Generally, the physical part of your body: your legs, arms, neck, back, those kind of things.
Q. And do you have an understanding of what the term "neurological" in the context of a review of systems is deemed to mean in medicine?
A. It's related to -- well, the nervous system is related to that. It could be you're looking for things like numbness, tingling, burning, changes in those areas where the patient experiences.
Q. Now, when a physician has somebody else put information in a medical chart, are you familiar with that practice?
A. That happens in some practices if you have either a medical assistant, nurse practitioner, or physician assistant working with you sometimes.
Q. Well, is the doctor supposed to check that stuff, or can the nonphysician inputters of that information just operate without adult supervision?
A. Well, we're supposed to review what goes in our chart and be up to speed on what we're doing with the patient and all the information concerning complaints and objective findings. We're supposed to know what's going on in our chart and -- and review that.
Q. All right. Now, if a chart -- if -- if you had to chart in review of systems under -- if you had the condition of a disk compressing upon a nerve root in the lumbar spine -- you know, if that was the condition you were going to categorize in your review of systems, would you put that condition in
musculoskeletal or neurological?
A. Well, that's not a typical type thing that goes in review of systems. If a patient, like, would come in and say, "Well, I have a disk pressing on a nerve," that's just not what patients do.
Q. Okay.
A. They're going to say, "I have back pain. I have leg pain. I have numbness pain in my knee."
Q. Okay. You're politely indicating I asked a stupid question. I get it. I get it. You think I can't read minds. I'm telling you. All right.

So let's say a patient comes in for the umpteenth time, right, same complaint, complains of leg pain, and you think it's because of a disk that's herniated; it's compressing on a nerve root.

Do you chart that leg pain under the category of neurological, musculoskeletal, or something else?
A. I would probably put that under
musculoskeletal and then try to confirm or get more information about it.

In Dr. Kidwell's notes, I know that I looked through those things, and there were -- they seem to have the almost same information each time the patient was seen in the charting without much variation.
Q. And what significance do you assign to that
constancy?
A. Unusual, because you're not going to have the same exact problems with review of systems or -- or -that each and every day you see a doctor. You may have none on some and you may have some on others, but you're -- consistency on all review of systems, each and every chart note, is highly unusual.
Q. Are you just being polite for "boilerplate"?
A. For boilerplate?
Q. Yeah.
A. I -- I -- I have never had a patient, in 24 years, have the same exact review of systems. It just doesn't happen. You -- you review these things, and they document them, and you try to confirm their documentation -- or you document when you talk to them, but you don't have the exact same review of systems all the time.
Q. Well, how did that constancy in Dr. Kidwell's review of systems affect your assessment of his credibility?

MR. ROBERTS: Objection. Beyond the scope of his report.

THE COURT: Come on up.
(A discussion was held at the bench, not reported.).

THE COURT: You withdraw the question, Mr. Strassburg?

MR. STRASSBURG: Do you mind?
THE COURT: No, I won't mind if you withdraw it.

MR. STRASSBURG: Thank you, sir. That's called weaseling out of it. BY MR. STRASSBURG:
Q. Okay. Nowhere in Dr. Kidwell's review of systems, for all the constancy of charting, did he chart leg pain in the neurological category.

Now, what do you make out of that omission?
MR. ROBERTS: Objection. Beyond the scope of his report.

MR. MAZZEO: Judge -- Judge, it's within the scope of his review.

MR. STRASSBURG: Judge, he reviewed the records.

THE COURT: Come here, guys.
(A discussion was held at the bench, not reported.)

THE COURT: Objection is going to be sustained.

Go ahead and rephrase the question, Mr. Strassburg.

MR. STRASSBURG: Oh, I hate when that happens.

THE WITNESS: You need a quarter?
MR. STRASSBURG: I'll tell the jokes, Doctor.
Although maybe I should leave that up to you. BY MR. STRASSBURG:
Q. Okay. I want to talk to you about the bases that you have for the opinions you've given here on causation. All right?
A. Yes.
Q. Recollect all those opinions that you gave?
A. Yes.
Q. All right. Now, for purposes of your opinions on causation, what significance, if any, did it have for you that, in Dr. Kidwell's charting, he never charted leg pain as neurological, he only charted it as musculoskeletal?
A. What -- it could be significant. And, like I said, on my charts I put it as a musculoskeletal area. And then in subjective complaint that I want to objectify, it suggests that it's not coming from a nerve and not a nerve pathology-type situation, which it kind of suggests. I just want to clarify a complaint I get from a patient I'm trying to objectify. MR. STRASSBURG: Thank you, sir.

I think that's all. Thank you, Mr. Mazzeo. THE COURT: Want to go ahead and start for a little bit.

MR. ROBERTS: Up to you. Up to the Court.
THE COURT: Everybody okay? You want to keep going for a little bit? Why don't we take a break in about another half hour for maybe 10 or 15 minutes.

Go ahead and get started.
MR. ROBERTS: Thank you, Your Honor.
Hopefully, my voice will last through this, Doctor.

MR. STRASSBURG: You want me to get debris out of here?

MR. ROBERTS: Sure.
MR. STRASSBURG: Do you need this?
MR. ROBERTS: I do not.
CROSS-EXAMINATION
BY MR. ROBERTS:
Q. Okay. Doctor, let's talk about your qualifications to give the testimony you've offered to the jury.

You've talked about referring people to spine surgeons?
A. Yes.
Q. Are you qualified to perform spine surgery?
A. No.
Q. Have you ever performed spine surgery?
A. No.
Q. Is there any hospital in Nevada that would let you perform spine surgery?
A. No.
Q. You've given the jury opinions about injections, facet injections, nerve root blocks.

Have you ever performed a nerve root block?
A. No.
Q. Have you ever performed a facet injection?
A. In fact, I think I said that in -- in my testimony earlier. I have not.
Q. And you've also given opinions that you've testified are within your specialty of physical medicine and rehabilitation; correct?
A. Yes.
Q. And that's a physiatrist, as you said?
A. Yes.
Q. Are you board-certified as a physiatrist?
A. I think I've already gone over that also. I'm board-eligible from graduating from a residency. I'm board-eligible and not board-certified.
Q. Okay. And you're not board-certified because you took the exam and you failed it; right?
A. Many years ago I took the exam when I was getting out of residency.
Q. And you failed it?
A. Yes, I did.
Q. And you took the exam a second time, didn't you?
A. Yes.
Q. And you failed it a second time; right?
A. Yes.
Q. Okay. Did you take it a third time and fail it?
A. Um, I don't know. I think it was twice. I don't remember -- it's been many, many years since I've taken the exam.
Q. Okay. So you're telling the jury that you took the boards twice in your own specialty; you failed it twice; and, as you sit here today, you can't remember if you took it a third time?

MR. MAZZEO: Objection. Asked and answered, Your Honor.

THE COURT: Overruled.
BY MR. ROBERTS:
Q. Is that your testimony? Did I get it right?
A. It is. I've already stated that. Yes. You don't have to be board-certified to practice in my
field or in medicine.
Q. And your field, you testified that about one fourth of it was medical-legal work?
A. Yes.
Q. And in your medical-legal work, 80 percent is for defense?
A. Approximately, yes.
Q. And why do you get hired so much more by defense than plaintiffs?
A. Again, I have stated this earlier today in my testimony. It's rehab doctors are conservative doctors and we do conservative treatments and we try to maximize the benefit of that. That's very likely why it occurs that way. I don't go out and market the business.
Q. You're not trying to tell the jury that all physiatrists testify mainly for defendants; right?
A. You didn't ask me that question.
Q. But your answer to why you get hired so much by defendants is that you're a physiatrist and physiatrists like conservative treatment.
A. In general, yes.
Q. And the portion of your work that's not medical-legal, is most of that in the area of workers' compensation?
A. Sir, was there a question?
Q. You mainly do workers' comp as part of your regular practice.
A. Not mainly, no. A lot of it but not mainly.
Q. A lot of it? What do you do more than workers' comp treatment?
A. I do the whole scope of physiatry, which I kind of spelled out on two occasions earlier. It's a wide scope of a practice.
Q. Okay. What proportion of your patients are workers' comp patients versus nonworkers' comp patients?
A. Probably about 50 percent.
Q. And in this case, you've told the jury a little bit about the fact that you're being paid for your time to review medical records.

Did you write reports?
A. Yes.
Q. Okay. And you -- did you have your deposition taken?
A. Yes.
Q. And you're being paid for your time to come here to court today; correct?
A. Yes. That's very common among all doctors, yes.
Q. Okay.
A. I'm not unusual.
Q. From beginning to end, what's the total amount you've been paid for your work on this case?
A. I really couldn't say. I don't have those things up. My house manager takes care of it.
Q. Give us an estimate.
A. Maybe about $\$ 8,000$.
Q. Okay. The jury has heard from treating physicians in this case who treated on medical liens.

Do you sometimes treat patients on medical
liens?
A. Yes.
Q. And when you treat patients on medical liens, does it change your treatment of the patients?
A. No, it does not.
Q. You're going to treat your patients on a medical lien the exact same way as someone who's paying in a different way; correct?
A. Why would I change my treatment for them?
Q. Well --

MR. MAZZEO: Objection, Judge. Beyond the scope of his report.

BY MR. ROBERTS:
Q. The reason I'm asking that --

MR. MAZZEO: I have an objection standing. MR. ROBERTS: Oh, sorry.

THE COURT: It's not in his report. I agree. Sustained.

MR. ROBERTS: It was asked in his deposition, Judge, and these are the answers he gave in his deposition.

THE COURT: If he was asked in his deposition, then I think it's fair game. Overruled.

MR. ROBERTS: Thank you, Your Honor. BY MR. ROBERTS:
Q. And the reason I'm asking you is you just told the jury that you only saw treatment like Ms. Garcia's in the context of a legal claim.

Did I get that right?
A. I see it very regularly in personal injuries claims, yes. The extensive treatment, that's unexplainable.
Q. You're not trying to tell the jury that you never see prescriptions for narcotics outside of legal claims, are you?
A. I wasn't asked that question.
Q. Okay. You're not trying to tell the jury that you only see nerve root blocks in legal claims, are you?
A. No.
Q. You're not trying to tell the jury that you never see facet injections outside of legal claims; right?
A. No.
Q. You're not trying to tell the jury that you don't see spine fusion except in legal claims; right?
A. Correct.
Q. And you've been hired by Mr. Mazzeo on other cases; is that fair?
A. I'm, I think, one other case with him.
Q. And one -- one thing I don't think the jury has heard -- and I apologize if I ask you a couple of questions that came out earlier -- but have you ever performed a rhizotomy?
A. I have not.
Q. What percentage of your private practice deals with patients who have pain in their spine?
A. Probably about 80 percent.
Q. Okay. And have you ever treated a patient who had pain in their spine which you determined was from a trauma but which did not have an immediate onset of pain on the same day?
A. I don't remember one. It would be kind of highly unusual. I don't remember one. Oh, within 24
hours usually. Within 24 hours I would say it probably occurs.
Q. Okay. So you -- it does happen that they don't have pain immediately at the scene of an automobile collision?
A. Are you just talking about general pain?
Q. Yes, pain from their spine.
A. Yeah. Just general pain, yes, could happen within 24 hours.
Q. But you're saying that it couldn't go beyond 24 hours?

MR. MAZZEO: Objection. Vague as to which -what spine pain, spine injury.

MR. ROBERTS: Let --
THE COURT: I don't know if it was vague in that regard, but the question was vague. So rephrase it.

MR. ROBERTS: I will.
BY MR. ROBERTS:
Q. Where are the -- where do the disks feel pain? Do they feel pain inside? Outside? Front? Back?
A. They cause pain if they're bulging onto the nerve root.
Q. Okay. But the disk itself -- let's assume
there's damage to the disk itself, the fissure, an annular tear.

Is the -- is the whole disk innervated?
A. You don't have -- you generally don't have pain from the disk when this occurs. You have pain from other structures.
Q. So assume for me that you've got damage to the inside of a disk.

It's not innervated, so the patient's not going to feel that; right?
A. Well, you're asking really general, general questions and general -- in general terms, if you have a damage to the disk, that's kind of a really broad-type thing.

If you have damage to a disk itself and there's something going on inside the disk, you may not have pain.
Q. Thank you, Doctor. And you testified that, in your opinion, Ms. Garcia suffered some sort of sprain/strain in this automobile collision; right?
A. Possibly, yes. Minimal in nature, I said, yes.
Q. Yes. But more likely than not, you agree with the other doctors that she was injured; correct?
A. With a soft tissue-type injury, yes.
Q. Okay. Your dispute is with the severity and permanency of the injury; correct?
A. There's no permanency to her injury that occurred in the accident. That's what I'm stating.
Q. Right. Because a sprain/strain, even if you do nothing, more likely than not is going to resolve over a short period of time, 8 to 12 weeks, a year at the longest; right?
A. Not usually a year. It's about three months or less in general.
Q. When you -- when you mentioned the word "problems and complaints from day one" -- do you remember telling that, Doc, to the jury in response to a question on direct?
A. Yes.
Q. When is day one?
A. Day one of the injury, of the trauma.
Q. Okay. So day one is January 2nd, 2011?
A. I can't remember the exact date. I think that's the -- if that's the day of the accident, that would be considered -- I was asked about a traumatic event to her spinal region and the listhesis.
Q. Okay.
A. That's a different -- big difference what you're trying to say in general terms and broad terms.
Q. Well, that's why I'm trying to get clarification.

When you told the jury since day one, when was day one?
A. The date of the accident.
Q. Okay. And you're not telling the jury that you've seen any evidence that Ms. Garcia had any pain from her lumbar region before the accident, are you?
A. Am I stating she had no pain prior to the accident?
Q. Let me rephrase so I'm perfectly clear.

You would agree that, in all the records you reviewed and all the depositions you reviewed, there's no evidence that Ms. Garcia had any lumbar pain prior to the collision of January 2nd, 2011?
A. I didn't see a record suggesting significant pain in her lumbar spine area.
Q. Tell me about the records you saw which suggested pain in the lumbar spine that you didn't feel was significant. Or did you mean to --
A. I think you just misstated what I said -what I was talking about.
Q. Okay. So what you meant to say is you didn't see any records of any pain to the lumbar spine prior to the collision; right?
A. I remember records of pain to the lumbar spine -- it's unusual because the listhesis would normally cause pain.
Q. What study do you rely upon for that, Doctor?
A. It's my history of seeing -- dealing with problems. Usually you have some pain at some point in time in your life with listhesis. I didn't cite a study.
Q. So you're not familiar with the study showing over 80 percent of people with a spondylolisthesis are completely asymptomatic?
A. So the 20 percent should have pain in their spine.
Q. Okay. And since we're dealing with more likely than not here, it's more likely than not someone with a spondylolisthesis is going to be completely asymptomatic; right? 80 percent.
A. That's one study. I don't -- I don't see that in my practice. I've seen people with listhesis that have pain that they deal with.
Q. If the accident, the collision of January 2nd, 2011, did not cause Ms. Garcia's pain that did not go away, what did cause it?
A. I couldn't tell you. Pain that doesn't go away doesn't mean it's from trauma. We've already gone
over many things that could cause pain.
Q. Right. So she didn't have the pain before the collision. She has the pain after the collision, and it never goes away.

You can't offer this jury any other explanation for what caused it, can you?
A. Well, she has a listhesis, and now she has a fusion. And her pain level went up and down and had more list of symptoms.
Q. Did she have the pain before the fusion?
A. I don't know how many times I have to answer that, but I think we've already kind of covered that.
Q. She did.
A. Not that I know of. I didn't see pain in the records from prior to the accident.
Q. Okay. I said before the fusion.

So after the accident and up to the fusion, she had pain that didn't go away in her lumbar region; correct?
A. Correct.
Q. Okay. So the -- so the fusion didn't cause all of her pain; it was there before the fusion. Agreed?
A. Correct.
Q. Did you say that, even if a patient has pain,
if you don't see an objective finding of trauma, that you won't treat the patient?
A. I don't think I said that. I'd want to assess their pain and objectify it.
Q. Okay. And you would agree that you can't look at an MRI or an X ray or the radiological report of a MRI or an $X$ ray and tell if a patient's in pain; right?
A. Correct. You don't look at that to prove pain.
Q. You can see age-related changes on an MRI of a patient that has no pain; right?
A. Correct.
Q. And you can have a patient in severe pain, and look at an MRI and can't find it; right?

MR. MAZZEO: Objection, Your Honor. Vague.
THE COURT: Overruled.
THE WITNESS: Not all pain is related to an
MRI finding.
BY MR. ROBERTS:
Q. Did you state that radiating symptoms are temporary if you do not have a true radiculopathy?
A. In general -- I might have stated that. In general, they can be temporary, and they should clear with time.
Q. And more likely than not, if it's just radiating pain and there's no true radiculopathy, it's going to go away with time?
A. In general.
Q. And when you talked about the MRIs and the X rays that Ms. Garcia had taken after the collision, you just looked at the radiologist's report and not the films themselves; right?
A. I've seen the three MRI films also.
Q. When did -- did you see those after you wrote your report and after you took your deposition?
A. Yes.
Q. Is it reasonable for a physician to rely on the findings in a radiological report done by the radiologists?
A. Solely rely on that?
Q. To rely on that for part of the opinions. You relied on these things for your opinions. I'm asking if that's reasonable.
A. In my field of treatment, I look at lumbar spine $X$ rays all the time. So I wouldn't solely rely on the radiologist report. I'd confirm what I see also.
Q. Let's talk about the process here.

You how many reports have you written in this
A. Two.
Q. Okay. And when -- when did you write those reports? Do you remember the dates?
A. Back in 2014. One was in October, and one was in November.
Q. And then you had your deposition taken; right?
A. I don't remember the exact date of the deposition. I think it was -- I think it was after that, after the deposition.
Q. And you -- you understood that the purpose of those reports -- because you've done legal work before.

You understood that the purpose of those reports was to give us your opinions and the bases for those opinions; right?
A. Yes.
Q. Okay. And at the time you gave us the opinions, which are substantially the same at the time you wrote the reports as they are now -- at the time you gave us those opinions, you felt comfortable giving them even though you'd never reviewed the films themselves?
A. Correct.
Q. Because you just relied upon the radiology
reports; correct?
A. I did, yes.
Q. Counsel showed you Exhibit 19, which is a record from Dr. Hake at Las Vegas Radiology from November 19th, 2012.

Do you remember reviewing that with the jury?
A. Yes.
Q. Okay. There was a part that wasn't showed to you by defense counsel.

Audra, if you could put up page 14, right in the middle of the page, the last paragraph before the electronic signature.

The radiologist, Dr. Hake, said, "When compared with the prior examination, there is continued anterospondylolisthesis of L5 upon S1. Previous slippage measures 7.5 millimeters and currently measures 1.02-centimeters" -- or -- that's 10.2millimeters. "There is increasing foraminal -foraminal encroachment."

Did you notice that before you gave your opinions?
A. Yes.
Q. If the radiologist is correct, is that evidence that the spondylolisthesis was unstable in the period of time from the January 2011 MRI to the

November 2012 MRI?
MR. MAZZEO: Objection. Speculation.
THE COURT: Overruled.
THE WITNESS: I'm not -- I wouldn't say it's unstable. I think it's -- if that's the case -- and I looked at the films also later, and they didn't look much different when I looked at them, but that's -just means there's a change.

BY MR. ROBERTS:
Q. So if the radiologist is right, the slippage of L5 over S1 has increased by -- what's that, 25 percent over two years?
A. If they're right. And if you look at the films, the 25 percent would be -- it doesn't look like that way at all.
Q. And if they're right and this rate of instability had been in existence prior to the accident, L 5 would have just fallen right off S 1 by this time, wouldn't it?

MR. MAZZEO: Objection. Foundation. Speculation.

THE COURT: I think I'm going to have to sustain that one. I don't know that he can testify to that.
/////

BY MR. ROBERTS:
Q. How many millimeters wide is an S 1 vertebral body front to back?
A. S1 vertebral body, how many millimeter wide?
Q. Yes.
A. I don't know exactly for sure.
Q. Is it fair to say that the words "failed surgery syndrome" or anything like that are not in any of your reports?
A. I would have to look again. I don't know if it's in my report or not.
Q. And you didn't talk about it in your deposition when we asked you what all your opinions were; right?
A. No. I got asked about it here.
Q. Okay. By counsel?
A. Correct.
Q. Okay. Did you meet with either of the counsel for the defendants prior to testifying today?
A. I talked to Mr. Mazzeo on the phone, yes.
Q. Okay. How long did you talk to him for?
A. About an hour and a half.
Q. Okay. When did you do that?
A. Yesterday.
Q. Okay. Did you discuss failed lumbar surgery
syndrome or any similar term in that conversation?
A. I don't think so, no.
Q. Did you discuss whiplash or comparing spine to lumbar whiplash injuries in that conversation?
A. No.
Q. Did you discuss whether Dr. Lemper's treatment was appropriate?
A. I don't think we discussed that in that way, no.
Q. Did you discuss whether Dr. Kidwell's treatment was appropriate?
A. No, we did not discuss that.
Q. What did you talk about?
A. Talked about my -- my scope of my reports. I -- he was able to email me the films and the MRI scan. And we talked about time of testimony and where it was at because I didn't know where it was.
Q. I'd like to go over some of the things you previously testified to at your deposition compared to today.

Are you offering an opinion today that you believe Ms. Garcia's smoking contributed to her need for spine surgery?
A. I don't even know where you'd get that from. I didn't even state that.
Q. So you're not offering that opinion?
A. That her need for spine surgery was due to smoking?
Q. Yes.
A. I wasn't asked that. That's the first time I've heard that today, about the need for surgery for that.
Q. So you're not opining that her smoking caused her need for medical treatment following the automobile collision?
A. What I said earlier was that it can affect healing.
Q. Right. And I'm asking are you offering an opinion today -- that's fine.

Are you offering an opinion that her fusion didn't heal because she was a smoker?
A. No.
Q. All right. Because, in fact, her fusion did heal; right?
A. Yes.
Q. Now, we talked a little bit -- or you talked with counsel a little bit about Dr. Lemper's treatment and Dr . Kidwell's treatment.

Is it fair to say that you're not offering any opinions as to whether their treatment was
appropriate based on Ms. Garcia's complaint; you're only offering an opinion as to whether those treatments were causally related to the automobile collision?
A. Yes.
Q. And does that go beyond Dr. Lemper and Dr. Kidwell to the totality of treatment? You're only offering an opinion that the treatment, after the initial myofascial sprain/strain resolved, was not necessitated by the accident or by the collision; right?
A. Yes.
Q. Okay. You're offering no opinion as to whether or not that treatment was reasonable and appropriate for the condition, separate and aside from the accident?
A. I did say earlier today about the chiropractic treatments possibly not being performed on a listhesis because you could make that problem worse.
Q. But you never said that in your report; right?
A. I don't remember if it was worded that way, no.
Q. Okay. And you didn't say that in your deposition; right?
A. I don't think so, no.
Q. And, in fact, from your review of Dr. Gulitz's records, you've seen absolutely no indication that he performed an adjustment to her lumbar spine that could have aggravated or caused a listhesis; right?
A. I don't see it spelled out in the records like that, no.
Q. You stated that, in your view, that the success rate for lumbar fusion was low.

Did I get that right?
A. Well, it was a general question that -- it's kind of a -- the success rate I'm referring to is a person achieving a pain-free status, which is low.
Q. Okay. So what about a $50,60,70$ percent reduction in pain? Do you see that sometimes?
A. We can, yes.
Q. And is the -- is that probability significantly higher than a total resolution of pain?
A. Yes.
Q. And, in fact, is it -- is it fair to say that maybe 50 percent or more of people have a 50 percent or higher reduction in pain after a lumbar fusion?
A. I don't see it in my practice in Las Vegas. It -- it is expected that that should occur.
Q. Okay. And when you say "expected," that's
what studies outside of Las Vegas indicate?
A. I've seen studies like that you would expect to have an improvement like that.
Q. And isn't it true that lumbar fusion on people with a spondylolisthesis have an even higher success rate than the average in causing a significant reduction in pain?
A. Done for the right reasons, you should expect decrease.
Q. Okay. You never examined Ms. Garcia, did you?
A. I did not.
Q. And you have not met Ms. Garcia?
A. I have not.
Q. And you have given the opinion -- let me make sure I'm summarizing this correctly -- that Ms. Garcia is magnifying her pain when she reports it to her physicians?
A. That's what it appeared to be in several records in the changing symptoms and the higher level and up-and-down symptoms, yes.
Q. Okay. Is this a conscious magnification? She's intentionally doing this? Is that your opinion?
A. I couldn't tell you.
Q. Okay. Is it fair to say that, in your
reports and in your deposition, you never offer any explanation for Ms. Garcia's palpable spasms in her back from January 12th, 2011, up until 2015? You never offer that opinion, do you? It's a yes-or-no question.
A. No.
Q. How long can Ms. Garcia stand without pain?
A. I don't know. I just know she was working a full day of work.
Q. How long can Ms. Garcia sit without pain?
A. I don't know.
Q. What's the heaviest thing Ms. Garcia can lift without pain?
A. I don't know.
Q. On a flexion-extension test, like you commented on with Dr. Cash, can a patient's flexion-extension test be influenced by guarding?
A. Right. And that's subjective.
Q. Right. And so I'm just trying to understand, when counsel was asking you about it, if this had been a valid result or a real result that she wouldn't be able to do all these other things, that didn't make sense to you; right?
A. Correct.
Q. But if a patient is in pain and having spasm, they may be guarding and not wanting to go further
because they're tightening up; right?
A. They may be.
Q. And -- and you're not suggesting that that only happens when a patient is faking an exam and trying to make it look like their injury is worse; a patient can be in pain and resisting that motion. Right?
A. It occurs in both ways that you're mentioning. Our question would concern the consistency in the records.
Q. You -- you talked about whiplash and -- and the spine being more vulnerable because of the head; right?
A. Correct.
Q. It is possible to injure the lumbar spine in a motor vehicle accident; right?
A. Yes.
Q. And it is possible to injure a disk in the lumbar spine in a motor vehicle accident; right?
A. Yes.
Q. And it is possible for a motor vehicle accident to make an asymptomatic preexisting spondylolisthesis symptomatic; correct?
A. Yes.

MR. ROBERTS: Court's indulgence just for a
second. I think I can skip some of this. BY MR. ROBERTS:
Q. You believe that Ms. Garcia should have lost weight; right?
A. Is that a general -- a general question?
Q. Yes. In -- in your reports and in your deposition, you said that Ms. Garcia should have lost weight and her pain would have gotten better?
A. So that's one of the things we look for in patients, to try to have them lose weight.
Q. How much pain should Ms. Garcia have lost -I mean, how much weight?
A. You can't determine it that way.
Q. How much did Ms. Garcia weigh at the time of the motor vehicle collision when she was asymptomatic?
A. I -- I'm sorry. I don't remember her weight. If you show me her record, I can tell you. But I don't remember her weight.
Q. You're not suggesting to the jury that her onset of pain was caused by her weight, are you?
A. I don't think I testified like that, no.
Q. And you're not testifying that, if Ms. Garcia just lost weight, she wouldn't have needed any of the treatment that she received. You're not saying that; right?
A. Again, if a -- we try to get a patient to lose weight for spinal problems; that could help them.

MR. ROBERTS: Your Honor, Court's indulgence just for a second.

THE COURT: If you're at a good breaking point, maybe we can take a break now, Mr. Roberts.

MR. ROBERTS: Sounds good, Your Honor.
THE COURT: Let's go ahead and take another quick break, folks.

During our break, you're instructed not to talk with each other or with anyone else about any subject or issue connected with this trial. You are not to read, watch, or listen to any report of or commentary on the trial by any person connected with this case or by any medium of information, including, without limitation, newspapers, television, the Internet, or radio.

You are not to conduct any research on your own, which means you cannot talk with others, Tweet others, text others, Google issues, or conduct any other kind of book or computer research with regard to any issue, party, witness, or attorney involved in this case.

You're not to form or express any opinion on any subject connected with this trial until the case is
finally submitted to you.
Take 10 or 15 minutes.
(The following proceedings were held
outside the presence of the jury.)
THE COURT: We're outside the presence of the jury. Anything we need to put on the record, Counsel? MR. SMITH: I would like to put one thing on the record.

For the second time, Mr. Strassburg violated his own Motion in Limine No. 12. The other day -- in his Motion in Limine No. 12 precludes him from attacking the credibility of a witness.

The other day he said he didn't trust Dr. Gross. And then today, in a passing comment, he called Select Physical Therapy a mill, which is an attack on the credibility of one of the treating physicians in this case.

And, you know, $I$ don't know if we're going to get a chance to redirect or anything today or as we go on, but those type of comments are not appropriate. He shouldn't have said it to Dr. Gross and he shouldn't be attacking the credibility of the treating physicians.

THE COURT: Probably true.
MR. STRASSBURG: Dr. Gross picked a fight with me, and he got as good as he gave. The use of the
term "mill," I don't know what he's talking about, Judge. I meant nothing untoward by that. "Mill" is not a term from -- coming from northeastern Ohio, the land of many mills, it is not a derogatory term to me.

MR. MAZZEO: It didn't seem, Judge. I heard what Mr . Strassburg said. It didn't seem like a derogatory term when he said it. It could be used in a derogatory sense but not in the context in which Roger used it.

MR. STRASSBURG: Now, had I used it against plaintiff's law firms, that would have a derogatory connotation.

THE COURT: I could see how it could be considered a derogatory term. So just be careful.

MR. STRASSBURG: Yes, Judge. I'll abide by that caution. Thank you.

THE COURT: Anything else?
Off the record.
(Whereupon a short recess was taken.).
THE MARSHAL: Jury entering.
(The following proceedings were held in the presence of the jury.)

MR. MAZZEO: Can we approach briefly.
THE COURT: Sure. Come on up.
(A discussion was held at the bench, not reported.).

THE MARSHAL: Jury is present, Judge.
THE COURT: All right. We're back on the record, Case No. A637772.

Do the parties stipulate to the presence of the jury?

MR. ROBERTS: Yes, Your Honor.
MR. MAZZEO: Yes, Your Honor.
MR. STRASSBURG: Yes.
THE COURT: Doctor, just be reminded you're still under oath.

THE WITNESS: Yes, sir.
THE COURT: Be reminded to try to talk slow.
THE WITNESS: Yes, sir. Numerous times.
THE COURT: Go ahead, Mr. Roberts.
MR. ROBERTS: Thank you, Your Honor. Found my missing sheet over the break. So I appreciate the indulgence.

BY MR. ROBERTS:
Q. Doctor, is it your opinion that Ms. Garcia had a preexisting spondylolisthesis?
A. Yes.
Q. Would that make her more susceptible to injuring her lumbar spine in a motor vehicle accident?

MR. MAZZEO: Objection, Your Honor.
Foundation. Depends on mechanism of injury.
THE COURT: Overruled.
THE WITNESS: It could, depending on various
factors.
BY MR. ROBERTS:
Q. And, in fact, Ms. Garcia's spine could have been injured in the automobile collision of January 2nd, 2011?

MR. MAZZEO: Objection, Your Honor.
Speculation. Anything's possible.
THE COURT: Overruled.
THE WITNESS: It could have, but the records don't show that it -- that it did occur.

MR. ROBERTS: Thank you, Doctor.
That's all I have, Your Honor.
THE COURT: You go first? Yeah.
MR. MAZZEO: Yes, I do.
THE COURT: Go ahead.
MR. MAZZEO: Thank you.
REDIRECT EXAMINATION
BY MR. MAZZEO:
Q. Dr. Poindexter, on cross-examination you were asked about the -- the difference between when you're hired by the defense versus when you're hired by the
plaintiff in the medical-legal claims; right?
A. Yes.
Q. And -- and could it be that -- also that you're hired by the defense more often because plaintiffs have their own treating physicians to testify on their own behalf in trial?

MR. ROBERTS: Objection. Leading.
THE COURT: Sustained.
MR. MAZZEO: Well, it was could have, so I --
THE COURT: You suggested the answers.
MR. MAZZEO: Okay.
THE COURT: Objection is sustained.
BY MR. MAZZEO:
Q. What other reasons, Doctor, would -- what other reasons would there be for you being retained by the defense in medical-legal claims more -- more times than -- more -- more for the defense than for the plaintiff?
A. Well, as I said, conservative treatment from being a physiatrist. I don't -- I'm not a person who's involved in personal injury cases all the time. There are many doctors who are, and they're always seeing the records.
Q. Okay. Now, you've also -- you -- you testified also that you had reviewed -- reviewed the
films of the MRIs from January 2011, August 2011, and November of 2012; right?
A. Yes.
Q. And do you agree with the radiologist's finding about the continued slippage and increasing foraminal encroachment?

MR. ROBERTS: Objection, Your Honor. Beyond the scope of his report.

He can say he didn't change his opinion, but he can't disagree with it now.

THE COURT: Sustained.
BY MR. MAZZEO:
Q. Okay. Do you have an opinion, with regard to the finding by the radiologist that you were shown on that report by Mr. Roberts a few minutes ago, about the progression of slippage? Do you recall that questioning?
A. Yes, I do.
Q. Okay. And after having reviewed the film -I know you initially had reviewed the report, but after having reviewed the film, do you have an opinion -- are you in agreement with the radiologist's finding after reviewing the film?

MR. ROBERTS: Objection. Beyond the scope of the report.

MR. MAZZEO: Your Honor, it was brought out on cross-examination.

THE COURT: You can only -- we talked about the question you can ask. Come on up.
(A discussion was held at the bench, not reported.)

MR. MAZZEO: The question is withdrawn, Your Honor.

THE COURT: Thank you.
BY MR. MAZZEO:
Q. Doctor, you were -- you were asked about spasms on cross-examination?
A. Yes.
Q. All right. And can you tell the jury what -when we talk about spasms, what are we talking about?

MR. ROBERTS: Objection, Your Honor. Beyond the scope of his report.

MR. MAZZEO: It's -- this is redirect, Your Honor, based on the scope of cross-exam.

MR. ROBERTS: My cross-examination confirmed he had no opinions.

MR. MAZZEO: He opened the door. This is clearly within the scope of cross -- redirect.

THE COURT: If it's not in his report, it's not in his deposition, I'm not going to allow it.

Overruled -- or the objection is sustained, I guess. Yeah.

BY MR. MAZZEO:
Q. Doctor, when do you find, with regard to spasm --

MR. MAZZEO: Am I not allowed to ask anything about spasms here? You going to object?

MR. ROBERTS: Yes.
MR. MAZZEO: Judge, are you going to sustain?
THE COURT: I don't know what's in the report, but if it's not in the report, yes.

MR. MAZZEO: Okay. We'll move -- we'll move on.

No further questions.
THE COURT: Mr. Strassburg.
THE WITNESS: My leg is starting to spasm right now.

THE COURT: That wasn't in your report either.

MR. STRASSBURG: Thank you, Judge. CROSS-EXAMINATION

BY MR. STRASSBURG:
Q. Dr. Poindexter, is there anything in the wake of Mr. Roberts' cross-examination of you that makes you want to change any of the opinions that you've rendered
here today?
A. No, sir.
Q. Now, you recollect Mr. Roberts showing you this Hake report by the radiologists on the imaging studies done on Ms. Garcia on November 19th, 2012?
A. Yes.
Q. And you recollect that in that radiology report, Radiologist Hake said that the slippage that he observed on the films, when compared to the prior films -- I guess he meant of August 18, 2011 -- showed that the slippage at L5-S1 had increased from 7.5 millimeters to a 10 point -- I'm sorry --1.02-centimeters. Recall?
A. Yes.
Q. And you know that 1.02 centimeters is
10.2 millimeter, because there's 10 in each centimeter; right?
A. Yes, sir.
Q. Okay. So that would mean, then, that what the Hake report is saying is that there was an increase in slippage between August 19, 2011, and November 19th, 2012, of 2.7-millimeters in distance; true?
A. Yes.
Q. And the Hake report also said that there was
increasing foraminal narrowing that was also observed; right?
A. The term was "encroachment," but, yes, that's what it was referring to.
Q. And increasing foraminal narrowing is -- is this -- the notch here, right, that we talked about?
A. The -- the foramina is the hole where the nerves come out on the side.
Q. Right. And he's talking about this one down here at L5-S1?
A. Yes.
Q. All right. So if -- if we take -- convert this to percentages, like 2.7-millimeters divided by 7.5 millimeters, that's about 36 percent increase; right?
A. I have to do the math, but it's for sure over 25 percent.
Q. All right. And so would you be of the view that if a -- a disk -- or a vertebra moved from its position in August of 2011, 36 percent increase in displacement till its position in November of 2012, that that kind of increase from 7.5 to 10.2 , that would probably cause impingement upon the nerve root. It would be large enough to do that? Right?
A. Very likely it could, yes.
Q. All right. And then that would provide -that -- that displacement of the L 5 vertebra on S 1 , that would provide a medical mechanism that would account for a particular kind of pain, nerve pain; right?
A. Yes.
Q. All right. Now, let's say you wanted to check that from the films.

MR. STRASSBURG: And I know. I know. He hasn't seen the films. Okay?

BY MR. STRASSBURG:
Q. But if you were going to check that, is there any kind of comparison that you're aware of that a radiologist could perform to check Dr. Hake's report?

MR. ROBERTS: Objection. Beyond the scope of his expertise.

MR. STRASSBURG: It's not in his report, but it's in the scope of the cross-examination, and it's fair, Judge.

THE COURT: Well, I think he did testify about the -- the radiological studies. I'm going to allow it. Overruled.

BY MR. STRASSBURG:
Q. What would it be?
A. Interesting enough, in my own practice I get
films, and I measure those things on my own films.
I deal with this thing -- this type of problem for years in my practice. I have measured them out on films.

But you can assess it by examining a patient. Have them bend forward. If their symptoms get worse, they might have some translation. You could also do another test to compare. You could also get a second one to see if that really did have that much translation.
Q. Well, how about nerve conduction studies? Are there any nerve conduction studies that could be done to see if the -- the nerve root that should -should be impinged upon is experiencing conductive abnormality?
A. Yes. We talked about the term "radiculopathy" that was labeled many times on the records. It was not proven. You have to do an EMG to prove radiculopathy. If you have a concern for it, that's the test you do, is an EMG.
Q. And what does EMG stand for?
A. Electromyogram or electromyograph.
Q. How does it work?
A. You have a -- computerized units that has wires coming out of it, and you attach them to the
patient. You have a stimulation device -- well, there's two parts: nerve conduction velocity study --
Q. Give us the short version.
A. It works by stimulation and by a recording device also from the muscle to see if there's a nerve pathology going to that muscle. It's in that distribution.
Q. And what did the EMG that was performed on Ms. Garcia by Dr. Gross before he took her to surgery, what did that examination show?
A. I did not see an EMG performed.
Q. Now, you said in your practice you compare MRIs taken on different dates.

Do you use any kind of specialized equipment to do that, or is it just sort of a ruler and an eyeball?
A. I use a ruler with millimeters and centimeters on it, and I mark them and I compare them.
Q. All right. And have you told any radiologist what you are doing?
A. I am totally covert about it. I have not.
Q. Right. Because they'd be horrified, wouldn't they?
A. I don't know. They might be, but it's common
practice for everyone in my practice.
Q. Now, I could ask you, are you aware of any instances in which Ms. Garcia was not compliant with the orders for additional conservative treatment?

MR. ROBERTS: Objection. Beyond the scope of cross.

THE COURT: Seems like it is. Sustained. BY MR. STRASSBURG:
Q. Now, on cross-examination, you were asked whether the fusion of Ms. Garcia's spine healed; right?
A. I was, yes.
Q. And you said yes. And I wanted to ask a little bit more about that as to whether you have any opinions whether nonunion of bone grafts in a spinal fusion like she had is a recognized cause of postsurgical pain.
A. It is, yes.

MR. ROBERTS: Objection. Hypothetical. Not based on facts in evidence.

THE COURT: Overruled.
BY MR. STRASSBURG:
Q. And is scar tissue that results from nonunion, is that a recognized cause of postfusion surgery pain?
A. Yes.

