

**COURT OF APPEALS
DECISION
DATED AND FILED**

August 27, 2014

Diane M. Fremgen
Clerk of Court of Appeals

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Appeal No. 2013AP2009-CR

Cir. Ct. No. 2012CF234

STATE OF WISCONSIN

**IN COURT OF APPEALS
DISTRICT II**

STATE OF WISCONSIN,

PLAINTIFF-RESPONDENT,

V.

TODD J. GIESE,

DEFENDANT-APPELLANT.

APPEAL from an order of the circuit court for Washington County:
JAMES K. MUEHLBAUER, Judge. *Affirmed.*

Before Brown, C.J., Neubauer, P.J., and Gundrum, J.

¶1 BROWN, C.J. We granted Todd Giese's petition for leave to appeal a nonfinal order that denied his motion to exclude expert testimony

concerning retrograde extrapolation of Giese's blood alcohol concentration. There are two objectives in writing this opinion. First, to explain what the *Daubert*¹ rule is and what it is not. Second, to decide whether the retrograde extrapolation opinion in this case satisfies *Daubert*.

¶2 Giese argues that the expert opinion is inadmissible under WIS. STAT. § 907.02 (2011-12),² as amended in 2011 to codify the standard from *Daubert* and its progeny. Giese claims that the opinion fails to satisfy § 907.02 because it is based upon insufficient facts and data and because the expert relied upon “unprovable and improper assumptions” in forming her opinion. In particular, Giese points out that some experts have expressed doubt about the reliability of retrograde extrapolation, particularly when it is based upon a single blood test at a single point in time. We conclude that the expert's opinion about retrograde extrapolation is admissible under § 907.02 in Giese's case because it was the product of reliable principles and methods and based upon sufficient facts and data, which is all that *Daubert* requires. Giese's objections go to the weight of the expert opinion and the validity of the expert's underlying assumptions. We affirm the circuit court.

Facts

¶3 In the early morning hours of July 15, 2012, the Washington county sheriff's department responded to a report of a man lying in the roadway. The responding officer found two people at the scene: Giese and the woman who

¹ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993).

² All references to the Wisconsin Statutes are to the 2011-12 version unless otherwise noted.

found him lying in the road. As the officer approached, he noticed that Giese was “very intoxicated,” swaying back and forth and smelling of alcohol.

¶4 Giese told the officer that he crashed his vehicle “about three hours earlier,” began to walk home, and fell asleep in the road. He admitted that he had been at a tavern with some friends beforehand but could not recall any details such as the name of the tavern, the names of his friends, or even his own address or phone number.

¶5 Another deputy nearby happened to pass the spot where Giese apparently had crashed his car. Several people were near Giese’s car, including Giese’s wife. Giese’s wife at first said that she had been driving the vehicle, but when she learned that Giese was with another deputy in a different location, she admitted that she responded to the scene of the crash after receiving a call.³ The crash scene was about three miles east of where Giese was found lying in the road. Testimony indicated that there were no restaurants or bars along the road between the crash site and the place where Giese was found. Some groceries and personal items were found in Giese’s car.

¶6 Giese was transported to a medical center. The deputy observed a medical technician draw Giese’s blood at approximately 3:30 a.m. The blood sample was sent to the state crime lab for processing, and the lab’s analysis showed a blood alcohol concentration of .181.

³ The phone call was from Giese, and he objects to the admissibility of his wife’s statements about their conversation, citing WIS. STAT. § 905.05, the spousal privilege. That privilege extends only to “private communication” between spouses or domestic partners, § 905.05, and does not render inadmissible the deputy’s observation of Giese’s wife at the scene of the crash or her statement that she went to that location after getting a phone call.

¶7 Giese faced two charges arising out of the incident: (1) operating a motor vehicle while intoxicated (OWI), as a fifth or sixth offense, with an enhancer due to the high level of alcohol,⁴ and (2) operating with a prohibited alcohol concentration of more than .02,⁵ as a fifth or sixth offense, with an enhancer due to the high level of alcohol.⁶

¶8 At the State's request, the toxicologist who analyzed Giese's sample later calculated a "back extrapolation" from Giese's blood test result to approximate his blood alcohol level at the time he crashed his car. In extrapolating that blood alcohol level, the toxicologist made certain assumptions: that the alcohol was fully absorbed before the incident and that Giese ingested no additional alcohol afterwards. Based on those assumptions, she calculated a range of possible blood alcohol concentrations for four hours, four hours and fifteen minutes, and four hours and thirty minutes before the blood draw. She concluded that, at the very least, Giese's blood alcohol concentration was .221 at the time of the alleged driving.

¶9 Giese sought to exclude the blood test and the testimony about retrograde extrapolation. Giese first noted that because the blood was drawn more than three hours after the time when Giese said the crash happened, the result was

⁴ This charge was based upon violations of WIS. STAT. §§ 346.63(1)(a), 346.65(2)(g)1., and 939.50(3)(h). Under § 346.65(2)(g)1., an alcohol concentration of .17 to .199 doubles the minimum and maximum fines.

⁵ See WIS. STAT. § 340.01(46m) (a "prohibited alcohol concentration" is a concentration of .02 or higher, if a person already has three or more prior related convictions, suspensions, or revocations).

⁶ This charge was based upon violations of WIS. STAT. §§ 346.63(1)(b), 346.65(2)(g)1., and 939.50(3)(h). Under § 346.65(2)(g)1., an alcohol concentration of .17 to .199 doubles the minimum and maximum fines.

not automatically admissible under WIS. STAT. § 885.235 but must be supported with expert testimony establishing its probative value. Giese argued that the probative value of the evidence could not be established because the retrograde extrapolation was based upon assumptions concerning when the driving occurred and when the alcohol was ingested in relation to the alleged driving.

¶10 Furthermore, Giese challenged the reliability of the toxicologist's method, quoting a statement by "widely-acknowledged expert Kurt Dubowski" that "no forensically valid forward or backward extrapolation of blood or breath alcohol concentrations is ordinarily possible in a given subject and occasion solely on the basis of time and individual analysis results." Giese contended that because the toxicologist in his case had only a single blood test result to work with, "[t]he State cannot establish the reliability of retrograde extrapolation in general, and even if it could ... certainly cannot reliably apply it to the facts and data of this case." Finally, Giese argued that "the State cannot prove the facts underlying the expert's opinion," i.e., the time of the driving, the time of the drinking, and that no drinking occurred between the time of the driving and the time of the blood test.

¶11 The circuit court held a hearing on the admissibility of the retrograde extrapolation. At the hearing, the State called the toxicologist who analyzed Giese's blood sample. The toxicologist testified about her educational background, her training to become a toxicologist, her eight years of experience with the state crime lab, and her particular training on the "effect of alcohol dissipation and elimination." She had performed retrograde extrapolation, which she also called "back extrapolation," in other cases. She was familiar with books and studies concerning back extrapolation and with the rates of alcohol absorption and elimination generally accepted in her peer community of forensic toxicologists. She testified as to the established average, fast, and slow rates of

elimination and explained how those rates were the foundation for her calculation of a range of possible blood alcohol concentration levels for Giese at the time of his crash.

¶12 As for the calculation in Giese's case, the toxicologist explained that she was informed that Giese's crash occurred between four hours and four and one-half hours before the blood draw and assumed that the alcohol was fully absorbed before the incident and no additional alcohol was ingested afterwards. Assuming those facts were true, it was her opinion to a reasonable degree of scientific certainty that Giese's blood alcohol concentration was above .02 at the time of the crash. On cross examination, she acknowledged that changes to her underlying assumptions could change her opinion. For instance, if the facts established that Giese had not absorbed all of the alcohol before the crash, her calculations would change.

¶13 The toxicologist acknowledged Dubowski's expertise and his statement that back extrapolation is ordinarily not possible when the only known data is a single blood test result at a particular time. The toxicologist explained that she had more than just the blood test result, namely, the "given scenario" in Giese's case and the assumptions she made about absorption of the alcohol. She repeated that her forensic opinion was dependent on her assumptions.

¶14 Giese also asked the toxicologist to discuss a paragraph from one of the books that were part of her training materials, describing retrograde extrapolation "from a time of the sampling to the time of the driving" as "a dubious practice given the variables that are in play." On redirect, the toxicologist read from another portion of the same book, which discussed the considerations to be taken into account in retrograde extrapolation and that it is a "common

practice” that “peers in [her] field, toxicologists,” testify concerning calculations using this methodology. On recross, the toxicologist again acknowledged that knowing whether the blood alcohol level was still increasing or was decreasing at the time of the driving was a “critical element” in using retrograde extrapolation. She explained that this was why she made assumptions in the calculation.

¶15 The circuit court, applying WIS. STAT. § 907.02, concluded that the expert’s opinion about retrograde extrapolation was admissible in Giese’s case and denied the motion to exclude it. The court explained that under the *Daubert* rule codified in § 907.02, the court performs “a gate-keeping function.” The court was satisfied that the toxicologist’s testimony was based on sufficient facts and data because the toxicologist explained that, in addition to the time of the blood test and the result of the test, she had the rest of the “scenario.” Specifically, it was known that at about 2:12 a.m., Giese was found lying in the road and that Giese said that he crashed about three hours before that time. While it was theoretically possible that Giese drank alcohol after the time of the crash, it was not very probable. The toxicologist would be subject to cross-examination at trial concerning the assumptions she worked with, but the circuit court concluded that Giese’s challenges to those assumptions “go[] to the weight of the evidence and whether the assumptions ... are accurate or not” rather than to admissibility of the testimony. Giese was granted leave to appeal the circuit court’s nonfinal order.

Analysis

¶16 Appellate courts review a circuit court’s decision to admit or exclude expert testimony under an erroneous exercise of discretion standard. *State v. Shomberg*, 2006 WI 9, ¶10, 288 Wis. 2d 1, 709 N.W.2d 370; *see also General Elec. Co. v. Joiner*, 522 U.S. 136, 138-39 (1997) (applying discretion standard to

a *Daubert* ruling). A circuit court’s discretionary decision will not be reversed if it has a rational basis and was made in accordance with accepted legal standards in view of the facts in the record. *Shomberg*, 288 Wis. 2d 1, ¶11. The admissibility of chemical tests for intoxication is governed by WIS. STAT. § 885.235, which provides that “[i]f the sample of ... blood ... was not taken within 3 hours after the event to be proved,” then the chemical analysis of the person’s blood alcohol level can be admitted “only if expert testimony establishes its probative value and may be given prima facie effect only if the effect is established by expert testimony.” Sec. 885.235(3).

¶17 The admissibility of expert testimony is governed by WIS. STAT. § 907.02. Prior to 2011, that statute made expert testimony admissible “if the witness is qualified to testify and the testimony would help the trier of fact understand the evidence or determine a fact at issue.” *State v. Kandutsch*, 2011 WI 78, ¶26, 336 Wis. 2d 478, 799 N.W.2d 865; 2011 Wis. Act 2. In January 2011, the legislature amended § 907.02 to make Wisconsin law on the admissibility of expert testimony consistent with “the *Daubert* reliability standard embodied in Federal Rule of Evidence 702.” *Kandutsch*, 336 Wis. 2d 478, ¶26 n.7. The amended rule provides as follows:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if the testimony is based upon sufficient facts or data, the testimony is the product of reliable principles and methods, and the witness has applied the principles and methods reliably to the facts of the case.

Sec. 902.07(1).

¶18 The court’s gate-keeper function under the *Daubert* standard is to ensure that the expert’s opinion is based on a reliable foundation and is relevant to the material issues. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589 n.7, 597 (1993). The court is to focus on the principles and methodology the expert relies upon, not on the conclusion generated. *Id.* at 595. The question is whether the scientific principles and methods that the expert relies upon have a reliable foundation “in the knowledge and experience of [the expert’s] discipline.” *Id.* at 592. Relevant factors include whether the scientific approach can be objectively tested, whether it has been subject to peer review and publication, and whether it is generally accepted in the scientific community. *Id.* at 593-94.

¶19 The standard is flexible but has teeth. The goal is to prevent the jury from hearing conjecture dressed up in the guise of expert opinion. *See Tamraz v. Lincoln Elec. Co.*, 620 F.3d 665, 671 (6th Cir. 2010) (“[N]o matter how good’ experts’ ‘credentials’ may be, they are ‘not permitted to speculate.’” (citation omitted)); *see also* Daniel D. Blinka, *The Daubert Standard in Wisconsin: A Primer*, WISCONSIN LAWYER, March 2011, at 60 (“[c]oursing through *Daubert* lore is a palpable fear of ipse dixit (‘because I said so’) testimony” (citation omitted)); Ralph Adam Fine, *Fine’s Wisconsin Evidence* 34 (Supp. 2012) (“Under *Daubert*, the testimony of the witness [is to be] ‘more than subjective belief or unsupported speculation.’” (quoting *Daubert*, 509 U.S. at 590)).

¶20 To illustrate how *Daubert* weeds out ipse dixit testimony, we need look no further than *Kumho Tire Co. v. Carmichael*, 526 U.S.137, 157 (1999). In that case, the Supreme Court held that *Daubert* did not support admission of the an expert’s opinion that a tire blow-out was caused by a manufacturing defect rather than wear and tear. *Id.* at 143-44. The expert’s opinion was based upon a “two-factor test” and “small observational differences” he noticed by doing visual

and tactile inspection. *Id.* at 143-44, 157. There was “no indication in the record that other experts in the industry” used the “two-factor test” or supported the conclusions that the expert purported to draw from his observations. *Id.* at 157. Instead, the only support for the accuracy of the expert’s method was the expert’s own say-so, and “nothing in either Daubert or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the ipse dixit of the expert.” *Id.* (citation omitted).

¶21 With that understanding of why we now have *Daubert* as the law, we turn to the expert testimony in Giese’s case concerning retrograde extrapolation of a blood alcohol concentration. Expert testimony about retrograde extrapolation of blood alcohol levels was approved in Wisconsin courts under the pre-*Daubert* standard, in *State v. Fonte*, 2005 WI 77, ¶¶17-18, 281 Wis. 2d 654, 698 N.W.2d 594. Giese insists, however, that under *Daubert*, without at least two distinct tests to work with, retroactive extrapolation of a blood alcohol level is not based on sufficient facts or data and is not an application of reliable principles and methods. Giese also attempts to distinguish *Fonte* because the expert in *Fonte* had two test results to work with and the time of the defendant’s operation of the vehicle in that case (a boat) was a known fact. *See Fonte*, 281 Wis. 2d 654, ¶¶4, 5.

¶22 We are not aware of any court that has determined that the general methodology of calculating a blood alcohol concentration using retrograde extrapolation fails the *Daubert* standard. A number of courts applying the *Daubert* standard have opined that retrograde extrapolation is a generally accepted scientific method. *E.g.*, *State ex rel. Montgomery v. Miller*, 321 P.3d 454, 469 (Ariz. Ct. App. 2014) (“retrograde analysis is generally considered to be a reliable

scientific discipline”); *State v. Burgess*, 5 A.3d 911, 916-17 (Vt. 2010); *Commonwealth v. Senior*, 744 N.E.2d 614, 619 (Mass. 2001).

¶23 The willingness of courts to allow testimony about retrograde extrapolation makes sense given the record in Giese’s case, which shows that despite certain doubts and disagreements, retrograde extrapolation is a widely accepted methodology in the forensic toxicology field. The mere fact that some experts may disagree about the reliability of retrograde extrapolation does not mean that testimony about retrograde extrapolation violates the *Daubert* standard. If experts are in disagreement, it is not for the court to decide “which of several competing scientific theories has the best provenance.” *Ruiz-Troche v. Pepsi Cola of P.R. Bottling Co.*, 161 F.3d 77, 85 (1st Cir. 1998). The accuracy of the facts upon which the expert relies and the ultimate determinations of credibility and accuracy are for the jury, not the court. *See Lapsley v. Xtek, Inc.*, 689 F.3d 802, 805 (7th Cir. 2012). As the Supreme Court pointed out in *Daubert*,

there are important differences between the quest for truth in the courtroom and the quest for truth in the laboratory. Scientific conclusions are subject to perpetual revision. Law, on the other hand, must resolve disputes finally and quickly.

Daubert, 509 U.S. at 596-97.

¶24 In view of the general acceptance of retrograde extrapolation in the field of toxicology and its widespread admission by state courts, Giese all but concedes that retrograde extrapolation might reliably apply in other cases. He argues that those cases, however, are distinguishable from his, because (in his view) the only facts that the toxicologist in his case had to work with were “a single alcohol test result and an estimated time of driving.” He contrasts those limited facts with the facts known to the expert in *Fonte*, 281 Wis. 2d 654, ¶¶4, 5

(two tests and a known time of driving), *Bigon v. State*, 252 S.W.3d 360, 363 (Tex. Crim. App. 2008) (two blood tests, known time of accident), and *United States v. Tsosie*, 791 F. Supp. 2d 1099, 1104 (D.N.M. 2011) (defendant admitted to the time of the drinking and reported the crash when it occurred). He urges us to follow *Mata v. State*, 46 S.W.3d 902 (Tex. Crim. App. 2001), *overruled on other grounds*, *Bagheri v. Texas*, 87 S.W.3d 657 (Tex. Crim. App. 2002), which concluded that an expert's testimony about retrograde extrapolation was unreliable in a particular case, while acknowledging that the methodology could be reliable in other cases. *Mata*, 46 S.W.3d at 916-17.

¶25 We agree with the circuit court here that the expert testimony about retrograde extrapolation in Giese's particular case was admissible under *Daubert*. Despite Giese's assertions to the contrary, the record confirms that the expert had more to work with here than a single test result. A number of known facts made the expert's assumptions plausible—Giese was found lying in a roadway at 2:12 a.m.; he said he had crashed his vehicle three hours earlier, started walking away from the scene, and fell asleep in the road; there were no bars or restaurants along the route he walked and no alcohol containers found in his car or along that route; and his blood sample drawn an hour or so later had a blood alcohol concentration of .18.

¶26 The *Mata* case is readily distinguished. The driver in *Mata* was pulled over while driving and his single test result was about two hours after his arrest. *Mata*, 46 S.W.3d at 904. As the expert acknowledged, these circumstances made it difficult to know whether all the alcohol was absorbed at the time of the test. *Id.* at 905. The expert's testimony in *Mata* was self-contradictory and inconsistent with the scientific literature. *Id.* at 914-15, 917. In fact, the expert

admitted that his calculations showed it was possible, in “an ‘extreme situation,’” that the driver’s alcohol level was below the prohibited level of .10. *Id.* at 905-07.

¶27 In Giese’s case, as already discussed, the expert had more than just a single test result to work with; she had a scenario from which it was plausible to infer that Giese’s alcohol was absorbed before he crashed and that he did not drink after the crash. Additionally, the expert in Giese’s case never contradicted herself or the underlying science. Finally, because of his past impaired driving incidents, Giese’s prohibited blood alcohol level was very low (.02), far below the lowest possible extrapolated value in the expert’s calculated range (.221) and Giese’s prohibited level.⁷ This is just the opposite of *Mata*, where the expert admitted that the low end of the driver’s extrapolated blood alcohol level was within the relevant legal limit. *Id.* at 905-07.

¶28 We think Giese’s real dispute is not with the science the expert relied upon in his case but with the assumptions the expert made. It is true that the calculation would be more reliable if the expert had more facts about exactly when and what Giese drank. However, under the circumstances, we think Giese’s questions go to the weight of the evidence, not to its admissibility. *See Burgess*, 5 A.3d 911, 916 (“concerns [about the reliability of retrograde extrapolation] relate to the proper weight to be afforded the evidence, not whether the evidence is admissible in the first place”). Giese remains free to challenge the accuracy of the expert’s assumptions. He may, for instance, propose competing scenarios—e.g., that Giese drank all the alcohol soon before driving. Or that he began drinking

⁷ Even the level required to trigger the enhanced penalty, .17, is below the low end of the range. *See* WIS. STAT. § 346.65(2)(g)(1).

alcohol, or continued drinking, after the crash. In our adversary system, “[j]uries resolve factual disputes” like those. *State v. Abbott Labs.*, 2012 WI 62, ¶69, 341 Wis. 2d 510, 816 N.W.2d 145 (citation omitted); *see also Daubert*, 509 U.S. at 596 (“Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.”). Giese still has the chance to undermine the assumptions that support the expert’s opinion by introducing evidence or arguing in favor of competing inferences from the known facts. But the expert’s opinion is admissible under *Daubert*.

By the Court.—Order affirmed.

Recommended for publication in the official reports.

