

Opinion issued July 31, 2008



In The  
**Court of Appeals**  
For The  
**First District of Texas**

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NOS. 01-06-00751-CR  
01-06-00752-CR  
01-06-00753-CR

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**THOMAS ROY KENNEDY, Appellant**

v.

**STATE OF TEXAS, Appellee**

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**On Appeal from the 338th District Court  
Harris County, Texas  
Trial Court Cause Nos. 1049873, 1049874, and 1060471**

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**OPINION**

Following a joint trial on three separate indictments, a jury found appellant, Thomas Roy Kennedy, guilty of two offenses of intoxication manslaughter and one

offense of intoxication assault.<sup>1</sup> The jury assessed punishment at 18 years' confinement for each intoxication manslaughter offense and 10 years' confinement for the intoxication assault offense. The trial court granted the State's motion to cumulate the sentences.<sup>2</sup> Appealing each judgment of conviction, appellant raises two identical issues in each appeal in which he claims that the trial court erred by admitting the testimony of the State's two experts regarding retrograde extrapolation.

We affirm each of the three judgments.

### **Background**

On the evening of December 9, 2005, 17-year old Daniel Graves drove his four friends—14-year-old Laura Schierman, 12-year-old Janet Ruvalcaba, 14-year-old Megan Lowry, and 12-year-old C.J. Duffey—to a concert in downtown Houston. The group left the concert at around 11:00 p.m. Graves was driving his mother's Chevrolet Cavalier, Schierman was in the front passenger seat, and the other three children—Ruvalcaba, Lowry, and Duffey—were in the back seat. As the group neared the Monroe exit on Interstate 45, the car ran out of gas. Graves pulled the car into the breakdown lane on the side of the freeway and turned on the car's flashing

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<sup>1</sup> See TEX. PENAL CODE ANN. § 49.07 (Vernon 2003) (intoxication assault); TEX. PENAL CODE ANN. § 49.08 (Vernon 2003) (intoxication manslaughter).

<sup>2</sup> See TEX. PENAL CODE ANN. § 3.03(b) (Vernon Supp. 2007).

hazard lights. Graves called his father, who agreed to bring gas. As they waited for Graves's father, the five children sat in the car.

At that time, appellant was also driving on Interstate 45 in his pickup truck. Carter Ware, who was driving on the interstate with his family in their minivan, saw appellant approaching from behind at a high rate of speed. Ware told his wife to brace for impact. Appellant narrowly missed Ware's van. Ware called 9-1-1 and told the operator that appellant "almost hit six people," was all over the road, and was bouncing around the freeway like a "pinball." Ware then saw appellant pull over on the shoulder. Ware again called 9-1-1.

Other drivers also saw appellant driving erratically and observed him moving quickly from lane to lane. Appellant was driving so aggressively that he forced other drivers from the freeway onto the shoulder.

Appellant was weaving in and out of traffic when he cut completely across the freeway from lane four on the left side to the breakdown lane on the right side and proceeded to accelerate. Seconds later, appellant crashed his truck into the rear of the Graves's car with the five children inside. No brake lights were seen on appellant's truck before he hit the car. Witnesses called 9-1-1 to report the accident at 12:11 a.m. As a result of the crash, Ruvalcaba and Lowry were killed instantly. Duffey suffered a traumatic brain injury but survived. Graves and Schierman sustained non-life

threatening injuries, including broken bones.

When the first emergency personnel arrived, appellant did not report any injuries nor did he appear injured. Police officers found an empty Corona beer bottle in appellant's truck and noticed that appellant's speech was slow and slurred. Appellant was placed in the back of a police patrol car while rescue crews worked to help the injured children in Graves's car. When a police officer went to check on appellant in the patrol car, the officer found appellant asleep in the backseat. The officer thought this unusual given the noise, flashing lights, and activity occurring at the scene. The officer also noticed that the patrol car smelled of alcohol.

Officer C. Warren, with the Houston Police Department's DWI Task Force, was called to the scene. Once there, Officer Warren administered field sobriety tests to appellant. Overall, appellant performed well on the "divided attention" tests such as the walk and turn and one-leg stand tests. Appellant did receive one "clue" on the one-leg stand test because he was swaying. Appellant, did not, however, perform well on the horizontal gaze nystagmus test. Appellant received six out of six clues on the horizontal gaze nystagmus test, indicating to Officer Warren that appellant was intoxicated.

Appellant told Officer Warren that he was coming from a strip club that was 17 miles from the scene. Appellant admitted that he had drunk three to five Corona

beers that evening. He stated that he drank one beer before going to the club, which was sometime after dark. Appellant told the officer that he had his last drink before he left the club.

Appellant was transported to the hospital to insure that he was not injured. At the hospital, appellant's blood was also drawn for blood alcohol testing at 2:25 a.m., which was two hours and fifteen minutes after the collision. The blood sample showed that appellant's blood alcohol content ("BAC") was .0783 at the time the blood was drawn.

Appellant was charged with two offenses of intoxication manslaughter with respect to the deaths of Ruvalcaba and Lowry and one offense of intoxication assault with respect to Duffey. The principal issue at trial was whether appellant was intoxicated at the time he ran his truck into Graves's car.

With respect to showing intoxication, the State identified Terry Danielson and Sebastian Fromhold as experts who would testify regarding appellant's BAC at the time of the collision by using the technique of retrograde extrapolation. Appellant objected to Danielson's and Fromhold's testimony regarding retrograde extrapolation on the basis that the experts' testimony was not relevant or reliable.

The trial court conducted a *Kelly* gatekeeper hearing outside the presence of the jury with regard to the admissibility of Danielson's and Fromhold's retrograde

extrapolation testimony.<sup>3</sup> During the hearing, the trial court heard testimony from the two experts and arguments from counsel regarding each expert’s qualifications and regarding the science and technique of retrograde extrapolation generally. The trial court ruled that Danielson and Fromhold were qualified to testify regarding retrograde extrapolation. The trial court also found that the underlying scientific theory and technique applied were valid and reliable. After making these specific rulings, the trial court expressly stated that no testimony or argument had been presented regarding whether either Danielson or Fromhold could properly apply retrograde extrapolation with respect to the facts of this case specifically, i.e., the third *Kelly* criteria. Accordingly, the trial court indicated that it had not ruled on whether either expert could properly apply the technique in this case.

The trial court informed the defense that it would continue the gatekeeping hearing outside the presence of the jury to determine whether the technique of retrograde extrapolation could be properly applied in this case. The defense expressly stated that it did not want to continue the gatekeeping hearing with respect to this aspect of its challenge to the experts’ testimony. Instead, the defense indicated that it wanted the experts to testify in front of the jury regarding the application of retrograde extrapolation to the facts of this case and requested a “running objection”

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<sup>3</sup> See *Kelly v. State*, 824 S.W.2d 568, 572–73 (Tex. Crim. App. 1992).

to Danielson's and Fromhold's testimony in this regard.

Danielson and Fromhold testified at trial regarding retrograde extrapolation. In performing the retrograde extrapolation analysis before the jury, the only certain information known to the experts relevant to determining appellant's BAC at the time of the collision was appellant's height and weight, the type of drink (three to five Corona beers), the time of the crash (12:10 a.m.), and the time of the blood test (2:25 a.m.). Because other relevant information was unknown, the State also told each expert to accept certain assumptions in calculating appellant's BAC at the time of the collision. These assumptions pertained to the time period over which appellant consumed the beer, when and what appellant had last eaten, the size of each beer consumed, and appellant's drinking habits (i.e., that he is a "social drinker"). Using both the known and the assumed information in his retrograde extrapolation analysis, Danielson calculated a BAC of between .11 and .12 at the time of the collision; Fromhold calculated a range of .10 and .13. Though he had a "running objection," appellant never obtained a ruling on the third *Kelly* criteria of his challenge to Danielson's and Fromhold's testimony; that is, appellant never obtained a ruling on whether the experts properly applied the technique of retrograde extrapolation to determine appellant's BAC at the time of the collision.

## **Retrograde Extrapolation**

In two issues, appellant contends that the trial court erred by admitting the testimony of Danielson and Fromhold regarding retrograde extrapolation.

### **A. Standard of Review and *Kelly* Principles**

We review the trial court's decision to admit scientific evidence for an abuse of discretion. *Russeau v. State*, 171 S.W.3d 871, 881 (Tex. Crim. App. 2005). Applying this standard, an appellate court should not disturb the trial court's decision if the ruling was within the zone of reasonable disagreement. *Hinojosa v. State*, 4 S.W.3d 240, 250–251 (Tex. Crim. App. 1999) (citing *Griffith v. State*, 983 S.W.2d 282, 287 (Tex. Crim. App. 1998)).

The proponent of scientific evidence must demonstrate to the trial court, by clear and convincing evidence, that the evidence is reliable. *Kelly v. State*, 824 S.W.2d 568, 573 (Tex. Crim. App. 1992). To show reliability, the following three criteria must be satisfied: (1) the underlying theory is valid; (2) the technique applying said theory is valid; and (3) the technique was properly applied on the occasion in question. *Id.*

### **B. The Underlying Theory**

As he did at the gatekeeping hearing, appellant attacks on appeal the theory of retrograde extrapolation generally, contending that it is not a valid or reliable science.



Appellant asserts that in *Mata v. State*, which is the seminal case on retrograde extrapolation, the Court of Criminal Appeals did not “blanketly accept or take judicial notice of the reliability of the science or technique [of retrograde extrapolation].” *See* 46 S.W.3d 902 (Tex. Crim. App. 2001). Since appellant filed his brief, the Court of Criminal Appeals issued *Bigon v. State* in which the court commented, “We also described [in *Mata*] the science behind retrograde extrapolation and recognized that, though there is some disagreement in the scientific community, retrograde extrapolation can be reliable when applied correctly.” 252 S.W.3d 360, 367 (Tex. Crim. App. 2008). Such commentary leaves little doubt that, as a general proposition, the Court of Criminal Appeals views retrograde extrapolation as a valid science under the first *Kelly* criteria, if it is properly applied. Thus, the trial court did not abuse its discretion by concluding that the underlying theory of retrograde extrapolation is valid and reliable.

### **C. Technique Applying Theory**

With respect to the second *Kelly* criteria, the defense also challenges the technique utilized by Danielson and Fromhold to conduct a retrograde extrapolation analysis. In *Mata*, the Court of Criminal Appeals concluded that “the science of retrograde extrapolation can be reliable in a given case,” but the expert must be able to “apply the science and explain it with clarity.” 46 S.W.3d at 916. In so doing, the

expert must demonstrate some understanding of the difficulties associated with retrograde extrapolation, as well as an awareness of the subtleties of the science and the risks inherent in any extrapolation. *Id.* Finally, he must be able to clearly and consistently apply the science. *Id.*

In this case, the record shows that Danielson and Fromhold demonstrated an understanding of retrograde extrapolation and the methodologies underlying its application. Danielson explained that retrograde extrapolation “[m]eans that knowing, for example, a blood alcohol concentration at a given time and having some knowledge of the individual, you can do a series of calculations and predict what the concentration or the amount of alcohol was in the blood at some time in the recent past.” At trial, Danielson defined retrograde extrapolation as

a prediction of an alcohol level in blood sometime in the past based upon a level that you have more recently measured. And it’s based upon standard kinetic equations that have various parameters inserted into them that you can then calculate backwards as to what the level of alcohol is or was.

At trial, Fromhold explained,

Extrapolation refers to being able to relate a particular concentration from one point in time to a time before or after. Retrograde extrapolation implies we’re going back in time before we have a specific value. Scientific principles that are involved that deal with the alcohol absorption, distribution, and elimination. The very factors that come into play to be able to make that type of estimate.

*See id.* at 908–09 (defining retrograde extrapolation as “the computation back in time of the blood-alcohol level—that is, the estimation of the level at the time of driving based on a test result from some later time”).

Danielson and Fromhold identified the Widmark formula as the technique used when conducting retrograde extrapolation. *See id.* at 909 (recognizing, “E.M.P. Widmark first calculated absorption and elimination rates in the body, and his work still represents the benchmark for other scientists’ studies today.”). The experts also testified regarding the physical processes of alcohol absorption and alcohol elimination.

Danielson and Fromhold each acknowledged that certain personal characteristics, such as height, weight, gender, amount of alcohol consumed, duration of alcohol consumption, time of blood test, and the subject’s food consumption are factors to consider when conducting a retrograde extrapolation analysis. *See id.* (explaining, “The length of time necessary for the alcohol to be absorbed depends on a variety of factors, including the presence and type of food in the stomach, the person’s gender, the person’s weight, the person’s age, the person’s mental state, the drinking pattern, the type of beverage consumed, the amount consumed, and the time period of alcohol consumption.”). Danielson and Fromhold each recognized the importance of these factors when explaining his retrograde extrapolation analysis to

the jury. Although much of the information relevant to these factors was unknown with respect to appellant, Danielson and Fromhold, nonetheless, conveyed to the jury the significance of these factors in conducting a retrograde extrapolation analysis.

The experts also demonstrated an understanding of the difficulties associated with retrograde extrapolation, the risks inherent in conducting an extrapolation, and the subtleties of the science. Danielson indicated that he was aware that the scientific community was divided on certain aspects of retrograde extrapolation. *Cf. id.* at 915 (noting that expert “failed to acknowledge scientific evidence to the contrary”). Danielson acknowledged that alcohol absorption can be highly variable and that retrograde extrapolation can be “a dubious practice if the proper information isn’t put into it.” He also agreed that retrograde extrapolation “should be used with great caution.” Danielson explained that, if the analyzer has “proper knowledge of the characteristics of the subject,” then the retrograde extrapolation is “relatively reliable,” but if the analyzer does not have the proper information, then there is a chance for error.

Fromhold indicated that he was aware the scientific community was divided on “the usefulness” of retrograde extrapolation. Fromhold explained that retrograde extrapolation is not useful to obtain an exact value for blood alcohol content, rather, it is useful to obtain an estimation or “to get an idea of what is possible.”

Appellant characterizes Danielson’s and Fromhold’s testimony as conflicting because Danielson considered retrograde extrapolation to be “relatively reliable” if sufficient information is known, while Fromhold indicated that retrograde extrapolation cannot be used to obtain an exact value but to obtain an estimation. When read in context, we do not view such testimony as necessarily conflicting. Moreover, such testimony indicates that each expert was aware of the difficulties and inherent risks of retrograde extrapolation.

Appellant also points to a number of instances at trial in which he asserts the two experts disagreed and contradicted, not only one another, but also published authority on certain aspects of retrograde extrapolation analysis. For example, appellant contends that Danielson’s testimony regarding the effect of food on alcohol absorption rates contradicts the literature cited in *Mata*.

We note, however, that the *Mata* court recognized that the scientific community disagrees on a number of aspects of retrograde extrapolation analysis, including the effect of food on absorption rates. *See id.* at 915–16 & 916 n.91. The *Mata* court discounted the importance of an expert’s use of a set formula to conduct an retrograde extrapolation analysis; rather the court indicated that a trial court should focus on the expert’s ability to explain the science and its application with clarity. *See id.* at 915–16; *see also Bigon*, 252 S.W.3d at 368.

Appellant also contends that each expert's testimony is internally inconsistent. We note that the *Mata* court cited the inconsistency of the expert's testimony in that case as a reason to exclude the expert's retrograde extrapolation testimony. *See Mata*, 46 S.W.3d at 917.

Here, appellant asserts that Fromhold's testimony regarding the effect of food on the alcohol absorption rate was inconsistent at trial. Fromhold testified that "[t]he presence of food in the stomach delays the absorption of the alcohol." He explained that if food is present in the stomach, a one to two hour delay in reaching the maximum alcohol concentration is expected. Relating to the facts of this case, Fromhold testified, "If a major meal was consumed closer to midnight, then that could potentially delay the absorption of any alcohol present." Appellant contends that such testimony is not consistent with Fromhold's later testimony that, under the various hypothetical situations posed by the State, appellant's BAC at the time of the collision was always higher than .08. However, on examination by defense counsel, Fromhold clarified that all of the State's hypothetical scenarios involved an assumption that appellant had not eaten. When questioned about the effect of a "full stomach," Fromhold testified that appellant would still have had a BAC of .08 at the time of the collision because, over the two-hour period between the collision and the blood test, "there would be a lot more elimination than the one drink would

contribute.” Fromhold explained that food delays absorption, but, over a two-hour period, elimination of the alcohol would also continue. In short, Fromhold opined that the elimination rate over a two-hour time period would exceed the absorption rate of any alcohol from appellant’s last drink, even if the absorption was delayed by the presence of food.

Because Fromhold offered an explanation to reconcile his testimony, this case differs from *Mata*. There, unlike here, the expert did not explain, acknowledge, or reconcile the inconsistencies in his testimony. *See id.* at 914, 915.

Appellant further contends that Danielson contradicted himself with respect to the importance of knowing the time period over which a subject had been drinking. We disagree. In citing specific instances of Danielson’s testimony, appellant has taken the cited testimony out of context. When the entirety of his testimony is reviewed, Danielson made clear that timing of the drinking is a factor to be considered in conducting a retrograde extrapolation analysis.

Appellant also contends that Fromhold testified inconsistently regarding the “impact of possible drinking patterns” on the results of the retrograde extrapolation analysis. Like Danielson’s testimony, when it is read in context, Fromhold’s testimony is neither inconsistent nor self-contradictory.

Fromhold agreed that “front-loading” or “back-loading” alcohol consumption,

i.e., binge drinking in a short period of time, could affect the results of the analysis. Appellant claims that Fromhold contradicted this testimony by later testifying that front-loading or back-loading would *not* affect the results. When read in context, Fromhold was indicating that drinking four or five beers in a short period of time would not affect his opinion (i.e., “the results”) that appellant’s BAC was .08 or greater at the time of the collision if it was assumed that all of the drinks were consumed by 11:45 p.m. Fromhold testified that, under that scenario and assuming an empty stomach, all of the alcohol from the drinks would have been absorbed by the time of the collision at 12:10 a.m.

After reviewing the record, we hold that it was within the trial court’s discretion to conclude that the underlying technique advanced by Fromhold and Danielson was valid and reliable.

#### **D. Application of Retrograde Extrapolation**

With regard to the third *Kelly* criteria, appellant contends on appeal that Danielson and Fromhold did not properly apply the retrograde extrapolation technique, thereby rendering the experts’ opinions unreliable and inadmissible. Appellant points out that the experts made assumptions regarding information that was critical to conducting a proper retrograde extrapolation, particularly in a case such as this in which there is a significant time period between the collision and the



blood sampling. More specifically, the experts lacked information and made assumptions regarding the time appellant began drinking and when and what appellant had last eaten.

As mentioned, the trial court made the record clear at the gatekeeping hearing that it was not ruling on the admissibility of the experts' retrograde extrapolation testimony under the third *Kelly* criteria; that is, the trial court made clear that it had not ruled on the admissibility of Danielson's and Fromhold's testimony in relation to whether the experts properly applied the technique of retrograde extrapolation under the facts of this case. Equally as clear from the record is that the trial court offered to hear the experts' testimony in this regard outside the presence of the jury and to make a ruling on the third *Kelly* criteria. The record shows that the defense declined this offer and chose to forego a ruling on this part of the *Kelly* analysis at the gatekeeping hearing. Instead, despite the lack of a ruling on the third criteria, the defense chose to have a "running objection" and to have the experts testify regarding the application of retrograde extrapolation in front of the jury. The record further shows that, after each expert testified on direct examination regarding his retrograde extrapolation analysis and conclusions, the defense cross-examined each expert and never obtained a ruling from the trial court regarding its challenge that the experts could not properly apply retrograde extrapolation to the facts of this case.

To preserve a complaint for our review, a party must have presented to the trial court a timely request, objection, or motion that states the specific grounds for the desired ruling if they are not apparent from the context of the request, objection, or motion. TEX. R. APP. P. 33.1(a)(1); *Mosley v. State*, 983 S.W.2d 249, 265 (Tex. Crim. App. 1998). Further, the trial court must have ruled on the request, objection, or motion, either expressly or implicitly, or the complaining party must have objected to the trial court's refusal to rule. TEX. R. APP. P. 33.1(a)(2); *Mendez v. State*, 138 S.W.3d 334, 341 (Tex. Crim. App. 2004). Simply stated, to preserve error, an objection must be timely, specific, and pursued to an adverse ruling. *Martinez v. State*, 98 S.W.3d 189, 193 (Tex. Crim. App. 2003).

Here, though appellant had a "running objection" to the experts' testimony regarding proper application of retrograde extrapolation, appellant never pursued this objection to an adverse ruling. Appellant was given the opportunity to have this part of the *Kelly* analysis conducted outside the presence of the jury, but instead chose to have the testimony presented in front of the jury and then did not obtain a ruling to this part of his challenge. Accordingly, appellant waived his complaint that the trial court abused its discretion by admitting Danielson's and Fromhold's retrograde extrapolation testimony because the technique was not properly applied in this case. *See* TEX. R. APP. P. 33.1(a)(2).

## **E. Expert Qualifications**

Appellant further contends that the trial court erred by admitting Danielson's and Fromhold's testimony because neither was qualified to testify regarding the technique of retrograde extrapolation. On appeal, appellant assails the qualifications of Danielson and Fromhold on the basis that neither has the appropriate education nor practical experience to testify regarding retrograde extrapolation. Appellant also points out that, on cross-examination, Danielson and Fromhold demonstrated an unfamiliarity with many of the "well-known published researchers in the field" and with "many preeminent experts in the field."

The question of whether a witness offered as an expert possesses the required qualifications rests largely in the trial court's discretion. *Wyatt v. State*, 23 S.W.3d 18, 27 (Tex. Crim. App. 2000). The special knowledge that qualifies a witness to give an expert opinion may be derived from specialized education, practical experience, a study of technical works, or a varying combination of these things. *Id.*

At the gatekeeping hearing, Danielson testified that he had a doctorate in pharmacy and had been employed by the Harris County Medical Examiner's Office as a supervising toxicologist for the past five years. He testified that part of his job duties included blood testing. According to Danielson, in addition to being knowledgeable in the fields of serology and chemistry generally, he was also

knowledgeable about retrograde extrapolation. Danielson explained that he obtained this knowledge from reading articles on retrograde extrapolation and also from his practical experience. He explained that in past positions he had been involved in “pharmacal kinetic analysis,” which involves the same “basic principles” as retrograde extrapolation. Danielson also testified that he had previously testified as an expert in 10 to 15 other cases regarding retrograde extrapolation.

Fromhold testified that he was a forensic chemist with the Pasadena Police Department’s Crime Lab, had a degree in chemistry from the University of Texas, and had previously worked as a technical supervisor in the areas of blood and breath alcohol testing for Harris County and the Houston Police Department. In addition to his chemistry degree, Fromhold has attended courses involving physiology and toxicology of alcohol and regarding “alcohol impaired driving.” He also testified that, since 1984, he has read articles and “kept up-to-date” on the field of forensic toxicology and retrograde extrapolation. According to Fromhold, over the last 22 years he has testified as an expert performing retrograde extrapolation with respect to breath alcohol analysis “hundreds of times” and has also performed retrograde extrapolation as an expert with respect to blood alcohol testing.

Based on the foregoing, we hold that it was within the trial court’s discretion to conclude that Danielson and Fromhold were qualified to testify regarding

retrograde extrapolation. *See Bhakta v. State*, 124 S.W.3d 738, 741 (Tex. App.—Houston [1st Dist.] 2003, pet. ref'd) (reviewing and affirming trial court's determination that expert was qualified to offer retrograde extrapolation analysis testimony).

We overrule appellant's first and second issues in each of the three appeals.

### **Conclusion**

We affirm the three judgments of the trial court.

Laura Carter Higley  
Justice

Panel consists of Justices Nuchia, Hanks, and Higley.

Publish. *See* TEX. R. APP. P. 47.2(b).