

IN THE COURT OF APPEALS OF THE
STATE OF OREGON

STATE OF OREGON,
Plaintiff-Respondent,

v.

ABELARDO BELTRAN-CHAVEZ,
Defendant-Appellant.

Washington County Circuit Court
D123461T; A152983

Thomas W. Kohl, Judge.

Argued and submitted June 18, 2014.

Emily P. Seltzer, Deputy Public Defender, argued the cause for appellant. With her on the briefs was Peter Gartlan, Chief Defender, Office of Public Defense Services.

Joanna L. Jenkins, Assistant Attorney General, argued the cause for respondent. With her on the brief were Ellen F. Rosenblum, Attorney General, and Anna M. Joyce, Solicitor General.

Before DeVore, Presiding Judge, and Hadlock, Chief Judge, and Duncan, Judge pro tempore.*

DUNCAN, J. pro tempore.

Conviction for driving under the influence of intoxicants reversed and remanded; otherwise affirmed.

Hadlock, C. J., dissenting.

* DeVore, P. J., *vice* Wollheim, S. J.; Hadlock, C. J., *vice* Edmonds, S. J.

DUNCAN, J. pro tempore

In this criminal case, defendant appeals a judgment convicting him of driving under the influence of intoxicants (DUII), ORS 813.010, and failing to perform the duties of a driver, ORS 811.700. Defendant assigns error to the trial court's denial of his pretrial motion to prohibit the arresting deputy's testimony that defendant "passed" or "failed" certain field sobriety tests (FSTs). Defendant argues that that testimony is scientific because it draws its convincing force from a scientific proposition, namely, that exhibiting a certain number of standardized "clues" during performance of the test means that the test subject is under the influence of intoxicants. Defendant also assigns error to the trial court's denial of his request for a special jury instruction regarding the results of a breath test to determine his blood alcohol content (BAC).

We conclude that the deputy's testimony at issue here is scientific and, consequently, that the trial court erred in denying defendant's motion and admitting the testimony without a proper foundation, and we further conclude that the error was not harmless. Therefore, we reverse and remand defendant's DUII conviction, and, because the record may develop differently on remand, we do not address defendant's assignment of error regarding the denial of his request for a special jury instruction. Because defendant's arguments on appeal pertain only to his DUII conviction, we affirm his conviction for failing to perform the duties of a driver.

I. HISTORICAL AND PROCEDURAL FACTS

The pertinent facts are not in dispute. While driving out of a parking lot, defendant struck another car and failed to immediately stop. Defendant eventually pulled into a different parking lot, where witnesses to the collision confronted him. Shortly thereafter, Deputy Duenas arrived and spoke with defendant. Duenas noticed that defendant was a little "standoffish" and did not seem to want him there. Duenas also noticed that defendant had bloodshot, watery eyes and a "relaxed" look on his face. Duenas smelled a moderate odor of alcohol on defendant. Duenas asked defendant

if he had been drinking, and defendant answered that he had had two bottles of beer one hour before. Duenas asked defendant to perform FSTs, and defendant agreed. Duenas administered the horizontal gaze nystagmus (HGN) test,¹ the walk-and-turn test, and the one-leg-stand test.

Based on Duenas's observations and defendant's performance on the FSTs, Duenas arrested defendant and transported him to the police station. At the station, Duenas tested defendant's breath with the Intoxilyzer 8000, which requires two successful breath samples to provide a final test result. *See* OAR 257-030-0130(3). Defendant gave two breath samples indicating that his BAC was 0.082 and 0.079, respectively. The final result of defendant's breath test was a 0.07 BAC, which is the lower sample truncated to two decimal places. *See* OAR 257-030-0140 (after a successful breath testing sequence, "the lower breath sample measurement shall be truncated to two decimal places and reported as the chemical test result").

Defendant was charged with DUII and failure to perform the duties of a driver. Before trial, defendant moved to prohibit Duenas from testifying that defendant had "passed" or "failed" the walk-and-turn or one-leg-stand tests because those terms are scientific; they derive from a purported statistical correlation between exhibiting a certain number of clues on the test and having a high BAC. Defendant argued that "applying that 'pass or fail' [to a person's performance on those FSTs] puts a scientific backing that doesn't exist and isn't tested." He asserted that Duenas could testify that defendant exhibited "six out of eight clues or eight out of eight clues [on a given test], but just not use the term, 'pass' or 'fail.'" The state responded that "the officers can testify as to whether he passed or failed[,] because FSTs are "standardized test[s]." The trial court denied defendant's request and allowed the state to introduce Duenas's testimony about whether defendant passed or failed the FSTs without laying a scientific foundation for that testimony.

¹ The HGN test detects whether a person's eyes demonstrate horizontal gaze nystagmus under certain conditions. Horizontal gaze nystagmus is the "inability of the eyes to maintain visual fixation as they are turned from side to side (in other words, jerking or bounding)." *State v. O'Key*, 321 Or 285, 294, 899 P2d 663 (1995) (internal quotation marks omitted).

At trial, Duenas testified about defendant's performance on the FSTs. Specifically, he testified that defendant had exhibited four of eight possible "clues" on the walk-and-turn test: (1) He started before Duenas told him to; (2) he was unable to maintain his balance while Duenas gave him instructions; (3) he took eight steps before turning, instead of the required nine steps; and (4) he made an improper turn. In addition to describing those problems with defendant's performance, Duenas testified that that score meant that defendant had failed the test:

"Q. *** You testified that [defendant] showed four out of eight clues on the walk and turn?"

"A. Yes.

"Q. Is that a passing or failing score?"

"A. Fail."

Later, Duenas testified to his opinion that defendant was impaired when he drove:

"Q. About how long were you with the defendant back on August 20th?"

"*****"

"A. Almost two hours, maybe?"

"Q. Now based on your training and experience and your contact with the defendant that night, were you able to form an opinion as to the state of the defendant's sobriety that night?"

"A. Yes.

"Q. What was that opinion?"

"A. That he was impaired to a noticeable and perceptible degree."

On cross-examination, Duenas testified that defendant's motor skills did not appear to be impaired, defendant's balance was intact, his speech was normal, and he behaved politely. Additionally, Duenas admitted that, although defendant started the walk-and-turn test before Duenas told him to, Duenas had not instructed defendant to wait for his command before starting the test. Defense

counsel also elicited Duenas's testimony that defendant had passed the one-leg-stand test.

The state also introduced defendant's "Breath Test Report." The one-page report included two "subject samples"—a 0.082 BAC and a 0.079 BAC—and a "Test Result" of 0.07 BAC. Duenas testified about defendant's two breath samples, and, when asked what the final result was, Duenas stated that "[t]he test result was a .07 percent BAC." Similarly, on cross-examination, Duenas testified that neither of the "subject samples" was official and that, instead, the 0.07 "Test Result" represented defendant's official BAC.

Using retrograde extrapolation, the state's forensic expert, Bessett, estimated defendant's BAC at the time of driving. Bessett based his calculations off of the "subject samples" rather than the "Test Result." According to Bessett, on the lower range, defendant's BAC at the time of driving was the same as the "subject samples," and on the higher end, it was 0.01 more than those samples.

The jury convicted defendant of DUII and failure to perform the duties of a driver, and this appeal followed.

II. DISCUSSION

On appeal, defendant asserts that the trial court erred in denying his pretrial motion to exclude testimony that he "passed" or "failed" the walk-and-turn or one-leg-stand tests because that testimony was scientific and the state did not lay an adequate foundation for it. We begin by explaining the governing law, then we turn to the parties' arguments.

A. *Legal Framework*

OEC 702, which governs the admission of expert testimony, provides, "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." In *State v. Brown*, 297 Or 404, 408, 687 P2d 751 (1984), the Supreme Court concluded that expert scientific evidence is best evaluated under traditional admissibility

standards for expert testimony under OEC 702. Those standards require expert testimony to be “relevant under OEC 401 and [helpful to] the trier of fact in deciding a disputed issue.” *Id.* at 409. Expert testimony is helpful if its subject is “within the expert’s field,” the witness is qualified, and the foundation for the opinion intelligibly relates the testimony to the facts. *Id.* Finally, the trial court must consider whether the testimony “is unduly prejudicial, repetitive, or falls under some other exclusionary provision” of OEC 403. *Id.* The court held that, “[i]n determining whether scientific evidence is probative under OEC 401 and the relevancy and prejudice analysis implicated in OEC 702’s helpfulness standard,” seven factors “provide structure and guidance in applying those rules of evidence.”² *Id.* at 417. The factors, which are not exclusive, are intended to assist a court in performing its “vital role of gatekeeper, screening proffered scientific testimony to determine whether it is sufficiently valid, as a matter of science, to legitimately assist the trier of fact and excluding bad science in order to control the flow of confusing, misleading, erroneous, prejudicial, or useless information to the trier of fact.” [*Marcum v. Adventist Health System/West*](#), 345 Or 237, 244, 193 P3d 1 (2008) (internal citations, brackets, and quotation marks omitted).

Eleven years later, in *State v. O’Key*, 321 Or 285, 899 P2d 663 (1995), the Supreme Court again addressed the admissibility of expert scientific evidence and refined the requirements articulated in *Brown* for a sufficient foundation for such evidence.³ In *Brown*, the court had defined

² The main factors set out in *Brown* are:

- “(1) The technique’s general acceptance in the field;
- “(2) The expert’s qualifications and stature;
- “(3) The use which has been made of the technique;
- “(4) The potential rate of error;
- “(5) The existence of specialized literature;
- “(6) The novelty of the invention; and
- “(7) The extent to which the technique relies on the subjective interpretation of the expert.”

Id. at 417. In a footnote, the court set out additional factors. *Id.* at 417 n 5.

³ In *O’Key*, the court identified four other factors, which “overlap, to some degree, with the seven factors set out in *Brown*.” [*State v. Southard*](#), 347 Or 127, 134 n 5, 218 P3d 104 (2009). “They are: (1) whether the theory or technique can

scientific evidence as evidence that “draws its convincing force from some principle of science, mathematics and the like.” 297 Or at 407. In *O’Key*, with respect to whether evidence is scientific, the court noted that “[t]his court’s definition of ‘scientific’ evidence in *Brown* recognizes that it is difficult to set a more definitive boundary between ‘scientific’ evidence and ‘technical or other specialized knowledge,’ which are the other types of evidence requiring expert proof.” 321 Or at 291 (quoting OEC 702).⁴ The court quoted Professors Mueller and Kirkpatrick, who explained that “[m]ost expert testimony rests at least partly on science. In many areas the scientific underpinning is well established and the criteria set out in [Rules] 702 and 703 work well. *** Under these criteria an enormous amount of conventional scientific evidence is routinely admitted.” *Id.* (quoting Christopher B. Mueller & Laird C. Kirkpatrick, *Modern Evidence* § 7.8, 990 (1995) (second insertion in *O’Key*)).

Thus, in *O’Key*, the court recognized that there may be no definitive boundary between expert scientific evidence and expert evidence based on “technical or other specialized knowledge”—that is, as Mueller and Kirkpatrick contend, “[m]ost expert testimony rests at least partly on science.”⁵ 321 Or at 291 (internal quotation marks omitted). In light of that recognition, the court identified the particular risk carried by the admission of expert evidence that the jury will perceive as scientific: “Evidence perceived by lay jurors to be scientific in nature possesses an unusually high degree

[be] and has been tested; (2) whether the theory or technique has been subject to peer review; (3) the known or potential rate of error; and (4) the degree of acceptance in the relevant scientific community.” *Id.*

⁴ The citation in an attached footnote recognized that there may be no definitive boundary between “scientific” evidence and evidence based on “technical or other specialized knowledge”:

“See also *Daubert v. Merrell Dow Pharmaceuticals*, 509 US 579, ___, 113 S Ct 2786, 2800, 125 L Ed 2d 469, 487 (1993) (Rehnquist, C. J., concurring in part and dissenting in part) (suggesting that there is no clear demarcation between scientific, technical, and specialized knowledge).”

O’Key, 321 Or at 320 n 5.

⁵ *Cf. Kumho Tire Co., Ltd. v. Carmichael*, 526 US 137, 148, 119 S Ct 1167, 143 L Ed 2d 238 (1999) (recognizing, under FRE 702, that “[t]here is no clear line” dividing testimony based on “scientific” knowledge from testimony based on “technical or other specialized” knowledge; holding that a single, flexible test for reliability applies to all expert testimony).

of persuasive power. The function of the court is to ensure that the persuasive appeal is legitimate.” *Id.* (footnote omitted). Accordingly, “[p]ropositions that a court finds possess significantly increased potential to influence the trier of fact as scientific assertions *** should be supported by the appropriate scientific validation.” *Id.* (citing William Strong, *Language and Logic in Expert Testimony: Limiting Expert Testimony by Restrictions of Function, Reliability, and Form*, 71 Or L Rev 349, 368 (1992)).

Ultimately, in *O’Key*, the court explained that there was no present need to attempt to draw a firm line between expert scientific testimony and expert testimony based on “technical or other specialized knowledge”:

“We need not attempt precisely to distinguish ‘scientific’ from other types of expert testimony under the Oregon Evidence Code. For now, we hold that, in the absence of a clear case, a case for judicial notice, or a case of *prima facie* legislative recognition, trial courts have an obligation to ensure that proffered expert scientific testimony that a court finds possesses significantly increased potential to influence the trier of fact as ‘scientific’ assertions is scientifically valid. This is especially true in cases where the proffered expert scientific testimony is innovative, nontraditional, unconventional, controversial, or close to the frontier of understanding.”

O’Key, 321 Or at 293.

Thus, when proffered expert scientific testimony “possesses a significantly increased potential to influence the trier of fact as ‘scientific,’” a court must determine whether the evidence is sufficiently reliable to be admitted, applying the guidelines established in *Brown* and *O’Key*. The court’s assessment of the reliability of the evidence is necessary to “ensure[] that expert testimony does not enjoy the persuasive appeal of science without subjecting its propositions to the verification processes of science.” *O’Key*, 321 Or at 292 (quoting Strong, 71 Or L Rev at 368); *see also* Christopher B. Mueller & Laird C. Kirkpatrick, 3 *Federal Evidence* § 353, 656 (2d ed 1995) (noting that most expert testimony is based on science and explaining that, “[i]n cases involving scientific evidence, especially where the science is new or controversial or close to the frontier of understanding, the

proponent must show that the proffered evidence is valid science”).⁶

Next, the *O’Key* court evaluated the expert testimony at issue—testimony about the HGN test—and concluded that the jury would perceive it as scientific. The court noted that “the HGN test is distinguished from other field sobriety tests because science, rather than common knowledge, provides the legitimacy for HGN testing.” 321 Or at 296. After discussing the “asserted scientific proposition” underlying the HGN test (“that there is a causal relationship between consumption of alcohol and the type of nystagmus measured by the HGN test”), the court explained that the HGN test “rests on a manifestation of alcohol consumption not easily recognized or understood by most people. The relationship between the effects of alcohol on the central nervous system, the nystagmus phenomenon, and the HGN test is not within the realm of common knowledge of the average person.” *Id.* at 296-97.

Thus, the court concluded that the jury would perceive HGN-test evidence as scientific because, unlike many other signs of alcohol consumption, the causal relationship

⁶ Despite the Supreme Court’s suggestion in *O’Key* that there is no firm dividing line between scientific and other expert testimony, no Oregon appellate opinion has addressed an argument that courts should apply the factors set out in *Brown* and *O’Key*, or some similar test for reliability, to propositions underlying expert testimony based on “technical or other specialized knowledge.” OEC 702; see *State v. Sanchez-Cruz*, 177 Or App 332, 337 n 4, 33 P3d 1037 (2001), *rev den*, 333 Or 463 (2002) (“Statements in some [Oregon] cases may be read to suggest that *only* scientific evidence, and not other expert testimony, is subject to the courts’ ‘gatekeeping’ role. It is by no means clear, however, that courts are not to exercise a gatekeeping role with respect to *all* expert testimony. *Brown* couches much of its discussion and conclusions in terms of ‘expert testimony’ generally, not ‘scientific evidence’ particularly. The provisions of the Oregon Evidence Code, on which the court in *Brown* based its analysis, do not distinguish among different kinds of expert testimony.” (Emphases in original; citations omitted.)). Cf. *Kumho Tire Co., Ltd.*, 526 US at 141, 148 (under FRE 702, the test for reliability established in *Daubert* “applies not only to testimony based on ‘scientific’ knowledge, but also to testimony based on ‘technical’ and ‘other specialized’ knowledge”; “[t]here is no clear line that divides the one from the others”); FRE 702, *Advisory Committee Notes*, 2000 Amendments (“An opinion from an expert who is not a scientist should receive the same degree of scrutiny for reliability as an opinion from an expert who purports to be a scientist. See *Watkins v. Telsmith, Inc.*, 121 F3d 984, 991 (5th Cir 1997) (‘[I]t seems exactly backwards that experts who purport to rely on general engineering principles and practical experience might escape screening by the district court simply by stating that their conclusions were not reached by any particular method or technique.’)).”

between alcohol consumption and the nystagmus phenomenon was outside jurors' common knowledge. Consequently, that "asserted scientific proposition" implied by the testimony had significantly increased potential to influence the jury as a "scientific" assertion.

O'Key demonstrates that attributes of a particular proposition implied by an expert's testimony—its scientific underpinning, coupled with its unfamiliarity to the jury—may cause the jury to perceive the proposition, and, consequently, the testimony, as scientific. See also *Jennings v. Baxter Healthcare Corp.*, 331 Or 285, 304, 14 P3d 596 (2000) ("[c]linical diagnoses bear the marks of science" because doctors use the scientific method to arrive at diagnoses); *State v. Milbradt*, 305 Or 621, 631, 756 P2d 620 (1988) (testimony about sex abuse "syndrome" that explains "'typical' reactions" of abuse victims is scientific).

Jurors also may perceive expert testimony as scientific because of attributes of the expert, rather than the particular explicit or implicit proposition that the expert relies on; through her overall presentation, an expert may "announce[] to the factfinder that her testimony is 'scientific, *i.e.*, is grounded on conclusions that have been reached through application of a scientific method to collected data.'" *State v. Marrington*, 335 Or 555, 563, 73 P3d 911 (2003). In *Marrington*, the defendant argued that a witness's assertion "that delayed reporting is a predominant feature of disclosure in otherwise verified cases of child sexual abuse" was scientific. 335 Or at 560. The court first noted that "expert testimony concerning matters within the sphere of the behavioral sciences possesses the increased potential to influence the trier of fact as scientific assertions, just as expert testimony dealing with the 'hard' sciences does." *Id.* at 561. Then the court noted that the expert had testified that she had degrees in behavioral science and extensive experience in the field of child abuse and was familiar with research and literature in the field. Moreover, her testimony implied that "there is a well-defined, empirically verified, set of characteristics that a significant percentage of sexually abused children display." *Id.* at 563. She also used "the vocabulary of scientific research." *Id.* Finally, the court held that an expert "who has a background in behavioral sciences

and who claims that her knowledge is based on studies, research, and the literature in the field, announces to the factfinder that the basis of her testimony is ‘scientific,’ *i.e.*, is grounded on conclusions that have been reached through application of a scientific method to collected data.” *Id.* at 563-64; *see also* [State v. Perry](#), 347 Or 110, 120, 218 P3d 95 (2009) (where expert, like expert in *Marrington*, “was presenting herself as an expert in her field whose knowledge was based, at least in part, on studies, research, and scientific literature,” “her testimony regarding delayed disclosure is scientific evidence”).

We have employed both of those methods of evaluating whether a jury will perceive evidence as “scientific.” *See, e.g.*, [State v. Dulfu](#), 282 Or App 209, 215-16, 386 P3d 85 (2016), *rev allowed*, 361 Or 100 (2017) (expert testimony was scientific because, as in *Marrington* and *Perry*, proponent “tied [the expert’s] ability to opine on possible motivations for possessing child pornography to his professional background and experience as a scientist”); [State v. Branch](#), 243 Or App 309, 315, 259 P3d 103, *rev den*, 351 Or 216 (2011) (evidence of distance derived from lidar device “is based on the premise that measurements of distance can be derived through the lidar device’s use of a certain scientific principle, *viz.*, the speed of light”; accordingly, the evidence “draws its convincing force from a scientific principle and would be more persuasive to the trier of fact due to its scientific nature”); [State v. Sampson](#), 167 Or App 489, 496-97, 6 P3d 543, *rev den*, 331 Or 361 (2000) (persuasive force of drug recognition expert protocol “emanates predominantly from the substance *and* the aura of the scientific principles on which its methodology is based” (emphasis in original)).

We have also distinguished opinion evidence that is based exclusively on an expert’s training and experience from scientific evidence. We explained that distinction in [State v. Rambo](#), 250 Or App 186, 279 P3d 361 (2012), *rev den*, 353 Or 203 (2013). There, the defendant was charged with driving under the influence of a controlled substance and sought exclusion of an officer’s opinion that she was under the influence of a controlled substance based on her performance during some components of a drug recognition expert (DRE) protocol that the officer had administered,

contending that the opinion testimony was scientific evidence for which the state had to lay a proper foundation.⁷ 250 Or App at 187. The trial court allowed the officer to testify to that opinion based on certain components of the DRE protocol, specifically, the defendant's BAC, her statements, the HGN test, her performance on FSTs,⁸ her general pupil size, and needle injection sites on her body. *Id.* at 189. The trial court excluded evidence based on the defendant's pulse rate, temperature, measurement of her pupils after a "dark room test," and muscle examination, concluding that evidence about those things would suggest a scientific basis for the officer's opinion. *Id.* The defendant appealed, reprising her argument made before the trial court. *Id.* at 190.

We concluded that "the trial court properly admitted the challenged testimony as nonscientific expert opinion evidence." *Id.* at 192. We first explained that the defendant "does not challenge the admissibility of any of the underlying evidence upon which [the officer] based his ultimate

⁷ The DRE protocol "is a 12-step procedure performed by a trained officer that purports to determine whether a subject is under the influence of a controlled substance." *Sampson*, 167 Or App at 491. Evidence of the full DRE protocol is scientific evidence because several of its components "produce[] *** test result[s] that compare[] with results established through scientific research that purport to show the subject to be more or less likely under the influence of a controlled substance." *Id.* at 496. Moreover, evidence of the full protocol carries an "aura" of scientific reliability because of "its highly specialized certification procedure, battery of medicalized tests, and complicated end-stage analysis." *Id.* Some components of the protocol, however, are not scientific and, consequently, require no scientific foundation. *See Rambo*, 250 Or App at 194-95; *State v. Hernandez*, 227 Or App 319, 323-24, 206 P3d 197 (2009).

⁸ The opinion describes the testimony about FSTs as follows:

"[The officer] administered a modified Romberg sobriety test, where defendant estimated the passage of time accurately but had some circular sway in her stance. [The officer] had observed those results with people who were under the influence of a narcotic analgesic. During a walk and turn test, defendant had difficulty maintaining the correct instructional position and maintaining a proper heel-to-toe walk. During a one-legged stand test, defendant had difficulty balancing and counted 23 seconds as 30 seconds. According to [the officer], of the seven recognized drug categories, only narcotic analgesics and central nervous system depressants cause an internal clock slowdown. Defendant also missed her nose several times when [the officer] conducted a finger-to-nose test."

250 Or App at 188. Thus, it appears that the officer testified about the substance of the defendant's performance on each of the FSTs and explained why, in his experience, that performance suggested that she was under the influence of a controlled substance. The opinion does not indicate that the officer testified that the defendant "passed" or "failed" any of the FSTs.

opinion.” *Id.* That is, the defendant “implicitly acknowledge[d]” that the HGN and blood-alcohol-test evidence was admissible scientific evidence and that evidence of the defendant’s statements made during an interview and her performance on the FSTs was independently admissible. *Id.*

Instead, the defendant’s only challenge was to “the admissibility of [the officer’s] opinion, based on that underlying evidence, that defendant drove under the influence of a narcotic analgesic.” *Id.* The defendant argued that, because that opinion was based, in part, on scientific tests (the HGN test and the blood alcohol test) and couched in terms of the officer’s investigative accuracy rate, the jury would perceive that his opinion itself was scientific. *Id.* at 193.

We rejected the defendant’s argument, explaining that officers who have training and experience in recognizing signs of impairment can testify to their expert opinions of intoxication without first showing that the opinion-forming process was scientifically valid:

“[T]he evidence showed that [the officer] was qualified, by virtue of considerable training and experience, to recognize the symptoms of drug impairment in the course of a DUII investigation. Based on such training and experience, police officers can—and frequently do—testify as to their opinions of whether an individual was under the influence of alcohol or a controlled substance.”

Id. at 194.

Moreover, we concluded, the fact that the officer’s opinion relied in part on the results of scientific tests that had previously been recognized as reliable did not make the officer’s opinion itself scientific and in need of a scientific foundation: “The fact that [officers] may rely in part on *independently admissible* scientific evidence, such as blood alcohol content and HGN test results, to reinforce their opinions, does not render those opinions inadmissible as unqualified scientific evidence.” *Id.* at 195 (emphasis in original).

Ultimately, we explained, “[s]pecialized expert opinion evidence based on a witness’s training and experience draws its force from that training and experience, but not necessarily from the mantle of science.” *Id.* Because the officer “did not—apart from his reference to independently

admissible scientific tests—rely on the vocabulary of science” and did not “suggest that his conclusions had been reached through the application of a scientific method to collected data,” and because the trial court had “scrupulously sanitized the record of any evidence of a scientifically based protocol,” the jury would not have perceived the officer’s opinion to be based on science. *Id.*

Thus, certain officers may be practical experts in recognizing intoxication, and, when they are, they may offer expert opinions on that topic without first showing that the process by which they arrive at their opinions is scientifically valid, provided that their testimony does not imply that it is based on science. *See Strong*, 71 Or L Rev at 368-69 (noting that propositions relied on by “experientially qualified experts” are often adequately reliable for admission because of “the likely ability of the trier of fact to view them as what they are, the practical observations and assessments of persons who have had unusual specialized experiences”; contrasting that type of evidence with expert scientific evidence). Officers may become practical experts based on their experience identifying and interacting with people who are intoxicated, as well as from their training. *See State v. Wilson*, 266 Or App 286, 296-97, 337 P3d 948 (2014) (jury would not perceive officer’s testimony that the defendant was under the influence of marijuana, based on the officer’s training and experience and the fact that the defendant “had dilated pupils and red, puffy ‘spider web’ eyes,” as “scientific”).⁹ Nevertheless, there are limits on training and experience as a “nonscientific” source of propositions. *O’Key*,

⁹ Cf. *State v. Clemens*, 208 Or App 632, 638, 639 n 4, 145 P3d 294 (2006), *rev den*, 342 Or 299 (2007) (testimony from an officer, apparently admitted by the trial court under OEC 701, that the victim’s statement was generally consistent with the nonchronological reporting patterns of child abuse victims was not scientific because it was not couched in scientific terminology and it was based on the officer’s personal experience interviewing victims of child abuse); *State v. Henley*, 281 Or App 825, 833, 386 P3d 126 (2016), *rev allowed*, 360 Or 752 (2017) (testimony about sexual grooming was not scientific because it was based on witness’s “training and work experiences as a forensic interviewer and not from psychological principles”). *But see Marrington*, 335 Or at 562 (rejecting the state’s argument that there is a distinction between testimony about characteristics of a sex abuse “syndrome,” which is scientific, and evidence about “typical” reactions of abuse victims, which, the state argued, can be admitted on a foundation “as simple as the witness testifying from her own observations in working with children over the years”).

321 Or at 296-97 (HGN evidence presented by an officer trained in administering the test is nevertheless scientific because “[t]he value of HGN testing depends critically on the demonstrated scientific validity of” the “proposition that there is a causal relationship between consumption of alcohol and the type of nystagmus measured by the HGN test,” and that proposition will be perceived by the trier of fact as scientific because it is outside jurors’ common knowledge of signs of intoxication).

In summary, to be admissible, expert evidence must be relevant and helpful to the jury, and its probative value must not be substantially outweighed by the danger of unfair prejudice. *Brown*, 297 Or at 409. In addition, if the expert evidence is “scientific,” it must be reliable under *Brown* and *O’Key*. Expert evidence is scientific if it “draws its convincing force from some principle of science, mathematics and the like.” *Brown*, 297 Or at 407. If evidence will be perceived by a jury as scientific and, therefore, have an “unusually high degree of persuasive power,” a court must ensure that the “persuasive appeal is legitimate.” *O’Key*, 321 Or at 291. Thus, for example, expert testimony regarding physiological or behavioral responses that are outside the realm of common knowledge is scientific evidence, as is evidence that is presented as being based, at least in part, on studies, research, and scientific literature. In contrast, expert testimony that is based on an expert’s training and experience is not scientific evidence if it is, and will be recognized by the trier of fact as, merely the “practical observations and assessments” of a person who has had “unusual specialized experiences.” *Strong*, 71 Or L Rev at 369.

B. *Parties’ Arguments*

With that understanding of the law, we turn to defendant’s argument, which, as noted above, is that the trier of fact will perceive testimony that a person “passed” or “failed” the walk-and-turn or one-leg-stand test as scientific. At the outset, defendant concedes that testimony describing a subject’s performance on the walk-and-turn and one-leg-stand tests is not scientific evidence subject to the admissibility requirements of OEC 702 because, as the court stated in *O’Key*, the walk-and-turn and one-leg-stand tests “obtain

their legitimacy from effects of intoxication based on propositions of common knowledge.” 321 Or at 297.

That is, the walk-and-turn and one-leg-stand tests allow officers, and, through the officers’ testimony, the jury, to spot commonly known signs of intoxication. *See id.* (citing *State v. Clark*, 286 Or 33, 39-40, 593 P2d 123 (1979), which took “judicial notice of a list of commonly known ‘observable symptoms’ or ‘signs’ of alcohol intoxication”); *see also State v. Mazzola*, 356 Or 804, 818, 345 P3d 424 (2015) (describing “[t]he rationale behind the admission in DUII cases of the results of FSTs” like the walk and turn and one-leg-stand tests as “‘test[ing] balance and divided attention, or the ability to perform multiple tasks simultaneously’” (quoting *United States v. Horn*, 185 F Supp 2d 530, 558 (D Md 2002) (internal quotation marks omitted))).¹⁰ The jury will not perceive evidence describing the test performance as scientific because the evidence will relate to commonly known “observable symptoms” or “signs” of alcohol impairment that comport with jurors’ own knowledge and experience and, perhaps, additional signs identified by the officer based on his or her practical expertise. *O’Key*, 321 Or at 297 (concluding that HGN test evidence is scientific because, “although the function of the HGN test, like other [FSTs], is to spot ‘observable symptoms’ or ‘signs’ of alcohol impairment, it is different from other [FSTs] because it rests on a manifestation of alcohol consumption not easily recognized or understood by most people”); *see also Horn*, 185 F Supp 2d at 558 (“Because evidence procured by administration of psychomotor FSTs is within the common experience of the

¹⁰ In *Mazzola*, the Supreme Court’s explanation of the rationale behind admitting evidence of performance on FSTs in a DUII prosecution ties the commonly known effects of alcohol that each test reveals to the ultimate legal question of impairment—that is, ability to drive (or lack thereof):

“Psychomotor [field sobriety tests] test balance and divided attention, or the ability to perform multiple tasks simultaneously. While balancing is not necessarily a factor in driving, the lack of balance is an indicator that there may be other problems. Poor divided attention skills relate directly to a driver’s exercise of judgment and ability to respond to the numerous stimuli presented during driving. The tests involving coordination (including the walk-and-turn and the one-leg-stand) are probative of the ability to drive, as they examine control over the subject’s own movements.”

356 Or at 818 (quoting *Horn*, 185 F Supp 2d at 558 (insertion in *Mazzola*; internal quotation marks omitted)).

ordinary citizen, the majority of courts that have addressed the issue generally consider [evidence describing performance on] psychomotor FSTs to be nonscientific evidence.” (Internal quotation marks omitted.)).

Against that backdrop, defendant’s argument is that, when an officer testifies that someone “passed” or “failed” the walk-and-turn test or the one-leg-stand test, the probative value of that testimony rests on a scientific proposition distinct from the commonly known signs of intoxication and from the officer’s practical expertise in identifying impairment. As explained above, both the officer and the jury can recognize signs of impairment that a test subject might exhibit during performance of an FST. Moreover, if the officer has training and extensive experience administering FSTs to suspected impaired drivers, the officer may have practical expertise in recognizing when a test subject’s performance indicates impairment. *Rambo*, 250 Or App at 194-95 (recognizing officer’s qualification to offer nonscientific expert opinion of intoxication based on training and experience). However, defendant argues, the conclusion that the subject has “passed” or “failed” the test because he or she exhibited a particular number of signs of impairment, or standardized clues, relies on more than a common or even a specialized understanding of the signs themselves.

In defendant’s view, the conclusion—“pass” or “fail”—relies on an external scoring rubric that does not derive from common understanding or the officer’s practical expertise. For the walk-and-turn test, the conclusion that a subject fails the test rests on the proposition that exhibiting two of a particular group of signs of impairment during performance of the test indicates that the subject is objectively, measurably impaired. Because the conclusion “fail” relies on that external scoring rubric, defendant argues, “a jury is likely to view the [result of the] test[] as conclusive scientific evidence of alcohol impairment.” Moreover, defendant points out, scientific research and testing is exactly how the scoring rubric was developed.¹¹

¹¹ Defendant argues:

“The [walk-and-turn (WAT)] and [one-leg-stand (OLS)] field tests were developed in the 1970s and ‘80s when [the National Highway Transportation

In support of his argument, defendant relies on cases from other jurisdictions, which have held that, although, as a general matter, an officer's testimony regarding a driver's conduct during FSTs does not require a scientific foundation, testimony that the driver "passed" or "failed" the FSTs does require such a foundation because it will be perceived as scientific by the jury. For example, in *State v. Meador*, 674 So 2d 826, 832-33 (Fla App 1996), the court explained that using terms such as "pass," "fail," and "points" "creates a potential for enhancing the significance of the [officer's] observations" because the terms give "an aura of scientific validity" to the observations. Similarly, in *Horn*, 185 F Supp 2d at 559, the court concluded that, although an officer may describe his or her observations of a driver's conduct during FSTs,

"[t]o interject into this essentially descriptive process technical terminology regarding the number of 'standardized clues' that should be looked for or opinions of the officer that the subject 'failed' the 'test,' especially when such testimony cannot be shown to have resulted from reliable methodology, unfairly cloaks it with unearned credibility."

Thus, defendant concludes, the term "fail," along with the term "pass," is scientific testimony for which the state must

Safety Administration (NHTSA)] sponsored research by psychologists Marcelline Burns and Herbert Moskowitz, among others. NHTSA, *Development of a Standardized Field Sobriety Test*, <http://www.nhtsa.gov/people/injury/alcobol/sfst/introduction.htm>, (last visited February 24, 2014). That research was reexamined in 'validation studies' during the 1980s and '90s. *Horn*, 185 F Supp 2d at 535-36.

"NHTSA training materials rely on research and conclusions by psychologists like Moskowitz and Burns to validate the WAT and OLS tests. For example, the 2006 NHTSA Standardized Field Sobriety Testing manual describes psychophysical tests like the WAT and OLS, stating, 'The most significant psychophysical tests are the three scientifically validated structured tests that you administer at roadside.' NHTSA, *DWI and Standardized Field Sobriety Testing* (2006) at VII-1, <http://oag.dc.gov/publication/2006-nhtsa-sfst-manual> (emphasis added). The manual notes, 'Original research shows that if a suspect exhibits *two or more* of the clues [on the WAT test], or cannot complete the test, the suspect's BAC is likely to be above 0.10. This criterion has been shown to be accurate 68 percent of the time.' *Id.* at VII-6 (emphasis in original); see *Horn*, 185 F Supp 2d at 537-38 (citing similar language in a NHTSA training manual). The NHTSA manual also states that 'laboratory research' indicates that the HGN, WAT, and OLS tests are 'a highly accurate and reliable battery of tests for distinguishing BACs above 0.10[.]' *Id.* at VIII-1."

(Third through fifth insertions in defendant's brief; footnote omitted.)

lay an adequate foundation. Accordingly, defendant argues, the trial court erred in allowing the testimony without any foundation.¹²

The state responds that the trial court correctly denied defendant's motion to exclude testimony that he passed or failed the walk-and-turn and one-leg-stand tests. The state argues that the terms "pass" and "fail" are not scientific because they are "ordinary words of common understanding that are used in many contexts outside the scientific realm." Here, in the state's view, the terms "merely stand as shorthand for the officer's testimony regarding whether defendant's performance on the test demonstrated sufficient impairment to indicate intoxication—an opinion that the officer is permitted to offer." According to the state, the jury would understand the term "fail" to simply mean "deficient, inadequate, or unsuccessful."

The state also argues that, because the walk-and-turn and one-leg-stand tests are based on "principles easily recognized or understood by most people," Duenas's use of the term "fail" did not affect the jury's ability to weigh and evaluate Duenas's opinion based on the evidence.

In support of its argument, the state relies on *State v. Shadden*, 290 Kan 803, 825-29, 235 P3d 436, 451-53 (2010), which sets out the reasoning of several other state cases that have concluded that field-sobriety-testing terminology (including "fail," as well as many other terms, including "impairment," "sobriety," and "tests") is admissible without a showing of scientific reliability. The opinions cited in *Shadden* conclude that the terminology merely "make[s] plain the tests' purpose as indicators of impairment" and the terms are "nothing more than descriptive" of a test subject's inadequate performance. 209 Kan at 828-29, 235

¹² Defendant also argues that the testimony was not admissible because the state could not have laid an adequate foundation under *Brown* and *O'Key* showing that the proposition on which the conclusion of passage or failure relies is the product of a reliable and verifiable scientific methodology. Because we agree with defendant that the testimony was scientific and it is undisputed that the state did not lay any foundation for the testimony in this case, we do not consider that question here. See *State v. Whitmore*, 257 Or App 664, 669, 676, 307 P3d 552 (2013) (where no *Brown/O'Key* foundation was laid, "if the expert testimony constitutes scientific evidence, the trial court erred in admitting that testimony"; reversing and remanding after concluding that the challenged evidence was scientific).

P3d at 453 (quoting *State v. Campoy*, 214 Ariz 132, 136, 149 P3d 756 (Ct App 2006), *rev den* (May 22, 2007), and *State v. Kelley*, 95 Conn App 423, 896 A2d 129, *rev den*, 279 Conn 906 (2006)).

C. Admissibility

We review for legal error the trial court's determination that expert testimony was not scientific evidence. *Marrington*, 335 Or at 561-63; *State v. Clemens*, 208 Or App 632, 634, 145 P3d 294 (2006), *rev den*, 342 Or 299 (2007).

As we understand it, the state's main contention is that Duenas was entitled to offer his opinion that defendant's performance on the FSTs demonstrated that he was impaired, and Duenas's use of the term "fail" was merely a shorthand way for Duenas to express that opinion. As explained above, the state is correct that Duenas was entitled to offer his nonscientific expert opinion, based on his training and experience, that defendant was impaired. *Rambo*, 250 Or App at 194. However, we disagree with the state's second premise: The term "fail" is not merely "shorthand for the officer's testimony regarding whether defendant's performance on the test demonstrated sufficient impairment to indicate intoxication."

As the prosecutor stated at the hearing on defendant's motion, the FSTs at issue are "standardized tests." In this context, "standardize" means "to arrange or order the component items of a test *** so that the probability of their eliciting a designated class of response varies with some quantifiable psychological or behavioral attribute, function, or characteristic." *Webster's Third New Int'l Dictionary* 2223 (unabridged ed 2002), *see also id.* at 2224 (defining "standard test" as a test "whose reliability has been established by obtaining an average score of a significantly large number of individuals for use as a standard of comparison"). Thus, as proffered by the state, and as would be understood by the jury, the terms "pass" and "fail" imply that there is a correlation between "a designated class of response" to the test prompts—that is, the presence of a certain number of clues—and "some quantifiable psychological or behavioral attribute"—that is, intoxication—and that that correlation has been verified by application of the scientific method.

In this case, separately from describing defendant's performance on the walk-and-turn test, Duenas testified that defendant showed four out of eight possible clues on the test.¹³ He was asked, "Is that a passing or failing score?" He responded, "Fail." Later, separately, Duenas testified to his opinion that defendant was impaired.

In stating that defendant "failed" the test, Duenas did not merely express his own opinion that defendant was impaired based on the particular deficiencies in defendant's performance. Duenas testified that defendant's numerical score on the test, alone, indicated failure—four out of eight clues is a "failing score." He did not tie that conclusion to any observations about the deficiencies in defendant's performance or to a personal scoring system. When an officer testifies that a defendant "failed" the walk-and-turn test or the one-leg-stand test, that testimony relies on an external scoring rubric to prove that the defendant was objectively, measurably impaired. Indeed, the state acknowledged as much by arguing, in response to defendant's pretrial motion, that FSTs are standardized tests.¹⁴

¹³ Because the disputed ruling here was made pretrial, Duenas's testimony was not before the trial court when it made its decision. Nevertheless, because it is demonstrative of the type of testimony that defendant sought to exclude—and because the discussion of defendant's pretrial motion demonstrates that both parties and the court understood that—it is helpful to our analysis by way of example.

¹⁴ To the extent that an officer might use the word "fail" as shorthand referring to his or her own idiosyncratic determination of whether a defendant was impaired, we again note that it was clear from the argument on defendant's motion that what he sought to exclude was testimony (like the testimony that Duenas ultimately gave) that relied on an external scoring rubric to show that defendant was objectively, measurably impaired. As explained in the text, we agree that such testimony was inadmissible in the absence of a *Brown/O'Key* foundation. If the court had granted defendant's motion to exclude such testimony and Duenas had sought to use the word "fail" as shorthand for his own view, the parties could have litigated whether, and what, additional explanation would be required to make that testimony admissible under the court's pretrial ruling.

The dissent argues that Duenas's additional testimony that he does not always arrest a driver who fails the walk-and-turn test undercuts our conclusion that the term "fail" implies that there is a correlation between the presence of a certain number of clues on the walk-and-turn test and impairment and that that correlation has been verified by application of the scientific method. 286 Or App at 611 (Hadlock, C. J., dissenting). First, we reiterate that, as explained above, Duenas's testimony was not before the court when it denied defendant's motion to exclude testimony that he had "passed" or "failed" the tests. At that

The state suggests that, although the evidence concerned defendant's score on a standardized test and was offered to prove intoxication, a jury would not perceive the evidence as scientific. According to the state, "[a] jury simply would understand the plain meaning" of the term "fail" as "deficient, inadequate, or unsuccessful."¹⁵ That is, in the state's view, the jury would not understand the probative value of the term, or the underlying assertion, to be based on science because the term "fail" does not necessarily have a scientific meaning.

We disagree. A jury's understanding of whether testimony is scientific is not based exclusively on whether the expert witness uses scientific-sounding jargon or words that are susceptible to only scientific meanings. Juries are capable of recognizing scientific substance when they hear it. *Sampson*, 167 Or App at 496-97 (explaining the scientific principles underlying DRE evidence and noting that "it is clear that DRE draws its authority from scientific principles"); see also *O'Key*, 321 Or at 296-97 (holding that HGN-test evidence is "scientific" because such evidence "purports to draw its convincing force from" the scientific proposition that there is "a causal relationship between consumption of alcohol and the type of nystagmus measured by the HGN test" and that relationship "is not within the realm of common knowledge of the average person"); *Branch*, 243 Or App at 315 (the jury will perceive distance evidence based on

time, the state argued that the fact that the tests were "standardized"—which, as explained above, indicates that they were designed to show a correlation between exhibiting a certain number of clues and impairment—weighed in favor of admitting the evidence. At no point during the motion hearing or during the trial did the state suggest that the test result was merely Duenas's own opinion.

Second, while we acknowledge that the fact that Duenas does not rely solely on a person's failure of the walk-and-turn test as a basis for arrest may undercut the persuasiveness of the underlying proposition—that the test measures impairment accurately—contrary to the dissent's view, it does not suggest that the conclusion of "failure" was merely Duenas's own opinion. It suggests the opposite: It shows that Duenas's statement that defendant failed the test does not express Duenas's own opinion that defendant was impaired. Given that, we do not understand what subjective opinion Duenas could have been expressing by his testimony that defendant's score of "four out of eight clues" was a "failing score."

¹⁵ To the extent that the state is arguing that admission of a small amount of scientific evidence would not affect the jury's consideration of the evidence as a whole, that is an argument that any error is harmless, and, accordingly, we do not consider it here.

lidar as scientific because lidar uses a scientific principle—the speed of light—to measure distance).¹⁶

Expert testimony that implicitly rests on scientific propositions can have just as much persuasive power as testimony that makes its scientific backing explicit. That is, the fact that an expert who explicitly relies on her scientific education and uses scientific jargon “announces to the factfinder that the basis of her testimony is ‘scientific,’” *Marrington*, 335 Or at 563, does not mean that the propositions underlying the testimony of any expert who does not do those things necessarily will not be perceived as “scientific.” See *O’Key*, 321 Or at 292-95 (focusing on the “propositions” underlying the expert’s testimony to ascertain whether they have increased potential “to influence the trier of fact as *scientific*

¹⁶ The dissent asserts that those cases are distinguishable because

“juries will understand that science is involved when a witness testifies about such things as distance measurement by lidar and measurement of alcohol impairment through HGN testing. But that is because those topics by their very nature ‘purport[] to draw [their] convincing force from a principle of science’ and have value that ‘depends critically on the demonstrated scientific validity’ of that principle. The significance of those testing mechanisms and their results lies outside the common knowledge of lay persons.”

286 Or App at 623-24 (Hadlock, C. J., dissenting) (quoting *O’Key*, 321 Or at 296-97 (citations omitted)). By contrast, in the dissent’s view, Duenas’s testimony in this case was only to “‘propositions of common knowledge’” and “neither Duenas’s testimony nor any other evidence admitted at trial would have suggested to the jury that Duenas’s determination that defendant failed the test was based on the sort of science-based protocol that a jury might give extra weight.” *Id.* at 624 (Hadlock, C. J., dissenting).

As explained in the text, we disagree that Duenas’s testimony was confined to propositions of common knowledge, because he also testified to the conclusion that a test subject “fails” the test by exhibiting a specific number of standardized clues. Certainly, from testimony describing a subject’s performance on a test, the jury will be able to assess whether he or she performed well or poorly. However, that ability to evaluate performance is different from the knowledge that exhibiting two or more clues is a “failing score.” That a subject “fails” the test if he or she exhibits two clues is not within the realm of common knowledge.

Moreover, in our view, in *Marrington*, the Supreme Court rejected the distinction that the dissent draws between lidar and HGN testing, on the one hand, and the propositions underlying the conclusion that someone has failed the walk-and-turn test, on the other hand. The court explained that “expert testimony concerning matters within the sphere of the behavioral sciences possesses increased potential to influence the trier of fact as scientific assertions, just as expert testimony dealing with the ‘hard’ sciences does.” 335 Or at 561 (rejecting state’s proposed distinction between evidence of “sexual abuse syndrome” and evidence of “‘typical’ reactions of child victims,” which could be admitted based on “‘some kind of experiential or observational foundation’”).

assertions” (emphasis added)). The propositions underlying an expert’s testimony are a critical focus of the inquiry, not merely the words of the testimony. See *Marrington*, 335 at 561 (quoting *O’Key*’s reference to “scientific assertions”); *id.* at 563 (noting that the expert’s reference to “the characteristics of sexually abused children’ *impl[ied]* that there is a well-defined, empirically verified, set of characteristics that a significant percentage of sexually abused children display” (emphasis added)); *accord* *Strong*, 71 Or L Rev at 353, 361 (noting that an expert witness’s “function is to supply general propositions” and that “the value of expert opinion critically depends on the reliability of the general propositions utilized by the expert”). As we understand it, that is a focus of the inquiry because the jury will understand that the expert’s testimony rests on underlying propositions about the topic of the testimony and, because the expert is knowledgeable about the topic, is likely to believe that those propositions are correct.

Here, a jury would perceive the proposition underlying the testimony that a defendant “failed” the walk-and-turn test or one-leg-stand test as scientific. As we have explained, the proposition underlying that testimony is that the test is able to measure impairment objectively and that a specific numerical score can prove that the subject is impaired. As defendant points out, that proposition is grounded in scientific research. Moreover, that proposition is distinct from, and cannot be derived from, commonly recognized signs of impairment or the more detailed understanding of signs of impairment that an officer obtains from his or her specialized training and experience. The only way to create an accurate numerical scoring system for measuring impairment objectively is to conduct scientific research and testing.

Some simple factual propositions are easily enough arrived at through training and experience that jurors will not perceive them as scientific—*e.g.*, an officer’s knowledge that red, “spider web’ eyes” indicate recent marijuana consumption. *Wilson*, 266 Or App at 296-97. However, in our view, where, as here, there is no reasonable way for the expert to have derived the proposition other than through “application of a scientific method to collected data,” *Marrington*, 335 Or at 564, the jury will perceive the proposition to be based

on science.¹⁷ See *O'Key*, 321 Or at 296-97 (assertion of causal relationship between alcohol consumption and nystagmus will be perceived as scientific); *State v. Ohotto*, 261 Or App 70, 76, 323 P3d 306 (2014) (because retrograde extrapolation testimony rested on calculations based on “scientific understandings of physiological processes,” testimony would be perceived as scientific, not just based on officer’s training and experience). That is true even in the absence of testimony explicitly referring to the scientific backing for the testimony. A party seeking to introduce expert testimony that is based on scientific testing cannot avoid the requirement of laying a proper foundation by having the expert testify only to the test results.

In short, our task is to discern whether, when an officer testifies that a defendant “failed” the walk-and-turn or one-leg-stand test, the jury will think that science supports the propositions that alcohol impairment can be objectively measured through the walk-and-turn and one-leg-stand

¹⁷ The dissent characterizes our holding here as being that the jury would “perceive the proposition *that defendant failed a walk-and-turn test* to be based on science.” 286 Or App at 621 (Hadlock, C. J., dissenting) (internal quotation marks and brackets omitted; emphasis added). However, the emphasized text reflects a proposition supplied by the dissent on which we do not rely. As we have explained, in *O'Key*, the court held that the proper focus of our analysis is on the propositions *underlying* an expert’s testimony, not just the words of the testimony. 321 Or at 292-95. Thus, the question for us here is whether the jury would perceive as scientific the propositions that the test is able to measure impairment objectively and that a specific numerical score can prove that the subject is impaired, because, as we have explained, those are the propositions underlying the statement that a subject “failed” the test by exhibiting a certain number of clues. We conclude that it would because, as we explain in the text, those propositions can be derived only by application of the scientific method to collected data, not through practical expertise.

That understanding of the proper analysis also leads us to disagree with the dissent’s reliance on the facts that “Duenas did not expound on *why* a person fails the walk-and-turn test if he or she exhibits four clues,” that he “did not inform the jury that the failing score was based on a scoring rubric developed through research sponsored by NHTSA” and that “he did not testify that the score was based on the application of a scientific method to collected data” to conclude that the jury would not understand the testimony as “scientific.” 286 Or App at 622-23 (Hadlock, C. J., dissenting) (internal quotation marks omitted). The dissent’s reliance on those facts does not acknowledge that, as the Supreme Court recognized in *O'Key*, the role of an expert is to provide the jury with reliable propositions; juries rely on the correctness of the propositions underlying experts’ testimony, not just their express conclusions. See *Strong*, 71 Or L Rev at 353, 361 (noting that an expert witness’s “function is to supply general propositions” and that “the value of expert opinion critically depends on the reliability of the general propositions utilized by the expert”).

tests and that the defendant's performance showed that he was objectively impaired. We conclude that, using their ordinary powers of deduction, jurors will think so. Accordingly, the state here had to establish that, in fact, alcohol impairment is reliably measured through the walk-and-turn and one-leg-stand tests before introducing the testimony that defendant "failed" the tests to prove that he was impaired.¹⁸

To be clear, our holding concerns only the admissibility of evidence that defendant "passed" or "failed" the FSTs. That was the subject of defendant's motion. Consequently, our holding does not concern the admissibility of the officer's observations of defendant's conduct during the FSTs in this case, which defendant concedes is not scientific evidence. Furthermore, our holding is only that, in order for testimony regarding whether defendant "passed" or "failed" the FSTs to be admissible, the state needed to lay a proper foundation, which it did not attempt to do.

D. *Harmlessness*

Finally, we evaluate whether the trial court's error in admitting the evidence was harmless. *See* OEC 103(1)

¹⁸ Regarding the cases from other jurisdictions relied upon by the state, we note that the broader challenges in those cases—challenges to a wide variety of terms even including "impairment"—make much of those courts' reasoning inapposite here, where defendant challenges only the use of "pass" and "fail." Moreover, we find the cited reasoning unpersuasive because, as explained in the text, use of the terms "pass" and "fail" is not "nothing more than descriptive" of a subject's performance on the test. An officer's testimony about the subject's behavior during the test, as well as the officer's practical expert opinion on whether that behavior, together with the officer's other observations, indicated that the subject was impaired, are "descriptive" of the subject's performance. In our view, the addition of the term "fail" superimposes on the officer's otherwise descriptive testimony an external scientific conclusion offered to prove that the test subject is objectively, measurably impaired.

We do agree with the court in *Campoy* that terms like "pass" and "fail" "make plain the tests' purpose as indicators of impairment." 214 Ariz at 136, 149 P3d at 760. However, we disagree to the extent that *Campoy* held that testimony that relies on the tests to indicate objective, measurable impairment based on an external scoring rubric is not scientific. When evidence that a subject failed the test is used to show that the subject was objectively, measurably impaired, the ultimate underlying proposition is that the test validly measures impairment—that is, that there is verified, reliable correlation between intoxication and failure of the test. And the jury will understand that. Consequently, "the value of [the conclusion that a subject failed the test] depends critically on the demonstrated scientific validity of that proposition," *O'Key*, 321 Or at 296-97, and the evidence may not be presented to the jury in the absence of a showing of scientific validity.

(an evidentiary error does not require reversal unless the error is prejudicial). “We will affirm a defendant’s conviction if there is little likelihood that erroneously admitted evidence affected the verdict.” *State v. Whitmore*, 257 Or App 664, 672, 307 P3d 552 (2013); *see also State v. Davis*, 336 Or 19, 32, 77 P3d 1111 (2003) (“Oregon’s constitutional test for affirmance despite error consists of a single inquiry: Is there little likelihood that the particular error affected the verdict?”). The focus of our inquiry “is on the possible influence of the error on the verdict rendered, not whether this court, sitting as factfinder, would regard the evidence of guilt as substantial and compelling.” *Davis*, 336 Or at 32. “If erroneously admitted evidence relates to a central factual issue in the case, it is more likely to have affected the jury’s determination.” *Whitmore*, 257 Or App at 672. “Because scientifically based testimony by an expert witness has manifest potential to influence the jury, erroneous admission of such evidence weighs against a determination that the error was harmless.” *Id.* at 673.

Here, the central factual issues, for purposes of defendant’s DUII conviction, were whether defendant had a BAC of .08 or above or was “under the influence of intoxicating liquor” when he drove. ORS 813.010(1) (“A person commits the offense of [DUII] if the person drives a vehicle while the person: (a) Has 0.08 percent or more by weight of alcohol in the blood of the person as shown by chemical analysis of the breath or blood of the person *** [or] (b) Is under the influence of intoxicating liquor ***.”). As we have explained, in testifying that defendant failed the walk-and-turn test, Duenas indicated to the jury that the walk-and-turn test measures impairment objectively and that defendant’s performance showed, based on an objective scoring rubric, that he was impaired. Thus, the testimony bore directly on whether defendant was “under the influence of an intoxicating liquor.” ORS 813.010(1)(b).

As noted above, and as demonstrated by the Supreme Court’s discussion of scientific evidence in *O’Key*, scientific evidence has manifest potential to influence the jury; that persuasive effect is the reason that scientific evidence must meet the *Brown/O’Key* factors before it is admitted.

Thus, here, when Duenas testified that defendant's performance on the walk-and-turn test was objectively a failure, he presented evidence that had persuasive value apart from Duenas's observations and his opinion that defendant was impaired. See *Whitmore*, 257 Or App at 672-73 (one consideration in harmlessness analysis is "whether the finder of fact would have regarded the evidence as duplicative, cumulative, or unhelpful in its deliberations"). Although that evidence consisted of only one word, it presented the jury with a separate, ostensibly objective, reason to believe that defendant was under the influence.

The state's evidence of defendant's BAC was not so overwhelming that we can be confident that the jury would not have considered whether defendant was "under the influence of an intoxicating liquor." ORS 813.010(1)(b). The state presented defendant's intoxilyzer results—two numbers, 0.082 and 0.079 that represented separate "blows," and a "final result" of 0.07 percent—and testimony from a forensic scientist that, using retrograde extrapolation, he had calculated that defendant's BAC could have been over the legal limit of 0.08 percent when he drove. However, as noted, the "final result" of the intoxilyzer test was 0.07 percent, and the forensic scientist acknowledged that, when defendant drove, his BAC could have been the same as the intoxilyzer samples. Given that evidence, the jury may well have had reasonable doubt that defendant's BAC was 0.08 or above and, instead, evaluated whether defendant was under the influence of alcohol.

On that question, the evidence likewise was not overwhelming. The state presented evidence from Duenas that defendant admitted to drinking two beers prior to driving, had a "moderate odor" of alcohol, had a relaxed look and watery eyes, was standoffish at first, failed the HGN test, and displayed a variety of clues indicating intoxication on the walk-and-turn test and one clue on the one-leg-stand test. However, Duenas also testified that defendant's motor skills and balance were intact, his speech was normal, and his demeanor was polite. As noted above, our focus in evaluating harmlessness "is on the possible influence of the error on the verdict rendered, not whether this court, sitting as factfinder, would regard the evidence of guilt as substantial

and compelling.” *Davis*, 336 Or at 32. On this record, the fact that the jury was erroneously presented with testimony indicating that defendant had been determined to be objectively impaired was not harmless.

Conviction for driving under the influence of intoxicants reversed and remanded; otherwise affirmed.

HADLOCK, C. J., dissenting.

The majority has comprehensively and accurately reviewed the Oregon case law related to the admissibility of scientific evidence. *See* 286 Or App at 595-605. I have no quarrel with its description of the cases and the fundamental principles that they establish. However, I disagree with the majority’s application of that law to the facts of this case. Accordingly, I respectfully dissent.

As part of his investigation of whether defendant had committed the crime of driving under the influence of intoxicants (DUII), Deputy Duenas administered three field sobriety tests (FSTs). At trial, Duenas testified about defendant’s performance on those tests. First, Duenas explained how the horizontal gaze nystagmus (HGN) test works, described his observations of defendant’s eye movements, and asserted that defendant had exhibited six out of six clues on that test, meaning that he had failed it.

On direct examination by the prosecutor, Duenas then described the walk-and-turn FST, which he explained is “broken up into an instructional phase and a walking phase”:

“The first part of the test is to set the—have the person stand with his right foot in front of his left in a heel to toe fashion with his arms at his side and to remain in that position until I’m done explaining the rest of the test, *i.e.*, the walking test.

“Q. And after you explain the test, what do you do next?

“A. After I explain the walking test, I watch the defendant and make sure he takes the necessary steps. The nine steps before the turn and the nine steps after the turn.

I'm making sure that he keeps his hands to his side. He doesn't stop walking, that he continues walking heel to toe and I should backtrack. He's doing this on a line. In this case, [defendant] was doing it on an imaginary line and I'm making sure that he stays on that line."

Duenas testified that, after explaining the walking test, he demonstrated the test to defendant before asking him to perform the test himself.

Duenas then described defendant's performance on the test, explaining that defendant had started to walk before Duenas told him to, that—after Duenas told him to wait until Duenas had explained the rest of the test—defendant moved his foot "like he couldn't maintain his balance", that defendant then took eight steps instead of nine, and that defendant "did an improper turn," not in the way that Duenas had demonstrated. Duenas explained that he looks for "eight clues" in observing a person's performance on the walk-and-turn test, and he testified that defendant exhibited four of those clues:

"A. He started too soon, unable to maintain balance in the instructional phase, the improper number of steps for the first set of nine steps and the improper turn.

"Q. But generally, as he was walking performing the nine steps down that imaginary line, he did pretty well on that?

"A. Yes."

Defendant does not contend that any of that testimony should have been excluded.

The prosecutor then asked Duenas about the third FST that he administered to defendant, the one-leg-stand test. Again, Duenas explained the physical motions that the test involves, primarily raising one foot off of the ground with a pointed toe. Defendant showed only one clue on that test, putting his foot down once after he had succeeded in standing on one leg for between 21 and 30 seconds.

At that point, the prosecutor realized that he had forgotten to ask Duenas about defendant's "score" on the walk-and-turn test.

“Q. And I should back up, I apologize I forgot to ask this. You testified that he showed four out of eight clues on the walk and turn?”

“A. Yes.

“Q. Is that a passing or a failing score?”

“A. *Fail.*”

(Emphasis added.)

It is the last word of that testimony—“Fail”—to which defendant objected below and which the majority concludes requires reversal of his conviction. According to the majority, Duenas’s testimony that defendant failed the walk-and-turn test is “scientific evidence” for which a foundation had to be laid under *State v. Brown*, 297 Or 404, 687 P2d 751 (1984), and *State v. O’Key*, 321 Or 285, 899 P2d 663 (1995). I disagree.

The majority observes, correctly, that Duenas’s conclusion that defendant failed the walk-and-turn test was based on a scoring rubric developed through research and testing sponsored by the National Highway Transportation Safety Administration (NHTSA). 286 Or App at 607 at n 11. The majority acknowledges that the jury was not informed of that fact. Nonetheless, the majority asserts that the jury would have understood Duenas’s testimony that defendant failed the walk-and-turn test to be based on “application of the scientific method” because “there is no reasonable way for the expert to have derived the assertion other than through ‘application of a scientific method to collect data.’” *Id.* at 614 (quoting *State v. Marrington*, 335 Or 555, 564, 73 P3d 911 (2003)). Thus, in the majority’s view, “the jury [would] perceive the proposition [that defendant failed a walk-and-turn test] to be based on science” even though neither Duenas nor any other witness testified to that effect. *Id.* at 614-15.

I disagree because, in my view, Duenas’s testimony would have conveyed nothing more to the jury than his *own* conclusion—based on his observations of defendant’s lack of balance and difficulty following instructions—that defendant had failed the walk-and-turn test, which Duenas took into account in assessing whether defendant was impaired.

Nothing in Duenas’s testimony would have led the jury to believe that there was a scientific basis for his conclusion that defendant had failed the test. Accordingly, and as explained in more detail below, I would affirm the trial court on the basis that Duenas’s testimony was not scientific evidence that required a *Brown/O’Key* foundation.

As the majority explains, courts serve a gate-keeping function with respect to scientific evidence because of the danger that “jurors would view the evidence as having ‘an unusually high degree of persuasive power’ because of the perception that it is based on scientific assertions[.]” *State v. Dulfu*, 282 Or App 209, 214-15, 386 P3d 85 (2016), *rev allowed*, 361 Or 100 (2017) (quoting *O’Key*, 321 Or at 291-92). Evidence is not “scientific” merely because it draws force from an expert witness’s training and experience. *State v. Rambo*, 250 Or App 186, 195, 279 P3d 361 (2012), *rev den*, 353 Or 203 (2013). Rather, what matters is whether the evidence “draws its convincing force from some principle of science, mathematics and the like.” *Brown*, 297 Or at 407. Thus, a court assessing whether evidence is scientific “must determine whether the expert’s assertions ‘possess significantly increased potential to influence the trier of fact as scientific assertions.’” *Marrington*, 335 Or at 562 (quoting *O’Key*, 321 Or at 292 (emphasis added)).

In this case, Duenas explained to the jury—in testimony that the majority acknowledges was admissible and not “scientific”—that defendant had exhibited four clues in taking the walk-and-turn test. Duenas then testified that defendant’s score on that test was “Fail,” and he later elaborated, on cross-examination, that a person fails the walk-and-turn test if he or she exhibits at least two clues. Duenas also testified that, based on his training and experience, he would not arrest a person solely on the basis that the person had exhibited two clues on the walk-and-turn test. Rather, Duenas suggested that he would take “everything” into account.

Beyond that, Duenas did not inform the jury of the basis for his conclusion that defendant had failed the test. That is, Duenas did not expound on *why* a person fails the walk-and-turn test if he or she exhibits four clues by starting the test before being told to do so, not maintaining

balance, taking an incorrect number of steps, and making an improper turn. Duenas did not inform the jury that the failing score was based on a scoring rubric developed through research sponsored by NHTSA, he did not testify that the score was based on the “application of a scientific method to collected data.” 286 Or App at 614 (quoting *Marrington*, 335 Or at 564), and he did not in any other way suggest that the score had a scientific basis.¹

Given that context, I see no basis for concluding, as the majority does, that the jury would have understood that Duenas’s “preposition to be based on science” and that “there is a correlation between the *** presence of a certain number of clues [on the walk-and-turn test]—and *** intoxication—and that that correlation has been verified by application of the scientific method.” 286 Or App at 610, 614-15. Indeed, that conclusion is undercut by Duenas’s testimony that he would not arrest a person for DUII solely because the person exhibited two clues on the walk-and-turn test—even though that is a failing score.

I agree with the majority that there can be situations where the jury will perceive that an expert witness’s testimony is based on science even when the expert does not explicitly say so. The examples the majority supplies are apt: juries will understand that science is involved when a witness testifies about such things as distance measurement by lidar and measurement of alcohol impairment through HGN testing. 286 Or App at 612-13. But that is because those topics by their very nature “purport[] to draw [their] convincing force from a principle of science” and have value that “depends critically on the demonstrated scientific validity” of that principle. *O’Key*, 321 Or at 296-97. The significance of those testing mechanisms and their results lies outside the common knowledge of lay persons. *See Id.* at 297 (noting that—unlike the HGN test, which “is not within the realm of common knowledge”—the walk-and-turn test obtains its

¹ Defense counsel asked Duenas on cross-examination whether “a specific part of the NHTSA manual is to instruct [the person taking the FST] not to start and then you observe after that if they start in violation of your rules?” Duenas answered affirmatively. But even that reference to the NHTSA manual, elicited by defense counsel, did not inform the jury that NHTSA had developed the FSTs or that those tests were based on scientific research.

legitimacy “from effects of intoxication based on propositions of common knowledge”).

Here, in contrast, Duenas testified only to “propositions of common knowledge” in describing the four ways in which defendant performed poorly on the walk-and-turn test, exhibiting a lack of balance and difficulty following Duenas’s instructions. And neither Duenas’s testimony nor any other evidence admitted at trial would have suggested to the jury that Duenas’s determination that defendant failed the test was based on the sort of science-based protocol that a jury might give extra weight.

In that regard, this case is analogous to *Rambo*, in which the defendant challenged a drug recognition expert (DRE) officer’s testimony that the defendant’s performance on several sobriety tests indicated that she was under the influence of narcotic analgesics. 250 Or App at 186. The defendant argued that the DRE officer’s “ultimate opinion constituted scientific evidence, because it was based on portions of a series of tests that formed his procedure.” *Id.* at 192 (internal quotation marks omitted). We disagreed, explaining that—even though the officer relied on scientific evidence, including HGN evidence, in forming his opinion—the officer’s *testimony* did not “rely on the vocabulary of science [or] suggest that his conclusions had been reached through the application of a scientific method to collected data.” *Id.* at 195. To the contrary, the trial court had “scrupulously sanitized the record of any evidence of a scientifically-based protocol, thereby mitigating the risk that [the officer’s] testimony would be given unfair weight beyond the credentials that he claimed.” *Id.* Accordingly, the trial court did not err in admitting the officer’s testimony.

Similarly here, although application of a science-based protocol formed the underlying basis of Duenas’s conclusion that defendant’s performance on the walk-and-turn test indicated a failure on that test, no evidence in the record would have suggested that fact to the jury. Moreover, defendant’s performance on the walk-and-turn test itself was a matter within the jury’s ability to assess using common knowledge of the effects of alcohol intoxication. *O’Key*, 321 Or at 297. Accordingly, the jury would not have been

surprised by—nor would it have given undue “scientific” weight to—Duenas’s conclusion that defendant’s multiple errors in performing the walk-and-turn task meant that defendant failed that test. In the end, Duenas’s testimony on that point told the jury little more than it could have concluded itself—that a person who cannot maintain his balance or follow directions when taking a walk-and-turn test has “failed” it.

For those reasons, I disagree with the majority’s conclusion that Duenas’s testimony that defendant failed the walk-and-turn test was scientific evidence that was inadmissible without a proper *Brown/O’Key* foundation. I respectfully dissent.