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IN THE COURT OF APPEALS OF THE STATE OF ALASKA

STATE OF ALASKA,

Petitioner & Cross-Respondent,

v.

THOMAS HENRY ALEXANDER,

Respondent & Cross-Petitioner.

Court of Appeals Nos. A-11423 & A-11433
Trial Court No. 3AN-09-11088 CR

OPINION

No. 2481 — December 18, 2015

Petition for review from the Superior Court, Third Judicial District, Anchorage, Gregory Miller, Judge.

Appearances: Diane L. Wendlandt, Assistant Attorney General, Office of Special Prosecutions and Appeals, Anchorage, and Michael C. Geraghty, Attorney General, Juneau, for the Petitioner. Sharon Barr, Assistant Public Defender, and Quinlan Steiner, Public Defender, Anchorage, for the Respondent. Gordon L. Vaughan, Vaughan & DeMuro, Colorado Springs, Colorado, for *amicus curiae* American Polygraph Association.

Before: Mannheimer, Chief Judge, Allard, Judge, and Hanley, District Court Judge.*

Judge MANNHEIMER.

* Sitting by assignment made pursuant to Article IV, Section 16 of the Alaska Constitution and Administrative Rule 24(d).

The defendant in this case, Thomas Henry Alexander, is facing trial for sexual abuse of a minor. The superior court has granted Alexander's motion to introduce evidence that he took a polygraph examination, and that the polygraph examiner concluded that there was a high likelihood that Alexander was being truthful when he denied committing the alleged acts of abuse.

However, the superior court placed two conditions on the admission of this polygraph evidence: First, Alexander must submit to another polygraph examination, this one administered by a qualified expert of the State's choosing. And second, Alexander must take the stand at his trial and submit to cross-examination.

Both parties now seek review of the superior court's decision. The State asks us to reverse the superior court's decision that polygraph evidence is admissible. Alexander asks us to vacate the two conditions that the superior court placed on the admission of the polygraph evidence — that he submit to a State-administered polygraph examination before trial, and that he take the stand at trial and submit to cross-examination.

For the reasons explained in this opinion, we uphold the superior court's rulings — although, as we also explain, we leave the superior court free to re-evaluate its decision in light of the factual developments in this case since the time the superior court issued that decision.

The procedural background of this litigation

Thomas Henry Alexander stands charged with several counts of sexual abuse of a minor.

In preparation for trial, Alexander's defense attorney hired an expert, Dr. David C. Raskin, to administer a polygraph examination to him. Based on the results

of this examination, Dr. Raskin is prepared to testify that there is a high likelihood that Alexander was being truthful when, during the examination, he denied committing the acts of abuse.

Alexander's attorney filed a motion requesting an evidentiary hearing, so that he might have the opportunity to establish that polygraph testing was based on scientifically valid methodology, and that Alexander's polygraph result should therefore be admissible at his trial. Alexander's attorney acknowledged that, forty-five years ago, in *Pulakis v. State*,¹ the Alaska Supreme Court announced a total ban on polygraph evidence. But the defense attorney noted that *Pulakis* was decided under the *Frye* test for the admissibility of scientific evidence — a test that was superseded when the Alaska Supreme Court adopted the more flexible *Daubert* test for scientific evidence.²

Alexander's attorney argued that, because Alaska now uses the *Daubert* test, and because of significant improvements in polygraph science and practice in the last forty years, polygraph evidence should now be admissible in the courts of Alaska.

While Alexander's case was being litigated, a similar argument for the admission of polygraph evidence was being offered in another pending criminal case, *Griffith v. State*, File No. 3SP-11-103 CR. The defendant in that case, James Griffith, was also charged with sexual abuse of a minor, and his attorney also hired Dr. Raskin to administer a polygraph examination to him. As with Alexander, Dr. Raskin concluded that Griffith was being truthful when he denied the sexual abuse.

¹ 476 P.2d 474, 478-79 (Alaska 1970).

² See *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579; 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993) (announcing a new test for assessing the admissibility of scientific evidence under the Federal Rules of Evidence); and *State v. Coon*, 974 P.2d 386, 395-98 (Alaska 1999) (adopting the *Daubert* test under the Alaska Rules of Evidence).

The two judges who were assigned to Alexander's and Griffith's cases — Superior Court Judge Gregory Miller and Superior Court Judge *pro tempore* Daniel Schally — decided to hold a consolidated hearing to investigate whether polygraph evidence met the *Daubert* standard for the admissibility of scientific evidence. At this hearing, Dr. Raskin testified for the defendants, and another expert, Dr. William Iacono, testified for the State. Both experts discussed the current standards and techniques for polygraph examinations, and they offered differing opinions concerning the overall reliability of polygraph results.

Dr. Raskin testified that if polygraph examinations are properly conducted using the “control question” technique, one would “conservatively” expect polygraph examinations to be 90 percent accurate (or more) in assessing truth-telling and lying. More specifically, Dr. Raskin pointed to studies which apparently demonstrated that the accuracy rate of polygraph examinations was between 89 and 98 percent.

In contrast, Dr. Iacono testified that the better-conducted studies of polygraph examinations showed that these examinations had accuracy rates of between 51 percent (essentially, a coin flip) and 98 percent, with average results being about 70 percent accurate.

Following this hearing, the two superior court judges issued a joint decision in which they held that “control question” polygraph evidence met the *Daubert* test, and that Alexander and Griffith were conditionally entitled to introduce evidence of their polygraph results. The two conditions that the judges placed on this evidence were: (1) that each defendant would be required to submit to an additional polygraph examination, this one administered by a qualified examiner of the State's choosing, and (2) that each defendant would be required to testify at trial and submit to cross-examination.

Following this ruling, the State petitioned us to review and reverse the superior court’s holding that polygraph evidence meets the *Daubert* standard for scientific evidence. The two defendants, Alexander and Griffith, filed cross-petitions asking us to vacate the two conditions that the superior court placed on the admission of their polygraph evidence. We granted the State’s petition and the defendants’ cross-petitions, and we ordered formal briefing.

But while this case was still in its briefing stage, Griffith took a State-administered polygraph examination — and he apparently failed the exam. Griffith then pleaded guilty, and he withdrew his cross-petition. This leaves Alexander as the only defendant in this case.

The legal background of this litigation: the Daubert test that governs the admissibility of scientific evidence

For most of the twentieth century, the admissibility of scientific evidence in American courts was governed by the “general scientific acceptance” test that was first announced in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923). *Frye* was, in fact, another lie detector case — although the testing machine at issue in *Frye* was a less sophisticated precursor of the modern polygraph; it was a machine that only measured a person’s systolic blood pressure.

The *Frye* court declared that scientific evidence would be admissible only when it was adduced “from a well-recognized scientific principle or discovery” — which the court defined as a principle or discovery “sufficiently established [as] to have gained general acceptance in the particular field in which it belongs.” *Id.* at 1014.

Applying this “general acceptance” test, the *Frye* court concluded that lie detector evidence was not admissible because it had “not yet gained [this level of]

standing and scientific recognition among physiological and psychological authorities.”
Ibid.

Close to fifty years later, in *Pulakis v. State*, 476 P.2d 474 (Alaska 1970), the Alaska Supreme Court applied the *Frye* test to polygraph evidence and concluded that this type of evidence was still not admissible, because the polygraph still had not gained general scientific acceptance as a reliable method of assessing a person’s truthfulness. The supreme court emphasized that its ruling was not based on an affirmative finding that polygraph testing was in fact unreliable. Rather, the court explained, the proponent of the polygraph evidence had failed to offer sufficient proof that the polygraph was generally accepted as reliable within the relevant scientific community. *Id.* at 479. Thus, the court declared, “[j]udicial acceptance of polygraph tests must await the results of more persuasive experimental proof of reliability.” *Ibid.*

But in 1993, the United States Supreme Court abandoned the *Frye* test. In *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993), the Supreme Court ruled that the Federal Rules of Evidence embodied a new test for scientific evidence that superseded *Frye*.

Under the *Daubert* test, the question is no longer whether the scientific community has reached a consensus regarding the validity of a scientific discovery or technique. Instead, the inquiry now focuses on whether the proposed scientific evidence (1) is based on “reasoning or methodology [that] is scientifically valid”, and (2) “whether that reasoning or methodology properly can be applied to the facts in issue.” 509 U.S. at 592-93, 113 S.Ct. at 2796.

The Supreme Court offered a non-exhaustive list of factors that courts should consider when answering these foundational questions. One of these factors is the old *Frye* test — whether the proposed scientific theory or technique has attained

general acceptance in the relevant scientific community. The other factors listed by the Court are:

- whether the proposed scientific theory or technique has been (or at least can be) empirically tested — that is, whether the theory or technique is falsifiable and refutable;
- whether the proposed scientific theory or technique has been subjected to peer review and publication; and
- whether the known or potential error rate of the proposed theory or technique is within acceptable limits, and whether there are recognized standards and protocols to control variations in the application of the technique.

509 U.S. at 593-94, 113 S.Ct. at 2796-97. The Supreme Court emphasized that any inquiry under this test should be a “flexible one” whose basic purpose is to ascertain the “scientific validity — and thus the evidentiary relevance and reliability — of the principles that underlie the proposed [scientific evidence].” 509 U.S. at 594-95, 113 S.Ct. at 2797. The *Daubert* test focuses “on [the] principles and methodology” underlying the proposed scientific evidence, 509 U.S. at 595, 113 S.Ct. at 2797, and on whether the expert’s conclusions have a sufficient analytical nexus to those underlying principles and methodology. *General Electric Co. v. Joiner*, 522 U.S. 136, 146; 118 S.Ct. 512, 519; 139 L.Ed.2d 508 (1997).

The Alaska Supreme Court has adopted the *Daubert* test as the governing test for the admissibility of scientific evidence under Alaska law. *State v. Coon*, 974 P.2d 386, 395-98 (Alaska 1999).

(Our supreme court has rejected the *Daubert* test as the standard for admitting other types of expert evidence: *see Marron v. Stromstad*, 123 P.3d 992, 1004 (Alaska 2005). But the parties to the present case agree — and we concur — that

polygraph evidence is a type of “scientific” evidence governed by the *Daubert* test under Alaska law.)

The superior court’s ruling on whether the “control question” technique of polygraph examination meets the Daubert standard for admissibility

As we explained toward the beginning of this opinion, Alexander’s attorney hired Dr. David Raskin to administer a polygraph examination to Alexander using the “control question” technique (also known as the “comparison question” technique).

This was apparently Alexander’s second polygraph test. According to pleadings filed by the defense, Alexander also passed an earlier test administered by a polygraph examiner who often worked as an independent contractor for the Department of Corrections (but who, in this case, was working privately for Alexander’s attorney). But when this earlier examiner was unwilling to turn over the raw data from the examination, the defense retained Dr. Raskin.

Dr. Raskin asserted (based on the results of his examination) that, in his “scientific and professional opinion”, Alexander was speaking truthfully when he denied the allegations of sexual abuse. Dr. Raskin added that “[his] confidence in these conclusions exceeds 90 percent”, and he declared that he holds this opinion “to a reasonable degree of scientific certainty.”

Dr. Raskin made similar assertions with respect to his testing of James Griffith — *i.e.*, that there was a greater than 90 percent certainty that Griffith was speaking truthfully when he denied committing the charged sexual abuse.

The superior court heard the competing testimony of Dr. William Iacono, who declared that polygraph examinations, even when properly run, do not yield this level of certainty.

The court also heard extensive evidence pertaining to the practice and scientific validity of the “control question” polygraph examination technique — the technique used by Dr. Raskin when he examined Alexander and Griffith.

The theory behind the “control question” form of polygraph testing is that a person’s physiological reactions to “relevant” questions — questions that relate directly to the alleged crime — will differ from their reactions to deliberately vague or open-ended “control” questions. These control questions are formulated so that they raise ethical issues that pose difficulties for most people — questions such as, “Have you ever stolen something of significant value?” or “Have you ever lied to gain a personal advantage?”

The theory or assumption behind this technique is that an *innocent* person will have greater emotional difficulty answering this sort of “control” question — and will therefore demonstrate more pronounced physiological reactions when answering these control questions — compared to the straightforward, honest denials that an innocent person will be able to offer when answering direct questions about the facts of the alleged crime. Conversely, the theory goes, a *guilty* person’s physiological reactions will be more pronounced when they are called on to answer questions about the alleged crime, while their reactions will be more subdued (in comparison) when they are answering the control questions.³

With respect to the scientific validity of polygraph examination in general, Dr. Raskin and Dr. Iacono agreed on the validity of the basic scientific theory that underlies all polygraph testing: the theory that most people will normally exhibit physiological reactions when they say things that they believe to be false. The two experts also

³ See William G. Iacono and David T. Lykken, “The Case Against Polygraph Tests”, in *Modern Scientific Evidence: The Law and Science of Expert Testimony* (David Faigman *et alia*, editors, 2009), pp. 342, 344-46.

agreed that modern polygraph machines are capable of detecting and accurately measuring some of these physiological responses.

But the two experts vigorously disagreed as to whether it was possible to accurately discern, from the physiological data collected during a polygraph examination, whether a person was being truthful in their answers during the exam. As we explained earlier, Dr. Raskin put the accuracy rate of a well-conducted polygraph examination at somewhere between 89 and 98 percent, while Dr. Iacono testified that the accuracy rate was considerably lower — somewhere close to 70 percent, on average.

The two experts also disagreed concerning the degree to which a person’s physiological responses (and, thus, the test results) can be influenced by the manner in which the examiner phrases the questions, and by the manner in which the examiner personally interacts with the person who is taking the test.

Dr. Raskin and Dr. Iacono also debated whether there was a reliable, standardized method of evaluating or “scoring” polygraph results — or whether, instead, the outcome of a polygraph examination depended to an unacceptable degree on the examiner’s method of scoring the results.

Finally, Dr. Raskin and Dr. Iacono disagreed on the extent to which the accuracy of polygraph testing could be undermined if test-takers employed countermeasures to mask their physiological responses to the questions — for instance, by surreptitiously biting their tongue, or by mentally performing difficult mathematical calculations while they were taking the exam.

After hearing this evidence, Judge Miller and Judge Schally both concluded that polygraph evidence qualified for admission under the *Daubert* test.

The two judges found that the “control question” form of polygraph examination had been empirically tested and subjected to extensive peer review, as demonstrated by the various studies published in professional journals.

The judges acknowledged that expert opinion was substantially divided on the issues of whether the “control question” technique of polygraph examination yielded an acceptable accuracy rate, and whether there were recognized standards and protocols that could control the variations among examination techniques and practitioners.

The judges pointed out that Dr. Raskin and Dr. Iacono disagreed as to the achievable accuracy rate of a properly conducted “control question” polygraph examination — with Dr. Raskin putting the expectable accuracy rate at 89 to 98 percent, while Dr. Iacono declared that the accuracy rate was significantly lower: on average, close to 70 percent.

However, the judges concluded that even if Dr. Iacono’s figures were closer to the truth, the accuracy rate for the “control question” form of polygraph examination was still in line with the accuracy rates of other commonly admitted forms of scientific evidence — evidence such as fingerprint analysis, handwriting analysis, and eyewitness testimony.⁴

Moreover, both Dr. Raskin and Dr. Iacono agreed that, to the extent “control question” polygraph examinations yield inaccurate results, the inaccurate result was more likely to be a false positive than a false negative. That is, a “control question” polygraph examination is more likely to falsely indicate that a truthful person is being deceptive, rather than falsely indicating that a deceptive person is being truthful. Thus,

⁴ The court cited one study establishing that fingerprint evidence was 100% accurate, polygraph testing 95% accurate, handwriting analysis 94% accurate, and eyewitness testimony 64% accurate. *See* Jan Widacki & Frank Horvath, *An Experimental Investigation of the Relative Validity and Utility of the Polygraph Technique and Three Other Common Methods of Criminal Identification*, 23 J. Forensic Sciences 596, 596-600 (1978). *See also* *United States v. Scheffer*, 523 U.S. 303, 334 n. 24 (1998) (Stevens, J., dissenting) (discussing this study). The superior court acknowledged, however, that Dr. Iacono had estimated polygraph accuracy rates to be considerably lower, 51-98%, with an average of 70%.

a polygraph examination was more likely to falsely inculcate an innocent person than to falsely exculpate a guilty person.

As to whether there are recognized standards and protocols to ensure an acceptable level of uniformity in the administration of polygraph examinations, the judges noted that there are published protocols and training criteria for polygraph examiners, including those used by the FBI, the National Security Council, and other agencies. (The judges also found that Dr. Raskin had followed established protocols when he administered his polygraph examination to Alexander.)

In their decision, the judges discussed the problem of the “friendly examiner” — *i.e.*, the recognized problem that a person’s physiological responses during the test can be different, or can be interpreted differently, if the examination is administered by an expert who has been retained by the person being tested.

The judges concluded that this problem remained unresolved with respect to Griffith, but the judges mistakenly concluded that there was no “friendly examiner” problem with respect to Alexander — because the judges believed (falsely) that Alexander had already submitted to a polygraph examination administered by an expert employed by the State. In fact, as we already explained, Alexander had taken another polygraph examination that was administered by someone who *often* worked as a contractor for the Department of Corrections — but, in Alexander’s case, this polygraph examiner was hired by Alexander’s attorney.

On the issue of counter-measures — *i.e.*, strategies that a person can use to mask their physiological responses during the test — the judges acknowledged that Dr. Raskin’s own study showed that the accuracy rate of a polygraph examination can be reduced by as much as 50 percent if the person taking the test is trained in the use of counter-measures. The judges also noted the State’s claim that a person can be

effectively trained in the use of counter-measures in less than half an hour, based on information that is readily available on the Internet.

However, the judges concluded that the efficacy of counter-measures must be overblown, given that so many state and federal government agencies (including agencies of the State of Alaska) spend substantial amounts of money each year on polygraph testing.⁵

In any event, the two judges ultimately concluded that the potential use of counter-measures went to the weight of polygraph results, not to the admissibility of those results under the *Daubert* standard. The judges also concluded that if the issue of counter-measures was raised in a particular case, the trial judge could address this issue by evaluating the evidence under Alaska Evidence Rule 403 — to see if the possibility

⁵ In their decision, the judges mentioned a letter which stated that, as of 1997, the federal government employed 500 polygraph examiners and spent approximately \$25 million a year on examiner salaries. *See also* Kenneth S. Broun *et alia*, *McCormick On Evidence* (7th ed. 2013), § 206, Vol. 1, p. 1205 & n. 34 (noting the “explosive growth of polygraphy in American government and business”).

Although government reliance on polygraph examinations may be widespread, we note that the federal government has criminally prosecuted people for teaching other people how to use polygraph counter-measures. *See* “Indiana man accused of teaching people to beat lie detector tests faces prison time”, an article that appeared in the Washington Post on August 31, 2013. This article can be found at:

http://www.washingtonpost.com/local/indiana-man-accused-of-teaching-people-to-be-at-lie-detector-tests-faces-prison-time/2013/08/31/a7cbe74a-08ea-11e3-9941-6711ed662e71_story.html

The fact that the federal government has actively pursued criminal prosecutions against people who offer to train others in these counter-measures suggests that the federal government knows — or at least believes — that the available polygraph counter-measures *are* effective.

of counter-measures outweighed the purported probative value of the polygraph evidence under the facts of that specific case.

Regarding the remaining *Daubert* factor — whether polygraph examination has attained general acceptance in the relevant scientific community — the judges concluded that Alexander had failed to establish this factor. However, given their findings on the other *Daubert* factors, the judges concluded that this lack of general scientific acceptance was not fatal to the admission of polygraph evidence.

In sum, the two judges ruled that the “control question” form of polygraph examination satisfied the threshold requirement for admissibility under the *Daubert* test. That is, the judges ruled (1) that this evidence is based on scientifically valid reasoning and methodology, and (2) that this reasoning and methodology could properly be applied to the facts of Alexander’s case.

However, as we have already explained, the judges placed two restrictions on a defendant’s ability to introduce this evidence: the defendant must submit to an independent polygraph examination administered by an expert chosen by the State, and the defendant must take the stand at trial and submit to cross-examination.

The standard of review that applies to our assessment of the superior court’s decision

Under the former *Frye* test, when an appellate court answered the question of whether a particular type of scientific analysis or methodology had gained general acceptance within the relevant scientific community, the appellate court’s answer was treated as authoritative until a later litigant succeeded in demonstrating that the scientific community’s attitude toward the evidence had changed.

See *Van Meter v. State*, 743 P.2d 385, 387-88 (Alaska App. 1987), where this Court upheld a trial judge’s refusal to hold an evidentiary hearing on the

admissibility of polygraph evidence: we reached this conclusion because the defendant made no offer of proof that the scientific community’s attitude toward polygraph testing had changed since the Alaska Supreme Court decided *Pulakis*. *See also Nelson v. Jones*, 781 P.2d 964, 968 & n. 5 (Alaska 1989) (declaring that “legal authority from other jurisdictions” was a proper source of information for assessing the admissibility of scientific evidence under the *Frye* test).

But under *Daubert*, every trial judge’s decision regarding the admissibility of a particular form of scientific evidence is reviewed for abuse of discretion. *See General Electric Co. v. Joiner*, 522 U.S. 136, 146; 118 S.Ct. 512, 519; 139 L.Ed.2d 508 (1997). The Alaska Supreme Court has likewise declared that, under Alaska law, appellate courts must employ the “abuse of discretion” standard of review when they review trial judges’ rulings on the admissibility of scientific evidence. *Coon*, 974 P.2d at 398-99.

A “standard of review” is the legal rule that specifies how much deference an appellate court must give to a decision made by a lower court.⁶ And the “abuse of discretion” standard of review is quite deferential: under this standard, an appellate court is authorized to reverse a trial judge’s decision only if the trial judge’s reasons for reaching that decision “are clearly untenable and unreasonable”.⁷

Although we are bound by the supreme court’s decision on this point of law, the facts of the present case illustrate the problems that can be created by applying an “abuse of discretion” standard of review to rulings on the admissibility of scientific evidence.

⁶ *Booth v. State*, 251 P.3d 369, 372 (Alaska App. 2011).

⁷ *Sylvia L. v. Office of Children’s Services*, 343 P.3d 425, 430-31 (Alaska 2015); *Bailey v. Lenord*, 625 P.2d 849, 854 (Alaska 1981).

As we explained earlier, the present case originally involved two defendants (Alexander and Griffith), and the superior court decision that we are reviewing was issued jointly by two judges — two judges who held a combined evidentiary hearing, and who heard exactly the same testimony concerning the scientific validity and reliability of “control question” polygraph examinations.

As it happened, these two judges reached the same conclusion regarding the scientific validity of polygraph examinations. But, as illustrated by the competing testimony offered by Dr. Raskin and Dr. Iacono, this is clearly a matter on which reasonable people can differ — and on which they *do* differ.

Thus, the two judges in this case might easily have reached differing conclusions regarding the scientific validity of polygraph examinations, even though they heard exactly the same evidence. And if the two judges had reached different conclusions, we apparently would have been required to affirm both of the conflicting decisions under the “abuse of discretion” standard of review.

That is, we would have been forced to tell Alexander and Griffith that one of them would be allowed to introduce the results of Dr. Raskin’s polygraph examination, while the other one would be prohibited from doing so — and that the only reason their cases were being treated differently was the identity and viewpoint of the judge making the decision.

This result seems illogical and unfair — and in her partial dissent in *Coon*, Justice Dana Fabe advocated another approach to this problem.

As Justice Fabe pointed out, there are two prongs to the *Daubert* test. The first prong is “whether the reasoning or methodology underlying the [proposed expert] testimony is scientifically valid”, while the second prong is “whether that reasoning or

methodology properly can be applied to the facts in issue [in the particular case].” *Coon*, 974 P.2d at 403.⁸

Justice Fabe proposed that different standards of review should apply to these two prongs: an appellate court would not defer to a trial court’s decision regarding the scientific validity of the principles and methodology involved (*i.e.*, the appellate court would decide this matter *de novo*), but the appellate court would defer (using an “abuse of discretion” standard) to the trial court’s decision as to whether the proposed scientific theory or technique could properly be applied to the facts of the particular case. *Ibid.*

As Justice Fabe noted, “[t]he determination of whether a general scientific proposition or process is reliable should not vary from case to case or from judge to judge.” *Ibid.* The *Coon* majority apparently agreed with this proposition — because the majority opinion also declared that “[t]he abstract validity of a scientific technique should not vary from court to court”. *Coon*, 974 P.2d at 399.⁹

But the *Coon* majority nevertheless rejected the notion that we should have one uniform rule of decision regarding the validity of particular scientific theories or principles. The majority offered two rationales for this conclusion — *i.e.*, for its endorsement of allowing inconsistent trial court rulings on the same issue.

The majority’s first rationale was that the level of advocacy will vary from case to case:

[While the] abstract validity of a scientific technique should not vary from court to court, ... [the manner in which this] validity is communicated will often vary from presentation to presentation. Some experts are more skillful and more

⁸ Quoting *Daubert*, 509 U.S. at 593-94, 113 S.Ct. at 2796-97.

⁹ Quoting *State v. Alberico*, 861 P.2d 192, 205 (N.M. 1993).

well-informed than others[,] just as some lawyers are more skillful and more well-prepared than others.

Coon, 974 P.2d at 399.¹⁰

The majority’s observation is undoubtedly true: expert witnesses have varying degrees of knowledge, insight, and articulateness — just like the lawyers who offer the experts’ testimony, or the lawyers who cross-examine them. But one of the main goals of our judicial system is to have the law apply equally to all people. And the point of having rules is to try to ensure that the outcome of litigation does not wholly turn on which side has the better expert witness or the better lawyer.

The majority’s second rationale for endorsing inconsistent trial court rulings is that “the state of science is not constant; it progresses daily.” *Ibid.* But this is an overstatement. While it may be true that scientific *knowledge* “progresses daily”, the pace of change is far less rapid when it comes to the validity of underlying scientific theories and methodology.

Moreover, appellate courts have always acknowledged the potential for fundamental change in scientific understanding, even when those courts were issuing rulings of general applicability under the *Frye* test. For instance, when the Alaska Supreme Court ruled in *Pulakis* that polygraph evidence was not admissible in Alaska, the supreme court was careful to emphasize that it was *not* saying that polygraph evidence could *never* be admitted in Alaska, but only that “[j]udicial acceptance of polygraph tests must await the results of more persuasive experimental proof of [their] reliability.”¹¹

¹⁰ Quoting *State v. Alberico*, 861 P.2d 192, 205 (N.M. 1993).

¹¹ *Pulakis*, 476 P.2d at 479.

As things stand now — that is, under the “abuse of discretion” standard of review mandated by *Coon* — our decision in the present case will not resolve the question of whether polygraph testing has sufficient scientific validity to be admissible in the courts of Alaska. Even though we are affirming the superior court’s ruling in Alexander’s case, our decision only stands for one narrow proposition: that given the evidence presented at the pre-trial hearing in this particular case, it was not clearly unreasonable for the judge to conclude that polygraph testing had sufficient scientific validity to satisfy the *Daubert* test.

Our decision does not bind judges who face this issue in future cases — even if those judges are presented with exactly the same evidence that was presented in this case. Indeed, if those judges were to reach the opposite conclusion (*i.e.*, if they were to decide that polygraph evidence does not satisfy the *Daubert* test), we would probably be required to affirm their decisions too.

This essentially means that the scientific validity of polygraph evidence will never be judicially resolved at an appellate level: it will remain an open question, and it will need to be litigated anew each time the issue is raised.

(See *Goeb v. Tharaldson*, 615 N.W.2d 800, 814 (Minn. 2000), where the Minnesota Supreme Court points to this problem as one of the principal defects in the *Daubert* rule.)

For all of these reasons, we urge the Alaska Supreme Court to revisit this issue — and to adopt the approach advocated in Justice Fabe’s partial dissent in *Coon*.

Why we affirm the superior court’s rulings

Under the *Daubert* test, when a litigant offers scientific evidence, a trial judge must answer two questions: (1) whether the reasoning or methodology underlying

the proposed evidence is scientifically valid, and (2) whether this reasoning or methodology can properly be applied to the issues raised in the particular case.

In the present case, the superior court had to answer these two questions with specific regard to the “control question” form of polygraph examinations. The court answered the first question “yes” — finding that the reasoning or methodology underlying the “control question” form of polygraph examination was scientifically valid. The court answered the second question with a conditional “yes” — finding that the reasoning or methodology of the “control question” form of polygraph examination could properly be applied to the factual issues raised in Alexander’s case *if* the defendant submitted to a State-administered polygraph examination before trial, and also submitted to cross-examination at trial.

The scientific validity of the reasoning or methodology underlying the “control question” form of polygraph examination

With regard to the scientific validity of the “control question” form of polygraph examination, we have already described the evidence presented to the superior court. There is little dispute that most people will normally exhibit physiological reactions when they say things that they believe to be false. There is also little dispute that modern polygraph machines are capable of detecting and accurately measuring some of these physiological responses. The real issue is whether the “control question” technique is a valid method of eliciting physiological responses that can be meaningfully compared and analyzed to distinguish (1) people who believe they are telling the truth from (2) people who believe they are lying.

(To clarify, a person’s physiological responses do not show whether the person is giving answers that are *actually* true, or that are *actually* false. Rather, the theory behind polygraph examinations is that the person’s physiological responses reveal

the person's state of mind — the person's *belief* as to whether their answers are true or false.)

The evidence was conflicting as to whether the physiological responses elicited by a “control question” polygraph examination can be meaningfully compared and analyzed to distinguish (1) people who believe they are telling the truth from (2) people who believe they are lying. As we have explained, Dr. Raskin and Dr. Iacono offered competing assessments of the accuracy of the “control question” technique. Dr. Raskin testified that the accuracy rate could be as high as 98 percent, while Dr. Iacono testified that the accuracy rate could be as low as 51 percent (*i.e.*, no more accurate than chance).

Thus, if we are scrupulous in applying the “abuse of discretion” standard of review to the superior court's resolution of this issue, it is obvious that we would have to affirm the superior court's answer regardless of whether that answer was “yes” or “no”. Reasonable judges could differ as to whether the evidence in this case established the first prong of the *Daubert* test. That being so, we hold that the superior court did not abuse its discretion when, in the present case, it ruled that the first prong was established. (Nor would the court have abused its discretion if it had ruled the opposite.)

Whether the “control question” form of polygraph examination can properly be applied to the resolution of the factual issues in this case

This brings us to the second prong of *Daubert* — whether “control question” polygraph evidence can properly be applied to the resolution of the issues that the jury will have to decide at Alexander's trial.

This second question is significantly more complex than the first. The fact that particular scientific evidence passes the *Daubert* test for scientific validity does not mean that the evidence can or should be admitted in judicial proceedings.

Here, the superior court was required to consider not only the reliability and accuracy rates of “control question” polygraph results, but also the potential that jurors would be confused by the polygraph evidence, or would misunderstand its significance, or would use the polygraph evidence for improper purposes, or would otherwise be led astray by this evidence. That is, the judge was required not only to assess the scientific validity of this evidence, but also to assess the evidence under Evidence Rule 403 and Evidence Rule 705(c).

Indeed, the great majority of appellate courts who employ the *Daubert* test for scientific evidence have ruled that, despite its arguable scientific validity, polygraph evidence is inherently so prejudicial to the fairness of a criminal trial that it is not admissible, or that it is admissible only upon the express stipulation of the parties.¹² These appellate courts have essentially ruled that, given the difficulties presented by polygraph evidence, it is *always* an abuse of discretion for a trial judge to admit this evidence (or, in some jurisdictions, to admit this evidence without the express stipulation of the parties).

¹² In general, see the appellate decisions listed in *State v. A.O.*, 965 A.2d 152, 161-62 (N.J. 2009). In *A.O.*, the New Jersey Supreme Court noted that twenty-eight states completely ban polygraph evidence, while another eighteen states allow the admission of polygraph evidence only if both parties stipulate to its use. *See also State v. Porter*, 698 A.2d 739, 758-59 (Conn. 1997) (continuing to ban polygraph evidence even after Connecticut’s adoption of the *Daubert* test); *Fagan v. State*, 894 So.2d 576, 580 (Miss. 2004) (holding that, even under the *Daubert* test, polygraph results continue to be inadmissible); *United States v. Prince-Oyibo*, 320 F.3d 494, 501 (4th Cir. 2003) (same).

We also note that, even though polygraph evidence might satisfy the *Daubert* test for scientific validity, jurisdictions may nonetheless enact statutes or evidentiary rules that prohibit the use of this evidence.

In *United States v. Scheffer*, 523 U.S. 303, 118 S.Ct. 1261, 140 L.Ed.2d 413 (1998), the United States Supreme Court upheld a military rule of evidence that categorically excluded polygraph evidence in court-martial proceedings. The Court concluded that, given the current lack of consensus regarding the reliability of polygraph results, a categorical exclusion of polygraph evidence was a “rational and proportional means of advancing the legitimate interest in barring unreliable evidence”:

Although the degree of reliability of polygraph evidence may depend upon a variety of identifiable factors, there is simply no way to know in a particular case whether a polygraph examiner’s conclusion is accurate, because certain doubts and uncertainties plague even the best polygraph exams. Individual jurisdictions therefore may reasonably reach differing conclusions as to whether polygraph evidence should be admitted. We cannot say, then, that presented with such widespread uncertainty, the President acted arbitrarily or disproportionately in promulgating a *per se* rule excluding all polygraph evidence.

Id., 523 U.S. at 312, 118 S.Ct. at 1266. The Court further concluded that this categorical exclusion of polygraph evidence did not abridge an accused’s constitutional right to present a defense. *Id.*, 523 U.S. at 315-17, 118 S.Ct. at 1267-69.

Because of the significant difficulties posed by polygraph evidence, we have given serious consideration to the decisions from these other jurisdictions, and to the option of adopting a judicial rule of exclusion like the ones adopted in the majority of *Daubert* states — essentially, a rule declaring that the potential of polygraph evidence for creating unfair prejudice always outweighs its probative value.

We are nevertheless troubled by the possibility that, in some criminal cases, an exculpatory polygraph result might be the only realistic way for a defendant to establish a reasonable doubt as to their guilt. And (as we are about to explain), we are convinced that the particular solution adopted by the superior court in Alexander’s case provides adequate safeguards against the dangers of unfair prejudice.

Under the “abuse of discretion” standard of review, the question we must answer is whether the superior court acted unreasonably when it concluded that the dangers posed by polygraph evidence could be adequately negated by (1) requiring Alexander to submit to a State-administered polygraph and (2) requiring Alexander to take the stand at his trial and submit to cross-examination.

The first condition imposed by the superior court — that Alexander should not be allowed to introduce the results of Dr. Raskin’s polygraph examination unless Alexander submits to a polygraph examination administered by an expert of the State’s choosing — conforms to a familiar legal principle: Whenever a litigant (whether in civil or criminal litigation) seeks to offer an expert’s evaluation of some aspect of the litigant’s mental or physical condition, the court is empowered to require the litigant to submit to a similar evaluation by an independent expert.¹³

The second condition imposed by the superior court — that Alexander should not be allowed to introduce the results of Dr. Raskin’s polygraph examination unless Alexander takes the stand at trial and submits to cross-examination — is more unusual, but we conclude that it is nonetheless justifiable under Evidence Rules 403 and 705(c).

¹³ See Alaska Civil Rule 35 and Alaska Criminal Rule 16(c)(5); AS 12.47.070; *Lewis v. State*, 195 P.3d 622 (Alaska App. 2008), *Nelson v. State*, 874 P.2d 298 (Alaska App. 1994).

There are two aspects of polygraph evidence that present the greatest potential for confusion and misuse. The first of these is the danger that jurors may be overly swayed by the evidence; they may view it as having a degree of scientific rigor and infallibility that it does not possess. This danger can be effectively countered by the first condition imposed by the superior court — *i.e.*, having the opposing side present the results of its own independent polygraph examination — as well as by allowing the opposing side to present expert testimony that points out the potential weaknesses and deficiencies of polygraph examination procedures and techniques.

But the second danger posed by polygraph evidence is harder to deal with. This second danger arises from the fact that expert testimony describing the results of a polygraph examination will invariably include a recitation of out-of-court statements made by the person who was examined. These out-of-court statements will ordinarily consist of the person's assertions about what did or did not happen, coupled with assertions about what the person knew (or did not know) at the time, or what the person intended (or did not intend) to do.

Technically, perhaps, these out-of-court statements could be admissible for a non-hearsay purpose, since they serve as part of the basis for the polygraph examiner's opinion. See Alaska Evidence Rule 703, which states that expert witnesses are normally allowed to testify about the underlying data or information that provides the basis for their opinion, even when that underlying information would not otherwise be admissible — *i.e.*, even though it would not otherwise survive a hearsay objection or a challenge based on the witness's lack of personal knowledge.¹⁴

¹⁴ See also Edward J. Imwinkelried and James R. McCall, *Issues Once Moot: The Other Evidentiary Objections to the Admission of Exculpatory Polygraph Examinations*, 32 Wake Forest Law Rev. 1045, 1072-74 (Winter 1997) (analyzing this issue under the nearly identical provisions of Federal Evidence Rule 703).

But when a polygraph expert describes the statements that a defendant made during the examination (as part of the expert’s analysis of the defendant’s polygraph results), it will often be impossible for jurors to treat the defendant’s statements as merely the factual data underlying the polygraph expert’s opinion. Instead, the jurors will use the defendant’s statements for an improper hearsay purpose — as substantive evidence of the *truth* of the factual matters asserted by the defendant in those out-of-court statements.

We addressed this general problem (expert testimony that relies on otherwise inadmissible evidence) in *Borchgrevink v. State*, 239 P.3d 410, 419 (Alaska App. 2010), and *Vann v. State*, 229 P.3d 197, 208-09 (Alaska App. 2010).¹⁵ In those cases, we noted that Alaska Evidence Rule 705(c) offers a way for trial judges to deal with this issue — by giving judges the general authority to prohibit an expert witness from testifying about the data or information that underlies their opinion whenever “the danger that [this underlying data or information] will be used for an improper purpose outweighs [its] value as support for the expert’s opinion”.

But in the context of polygraph evidence, if a court were to exclude all evidence of the examinee’s out-of-court statements to the polygraph examiner, this would essentially destroy the evidentiary value of the polygraph examiner’s testimony.

In Alexander’s case, the superior court hit upon a different solution — one that allows Dr. Raskin to fully describe how he conducted the polygraph examination, and to fully explain his interpretation of the test results, while at the same time solving

¹⁵ See also *Guerre-Chaley v. State*, 88 P.3d 539, 543-44 (Alaska App. 2004), and the Commentary to Alaska Evidence Rule 705(c), which identify the problem as the possibility that the jury “might ... use the facts or data [recited by the expert witness] as the basis for an independent judgment on issues in [the] case”.

the problem that the jury will likely use Alexander's out-of-court statements for prohibited hearsay purposes.

Even though the jury may inevitably view Alexander's out-of-court statements to Dr. Raskin as substantive proof of the matters asserted in those statements, this will make little difference to the jury's consideration of the case if Alexander takes the stand at trial, makes those same assertions in front of the jury, and is cross-examined. The superior court therefore ruled that if Alexander wishes to present Dr. Raskin's testimony, Alexander must take the stand and submit to cross-examination.

We conclude that the superior court's resolution of this matter was a reasonable exercise of the court's discretion under Evidence Rules 403 and 705(c), and we therefore uphold this aspect of the superior court's ruling.

Concluding matters

For the reasons explained in this opinion, we conclude that the superior court did not abuse its discretion when it ruled that the polygraph evidence offered in this case meets the threshold test for scientific evidence established in *Daubert*. We further conclude that the superior court did not abuse its discretion when it ruled that Alexander can introduce the exculpatory polygraph evidence only if he submits to a State-administered polygraph examination, and only if he takes the stand and submits to cross-examination at his trial.

Although we are affirming the superior court's ruling in Alexander's case, we wish to clarify that the superior court has the authority to re-examine its ruling if it sees fit. We say this because of the developments that occurred after the superior court issued its ruling. As we have explained, while this appellate case was still in its briefing stage, the other defendant involved in this litigation, James Griffith, took a State-

administered polygraph examination. Despite Dr. Raskin's testimony that there was a 90 percent chance (or better) that the exculpatory results of his examination of Griffith were accurate, Griffith apparently failed the State-administered polygraph examination. Following this second polygraph exam, Griffith pleaded guilty, and he subsequently withdrew from this case.

We express no opinion as to whether the superior court should re-assess its decision in light of these developments, and we do not retain jurisdiction of this case.