November 14, 2010

“Mystic Infallibility” and “Fancy Devices”: A Conceptual Analysis of the Application of the Frye Test

John F Johnson, III, American University Washington College of Law

Available at: https://works.bepress.com/john_johnson/3/
“MYSTIC INFALLIBILITY” AND “FANCY DEVICES”: A CONCEPTUAL ANALYSIS OF THE APPLICATION OF THE FRYE TEST

John Johnson III

The Frye test stood as the first widely used test to determine the admissibility of scientific evidence and stood as the majority test until the Supreme Court introduced the Daubert test in 1993. Despite taking a backseat, seventeen jurisdictions, including California, Florida, New York and Pennsylvania, continue to apply the Frye test. The Frye test holds that when a party provides novel scientific evidence, that party must demonstrate the proffered evidence relies on principles, methodologies, and devices that are generally accepted by the relevant scientific community. Commentators frequently discuss the test’s general acceptance requirement, but ignore the preliminary issue of when the test actually applies. This paper explores the preliminary requirements, novel and scientific, and provides a definition of both terms according to the courts practices.

Table of Contents:

I. Introduction
II. Approaches to the Admissibility of Scientific Evidence
III. Why Frye: Justifications and Purposes of the Test
   A. Why Frye
      1. Purpose for Adopting the Frye Test
      2. Purpose for Rejecting the Daubert Test
   B. The Meaning of Frye
      1. Jury Centered Approach
      2. Purity Centered Approach
IV. Determining Application: Science, Classifications, and Novel
   A. Introduction and the Role of the Expert
   B. Science
   C. The Components of an Expert’s Opinion
   D. Novel: The Standard that Never Was
      1. Defining Novelty
      2. Defining Acceptance
      3. Application of this Approach
   E. Wrong Factors
V. Conclusions
I. INTRODUCTION

The United States charged James Alphonzo Frye for the death of his physician, Dr. Robert W. Brown, in 1920. The World War One veteran sought to prove his innocence by undergoing a systolic blood pressure deception test, more commonly known as a lie detector test. The result stated that Mr. Frye spoke truthfully when he claimed not to have killed the doctor. Despite this finding, the trial judge excluded the test result and the testimony of Mr. Frye’s expert Dr. William Marston, the test’s proctor. Ultimately, the jury convicted Mr. Frye of second degree murder.

On appeal, Mr. Frye challenged the trial court’s exclusion of his proffered evidence about his test result. The D.C. Circuit Court of Appeals contemplated the admissibility of this new science, but decided to affirm its exclusion. Judge Van Orsdel reflected on the difficulty of defining when a scientific principle ceases being experimental and becomes demonstrable; thereby useful for the court. He held that, before the court will admit any expert testimony relying on a new scientific principle, “the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.” Mr. Frye’s testimony failed this standard because the systolic blood pressure

---

3 Mr. Marston is more famously known as the creator of the comic book character Wonder Woman. See Jan E. Leestma, Forensic Neuropathology 28 (2nd ed. 2008).
4 United States v. Frye, 293 F. 1013 (D.C. Cir. 1923).
5 Id. at 1014.
deception test had not gained general acceptance among physiologists and psychologists. Thus the Frye test was born.

Subsequent courts interpret this test as requiring that when a party provides novel scientific evidence, that party must demonstrate that the evidence relies on principles, methodologies, and devices that are generally accepted by the relevant scientific community. If the proffering party fails to show the general acceptance of the science, then the evidence is inadmissible. The Frye test is easily summarized, but its application is more complicated. The founding case proves to be brief to a fault because it fails to describe the key elements of the test. Courts and commentators frequently criticize the Frye test for relying on the amorphous concept of general acceptance and requiring the court to define relevant scientific community.

The criticisms of the Frye test often fail to note that the preliminary requirements, novel and scientific, lack any clarity when placed under scrutiny. The inquiry into general acceptance will only apply to novel scientific evidence; unfortunately the Frye decision itself lacks any

6 Id.


8 See Demeniuk v. State, 965 So.2d 295, 295 (Fla. Dist. Ct. App. 2007) (affirming the trial courts refusal to admit evidence that was not generally accepted by the relevant scientific community).

9 See Marsh v. Valyou, 977 So.2d 543, 560 (Fla. 2007) (Cantero, J, dissenting) (“The Frye test is simple to state, if not always easy to apply …”).


11 See, e.g., Donaldson v. Cent. Ill. Pub. Serv. Co., 767 N.E.2d 314, 324-25 (Ill. 2002) abrogated by Simons, 821 N.E.2d at 1189 (holding that the appellate court will review a Frye hearing de novo) (“… Frye does not make the trial judge a ‘gatekeeper’ of all expert opinion testimony. The trial judge’s role is more limited. The trial judge applies the Frye test only if the scientific principle, technique or test offered by the expert to support his or her conclusion is ‘new’ or ‘novel.’ … Only novelty requires that the trial court conduct a Frye evidentiary hearing to consider general acceptance.”).
guidance on what constitutes novel or scientific evidence. While these elements could easily succumb to an “I know it when I see it” style test, \( ^{12} \) this offers little comfort to litigants. Yet, cases over the past eighty years help to provide rough guidelines on how the courts may define each term.

Despite contradictory holdings from the different states, definitions of the terms become clear when considered in light of the test’s purpose. An expert provides scientific evidence when his testimony explains or depends on an explanation of the natural, or possibly the social, world.\(^ {13} \) Next, the evidence is novel when less than a clear majority of the relevant scientific community accepts as reliable.\(^ {14} \) Additionally, the *Frye* test does not consider the entire testimony. The court will only examine the expert’s principles, methodologies, and devices to ensure reliability.\(^ {15} \) The court will not require the expert’s reasoning or conclusions be generally accepted.\(^ {16} \) The exact classifications depend on the questions asked of the expert and the process he used to arrive at his opinion. Together this discussion of science, novelty, and classifications permits an individual to predict with some certainty when the court will apply the *Frye* test and to what portions of the expert’s testimony must be generally accepted.

Admittedly, the *Frye* test has largely taken a backseat since 1993 when the U.S. Supreme Court decided *Daubert v. Merrell Dow Pharmaceuticals, Inc.*\(^ {17} \), which held that the *Frye* test no

---

\(^{12}\) See *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) (Stewart concurring).

\(^{13}\) See infra Section IV.B.

\(^{14}\) See infra Section IV.D.

\(^{15}\) See infra Section IV.C.

\(^{16}\) Id.

\(^{17}\) 509 U.S. 579 (1993).
longer applied in the Federal courts. A vast majority of states followed the Supreme Court by abandoning *Frye* and adopting *Daubert* or a similar test in which the court conducts an independent examination of the science to determine its reliability. Yet a sizable minority of states retains *Frye* and possesses little intention of abandoning it. *Frye* remains the test in numerous large jurisdictions, such as California, Florida, New York, and Pennsylvania. When examining population size, not accounting for the Federal court system, slightly more than half the population of the United States lives in a *Frye* jurisdiction. Thus any analysis of the *Frye* test remains pertinent to the academic and professional discussion.

This paper seeks to synthesize the theoretical foundations of when the *Frye* test applies as the states continue to rely on this test. It will not look into how the courts address specific forms

---

18 Id. at 587.

19 See, e.g., State v. Porter, 698 A.2d 739, 743 (Conn. 1997) (abandoning the *Frye* test and adopting a test similar to *Daubert*).


21 See, e.g., State v. Johnson, 922 P.2d 294, 296 (Ariz. 1996) (rejecting the State’s request to adopt the *Daubert* test), Aventis Pasteur, Inc. v. Skevofilax, 914 A.2d 113, 129, n. 18 (Md. 2007) (professing Maryland continued adherence to the *Frye* test despite the United States’ Supreme Court ruling in *Daubert*).


Missouri has adopted the *Frye* test for criminal cases while use a relevancy test for civil cases. Compare State Bd. of Registration for Healing Arts v. McDonagh, 123 S.W.3d 146, 153 (Mo. 2003) (holding *Frye* does not apply for civil cases) with State v. Ralph Davis, 814 S.W.2d 593, 600 (Mo. en banc 1991) (holding *Frye* applies to criminal trials).

23 Sadly litigants in *Frye* jurisdictions sometimes wrongly claim that the state follows the *Daubert* test. See, e.g., Clemons v. State, 896 A.2d 1059, 1065, n. 7 (Md. 2005) (reflecting that “[b]oth parties erroneously claimed that Maryland follows the Supreme Court’s reasoning in *Daubert* …”).
of evidence, though specific examples will serve as illustrations periodically. This paper focuses on the fundamentals of the Frye test; an endeavor that the academic and practice literature has largely abandoned to its discredit.\(^{24}\) Despite the desires of some,\(^{25}\) the Frye test remains alive in numerous influential jurisdictions and the courts will apply it with greater frequency as scientific knowledge continues to rapidly grow and change. These facts support the necessity for individuals to understand the fundamentals of the Frye test in order to properly confront its ongoing application.

**II. APPROACHES TO THE ADMISSIBILITY OF SCIENTIFIC EVIDENCE**

Only in the twentieth century did changes in jurisprudence, scientific knowledge, and society combine in such a way that science became one of the tools of litigation.\(^{26}\) Despite humble beginnings, science periodically stands as the critical issue in modern litigation, such as in a toxic tort case.\(^{27}\) Given science’s influential and dominating role, the courts have struggled with when to allow litigants to rely on science and when to exclude it. Ultimately, the courts have developed three approaches to scientific evidence: (1) admit scientific evidence if it is relevant and leave any questions of reliability to the weight of the evidence,\(^{28}\) (2) admit novel scientific evidence if it is generally accepted by the relevant scientific community (the Frye test).

---

\(^{24}\) See, e.g., David L. Faigman, et. al., Modern Scientific Evidence: The Law and Science of Expert Testimony §1-2 (2nd ed. 2002), Giannelli & Imwinkelried, supra note 20, § 1.06. Both offer excellent sources for understanding various forms of scientific evidence and how the courts have treated the subject. Unfortunately, both lack a conceptual understanding of the Frye test.


\(^{26}\) See Golan, supra note 1.

\(^{27}\) See Toxic Tort Litigation 9 (D. Alan Rudlin ed. 2007).

\(^{28}\) See, e.g., Watson v. State, 219 N.W.2d 398, 403 (Wis. 1974).
test), and (3) admit scientific evidence if the court finds it sufficiently reliable (the Daubert test). The following section will explore each of these approaches individually.

A. Relevancy test

The common law admitted expert testimony relying on science without the proffering party needing to demonstrate the reliability of the science. Like all forms of expert testimony, the proffering party only needed to show that the evidence was (1) relevant, (2) from a witness properly qualified, and (3) essential for the trier of fact to make an informed decision. The evolved common law has a lower third requirement and it admits an expert’s opinion if it is helpful to finder of fact. Under this approach, all the issues concerning the science’s reliability or the community’s acceptance of it goes to the weight as compared to admissibility of the evidence. This approach supposes that the standard techniques for attacking evidence, such as cross-examination and rebuttal testimony, sufficiently protect against “junk science.”

Unsurprisingly, the pure relevancy approach to scientific evidence has largely been abandoned. This approach supposes that the jury is sufficiently capable to sift through the

29 See, e.g., Frye, 293 F. at 1014.

30 See, e.g., Daubert, 509 U.S. at 593-95.

31 See FAIGMAN, supra note 24, § 1-2.1.


35 See, e.g., Watson, 219 N.W.2d at 403.

testimony and evaluate the science. Essentially every jurisdiction questions the jury’s ability to conduct this evaluation and would rather possibly exclude relevant testimony than have a jury misled.\textsuperscript{37} Besides Wisconsin\textsuperscript{38} and Missouri for civil cases,\textsuperscript{39} every other jurisdiction in the United States requires the proffered scientific evidence demonstrate something, either general acceptance or reliability, to gain admission into evidence.\textsuperscript{40}

\textbf{B. General Acceptance – the \textit{Frye} Test}

The \textit{Frye} test does not abolish the common law relevancy test. It stands as a proviso that states when a party proffers novel scientific evidence that party must demonstrate the science’s reliability by showing its general acceptance by the relevant scientific community.\textsuperscript{41} Yet, when expert testimony does not rely on novel science, then the courts continue to use only the relevancy test.\textsuperscript{42}

It is a misnomer to say that the \textit{Frye} test does not concern the reliability of proffered science. The test ensures a base level of reliability by demanding that the science has obtained general acceptance by the relevant scientific community.\textsuperscript{43} If the science lacks that acceptance, it

\begin{itemize}
\item \textsuperscript{37} See Reed v. State, 391 A.2d 374, 386-87 (Md. 1978).
\item \textsuperscript{38} See, e.g., Watson, 219 N.W.2d at 403.
\item \textsuperscript{39} See McDonagh, 123 S.W.3d at 153.
\item \textsuperscript{40} Professor McCormick advocated this position in his treatise. Also various individuals from time to time advocate a return to this standard. See Brim v. State, 695 So.2d 268, 272 (Fla. 1997) (noting the trial judge suggested that a relevancy test “would be a more preferable and perhaps realistic” test as compared to the \textit{Frye} test).
\item \textsuperscript{41} See Frye, 293 F. at 1014.
\item \textsuperscript{43} See State v. Canaan, 964 P.2d 681, 691 (Kan. 1988) (“The \textit{Frye} test requires that before expert scientific opinion may be received into evidence, the basis of that opinion must be shown to be generally accepted as reliable within
is not reliable and therefore inadmissible. The courts delegate the determination of reliability to the relevant scientific community because it possesses superior knowledge and the courtroom should not become a laboratory. Even though the test ultimately concerns the evidence’s reliability, the courts decline to entertain challenges to the reliability of generally accepted science for the purpose of avoiding its admission. Yet, the courts still permit parties to admit evidence concerning the reliability of the science in order to persuade the jurors about how much weight they should give to the science.

Assuming the proffered evidence is novel and scientific, the courts look to the relevant scientific community to determine if it has obtained general acceptance. The proffering party must prove the general acceptance, typically by a preponderance of the evidence, to gain admission. The jurisdictions agree that general acceptance does not require unanimous acceptance, but they differ on how much support is necessary for general acceptance. The most

the expert’s particular scientific field. The [proffering party] has the burden of satisfying the *Frye* test by proving the reliability of the underlying scientific theory upon which the [scientific evidence] is based.”).

44 *See Id.* at 691-92 (“If the validity of the new scientific technique has not been generally accepted as reliable or is only regarded as an experimental technique, then expert testimony based upon its results should not be admitted into evidence.”).

45 *See* Reed, 391 A.2d at 371.


47 *See Id.* (“The party opposing the evidence, of course, may challenge the weight the jury ought to give it.”).

48 *See infra* Sections IV.B & IV.D.

49 *See infra* Section IV.D.2.a.


51 *See, e.g.*, Brim, 695 So.2d at 272 (“It is clear that scientific unanimity is not a precondition to a finding of general acceptance in the scientific community.”).
demanding standard requires a “clear majority.”52 Another standard looks to see if a consensus as compared to a controversy exists within the scientific community.53 The last standard observes that “‘generally acceptance’ … does not require that the [science] be accepted by unanimity, consensus, or even a majority of experts.”54

The jurisdictions are split on the appellate court’s level of review for a Frye test. Some jurisdictions apply the abuse of discretion standard,55 the general standard for appeals concerning the admission of evidence.56 Most use a de novo standard57 and equate the Frye determination to a question of law.58 These jurisdictions support the de novo standard because they believe it creates uniformity in the courts treatment of scientific evidence.59

The Frye test never obtained universal application, but its greatest reach occurred during the 1970s and 1980s when a majority of jurisdictions followed the test, including the Federal

52 See People v. Guerra, 690 P.2d 635, 656 (Cal. 1984), Brim, 695 So.2d at 272.
54 Simons, 821 N.E.2d at 1189.
56 See Simons, 821 N.E.2d at 1189 (rejecting the previous abuse of discretion standard of review and adopting a de novo standard).
57 See Johnson, 922 P.2d at 299, Venegas, 954 P.2d at 549 (Cal. 1998), Blackwell v. Wyeth, 971 A.2d 235, 238, n. 9 (Md. 2009).
58 See Jones, 548 A.2d at 40 (“The question of general acceptance … the proponent will also be asking the court to establish the law of the jurisdiction for future cases.”), Brim, 695 So.2d at 274 (“Appellate review a Frye determination will be treated as a matter of law.”).
59 See Reed, 391 A.2d at 367.
courts. Following the *Daubert* decision in 1993, numerous jurisdictions abandoned the *Frye* test and adopted a test similar to *Daubert*. Yet, *Frye* remains the controlling standard within seventeen jurisdictions in the United States.

**C. Reliability Test – *Daubert***

The Supreme Court in *Daubert* replaced the *Frye* general acceptance test with one that analyzes the reliability of the proffered science. Under the *Daubert* trilogy, the judge serves as a “gatekeeper” to ensure the reliability of expert opinion. In assessing the reliability of any scientific evidence the Supreme Court outlined a non-exhaustive list of five factors for the courts to consider: (1) testability, (2) peer review and publication, (3) error rate, (4) maintenance of standards, and (5) general acceptance.

The Court created *Daubert* test by considering Federal Rule of Evidence 702 and its use of “scientific” and “knowledge” along with the Federal Rules of Evidence’s liberal approach to

---


61 See, e.g., Porter, 698 A.2d at 743 (Conn. 1997).

62 See GIANNELLI & IMWINKELRIED, supra note 20, § 1.16.

63 See Daubert, 509 U.S. at 593-95.

64 The “gatekeeper” language has become widely used by the courts when speaking about the admission of scientific evidence. Interesting, the majority opinion never used that term; it comes from Justice Rehnquist’s dissent. See Daubert, 509 U.S. at 597, (Rehnquist, J., concurring in part and dissenting in part) (“We recognize that, in practice, a gatekeeping role for the judge, no matter how flexible, inevitably on occasion will prevent the jury from learning of authentic insights and innovations.”).

65 509 U.S. at 594.

66 509 U.S. at 589-90.

At the time of the *Daubert* decision Rule 702 read:
the admissibility of evidence. The majority held that the enacted Rule 702 did not continue the Frye test because the Rule did not contain the language of ‘general acceptance’. The majority’s opinion observed that the Frye test’s ‘general acceptance’ requirement would be at odds with the ‘liberal thrust’ of the Federal Rules and their ‘general approach of relaxing the traditional barriers to “opinion” testimony.’

The Supreme Court clarified the Daubert decision in General Electric Co. v. Joiner, the second case in the trilogy. As a general matter, the Court established the proper standard of review is abuse of discretion, as compared to the de novo standard applied by most Frye jurisdictions. The Court also expanded the gatekeeper’s duty by requiring that the judge ensures the expert applied reliable reasoning as well as reliable principles and methodologies.

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.

Rule 702 has been subsequently amended and the following was added to the end:

if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

67 509 U.S. at 588.

68 509 U.S. at 588-89.


71 Id. at 141-42.

72 See Kuhn, 14 P.3d at 1179 (rejecting the previous abuse of discretion standard of review and adopting a de novo standard).

73 522 U.S. at 146.
The *Daubert* decision originally only applied to scientific and not other forms of expert testimony.\(^{74}\) Litigants attempted to avoid the *Daubert* test by portraying their experts as providing a technical or an other specialized opinion.\(^{75}\) The Federal courts struggled for the next six years to define scientific evidence.\(^{76}\) The Supreme Court ended this search in 1999 in *Kumho Tire Co. v. Carmichael*, which held that all expert testimony must undergo a *Daubert* reliability test.\(^{77}\) A reliability test stands as the majority test in the United States.\(^{78}\) The Supreme Court established the *Daubert* test in 1993, but courts had conducted their own reliability examinations prior to this case, even prior to the *Frye* test.\(^{79}\) Before *Daubert*, most states relied on the *Frye* test even though many adopted the Federal Rules of Evidence.\(^{80}\) Following *Daubert*, most of these states followed the Supreme Court’s reasoning in *Daubert* that Rule 702 did not continue the

---

\(^{74}\) *See* 509 U.S. (only discussing scientific evidence).


\(^{76}\) *See* Berry v. City of Detroit, 25 F.3d 1342, 1349-50 (6th Cir. 1994).

\(^{77}\) 526 U.S. 137, 147 (1999).

\(^{78}\) Thirty-three states apply a reliability test.

\(^{79}\) *See* People v. Jennings, 96 N.E. 1077, 1082 (Ill. 1911) (reviewing the literature on finger print identification to decide if such a form of identification has a scientific basis). Illinois though does not use a reliability test, instead it relies on the *Frye* test. *See* Simons, 821 N.E.2d at 1189.

\(^{80}\) *See* Schwartz, 447 N.W.2d at 424 (observing in 1989 a majority jurisdictions apply the *Frye* test).
Frye test and adopted a reliability test.\textsuperscript{81} While these states have adopted the Daubert reliability test, they have not necessarily adopted the Daubert trilogy.\textsuperscript{82}

III. Why Frye: Justifications and Purposes of the Test

One must examine the courts’ rationales for the Frye test before one can properly examine and critique its application. This requires evaluation two broad categories: (1) why the courts selected the Frye test and (2) what interests does the test protect. The first category examines the courts’ rationale for adopting and then retaining the Frye test. The second category concerns the courts’ interpretation of the interests the test protects.

A. Why Frye:

The states that adhere to the Frye test have made two deliberate choices. First, they have rejected the old common law relevancy test to adopt the Frye test.\textsuperscript{83} Second, all of them have been presented with the opportunity to follow the U.S. Supreme Court and apply the Daubert test, but all have rejected it.\textsuperscript{84} In both instances, the states have had to explain their rationale for using the Frye test and this discussion assists in illuminating when the test applies to proffered evidence.

1. Purpose for Adopting the Frye Test

\textsuperscript{81} See, e.g., People v. Shreck, 22 P.3d 68 (Colo. 2001) (abandoning the Frye test and adopting a test similar to Daubert).

\textsuperscript{82} See, e.g., State v. Ayers, 68 P.3d 768, 776 (Mont. 2003) (rejecting Kumho Tire expansion to of the Daubert test and only applying the reliability test to novel scientific evidence).

\textsuperscript{83} See, e.g., Reed, 391 A.2d 374.

\textsuperscript{84} See, e.g., Goeb v. Thoralson, 615 N.W.2d 800 (Minn. 2000).
Science entered into the courtroom with greater consistency in the twentieth-century as our understanding of the sciences grew deeper. Given the influential weight of the sciences, the courts believed that the common law relevancy approach would no longer sufficiently guard against unreliable sciences. Mindful of this, the courts adopted the *Frye* test because (1) it ensured that the scientific community decided the reliability of the evidence, (2) it created uniformity among the courts concerning admissibility of scientific evidence, and (3) it conserved judicial resources.

The courts adopted the *Frye* test because they doubted the juries’ and judges’ ability to question intelligibly the reliability of scientific testimony. Not everyone agreed with the courts’ doubts about the abilities of judges and juries during the late 1960s and 1970s. Some, like McCormick, advocated that the courts should continue the common law approach where the jury would hear all relevant scientific evidence, regardless of its reliability. Others argued that the trial judge should possess discretion to determine the admissibility of scientific evidence based on his determination of reliability. The courts rejected both approaches because juries and judges generally lack specific training to successfully weigh the merits of scientific evidence. A New Jersey court reflected on this matter by stating: “It is not for the law to experiment but for

---

85 *See generally* GOLAN, *supra* note 1.

86 *See* Reed, 391 A.2d at 386-87.

87 *See* People v. Kelly, 549 P.2d 1240, 1244 (Cal. 1976).

88 *See Id.*
science to do so.” Thus the courts wanted place the determination concerning the reliability of a science in the hands of those who understood it the best, the scientific community.

The courts worried about how to ensure uniform admission of scientific evidence. If the determination remained with the trial judge or jury, two different courts could reach two separate conclusions about the same type of evidence. The *Frye* test resolves this issue by giving this determination to the relevant scientific community and demanding the science is generally accepted by that community. This method established an arguably objective standard beyond the particularities of individual judges and juries. The courts further ensured this uniformity by applying the *de novo* standard of review.

Lastly, the courts worried about how science could strain judicial resources. They feared that the litigants would spend vast amounts of time and resources into arguing over the reliability of certain evidence. The *Frye* test mitigated this issue by forcing parties to argue

---


90 See Reed, 391 A.2d at 371.

91 See *Id.* at 387-88.

92 See Schwartz, 447 N.W.2d at 424 ("Without this safeguard, we believe an undesired element of subjectivity is possible in evidentiary rulings under the relevancy approach. The *Frye* standard, on the other hand, facilitates more objective and uniform rulings.").

93 See Reed, 391 A.2d at 387-88.

94 See, *e.g.*, Johnson, 922 P.2d at 299.

95 See Reed, 391 A.2d at 388-89.

96 See *Id.*
their position generally in limine. This would exclude unreliable scientific evidence earlier in the litigation and thereby conserve some judicial resources.

2. Purpose for Rejecting the Daubert Test

Litigants swiftly began challenging the Frye test after the Daubert decision came down from the United States Supreme Court. While numerous jurisdictions joined the Supreme Court, multiple Frye jurisdictions swiftly rejected the Court’s new direction. Yet, some decided to postpone any determination about the Daubert test because of its youth. These courts preferred the devil they knew and elected to observe how this new test developed in the Federal courts. After watching the Federal courts struggle with the Daubert test and its subsequently expanded reach, the remaining Frye jurisdictions elected to remain as such.

The courts primarily refuse to adopt the Daubert test based on their concern about institutional competency. These jurisdictions observe that lawyers and judges generally lack any education about the sciences. Thus it is absurd for these science illiterate individuals to make

97 See Clemons, 896 A.2d at 1064, n. 6 (“Where evidence is subject to challenge under Frye-Reed, however, the issue should, whenever possible, be dealt with prior to trial”).


99 See, e.g., Porter, 698 A.2d at 743 (Conn. 1997).

100 See, e.g., People v. Leahy, 882 P.2d 321, 324-32 (Cal. 1994).

101 See Bible, 858 P.2d at 1183 (“We leave Daubert for another day and, in accordance with Arizona precedent – old and new – apply Frye . . .”), Johnson, 922 P.2d at 296 (“. . . federal courts have not yet had a fair opportunity to apply Daubert; thus it is too early to properly evaluate it.”).

102 See Logerquist v. McVey, 1 P.3d 113, 129 (Ariz. 2000)

103 See, e.g., Goeb, 615 N.W.2d at 811-13 (“However, in repossessing the power to determine admissibility for the courts, Daubert takes from scientists and confers upon judges uneducated in science the authority to determine what is scientific. This approach which necessitates that trial judges be ‘amateur scientists,’ has also been frequently criticized.”).
any substantive conclusion about the reliability of scientific evidence.\textsuperscript{104} These \textit{Frye} jurisdictions feel that such disputes can only be resolved by the scientific community. A few \textit{Frye} courts take a degree of pleasure in mocking the \textit{Daubert} test and gleefully note the protests by Federal judges about the adoption of the \textit{Daubert} test.\textsuperscript{105} These courts argue that only hubris can drive judges into believing they can act as amateur scientists and resolve conflicts that plague “respected, well-credentialed scientists about matters squarely within their expertise…”\textsuperscript{106}

Beyond the inabilities of the judges, the \textit{Frye} jurisdictions worry about the effects the \textit{Daubert} standard would have upon the courts. Looking systemically, the \textit{Daubert} test invites the greater possibility of non-uniformity among the courts.\textsuperscript{107} The \textit{Daubert} test lacks a single objective criterion, such as general acceptance, to evaluate the evidence. Instead, the test requires judges to engage in a balancing act by considering five factors. This balancing act permits the greater likelihood of different results. Then the \textit{Daubert} test uses an abuse of discretion standard of review will allow for the cementing of these variations upon an appellate review.\textsuperscript{108} This

\begin{flushleft}
\textsuperscript{104} \textit{See} Logerquist, 1 P.3d at 129 (“Implicit in \textit{Joinder} and \textit{Kumho} is the assumption that trial judges as a group will be more able than jurors to tell good science from junk, true scientists from charlatans, truthful experts from liars, and venal from objective experts. But most judges, like most jurors, have little or no technical training ‘and are not known for expertise in science,’ let alone in the precise discipline involved in a particular case.” (quoting 1 Faigman, et al., \textit{MODERN SCIENTIFIC EVIDENCE: THE LAW & SCIENCE OF EXPERT TESTIMONY} vii (1997))).

\textsuperscript{105} \textit{See}, \textit{e.g.}, Goeb, 615 N.W.2d at 811-13.

\textsuperscript{106} \textit{Id.} at 813 \textit{quoting} Daubert v. Merrell Dow Pharm., Inc., 43 F.3d 1311, 1316 (9th Cir. 1995) (Daubert II).

\textsuperscript{107} \textit{See}, \textit{e.g.}, Goeb, 615 N.W.2d at 811-13.

\textsuperscript{108} \textit{See} Joinder, 522 U.S. at 141-42.
\end{flushleft}
position is directly opposite the Frye goal of uniformity among the courts on issues for the admissibility of scientific evidence.\textsuperscript{109}

Some Frye jurisdictions reject the liberal approach that the Daubert decision claimed to herald.\textsuperscript{110} They prefer the Frye standard’s delaying effect on the admissibility of scientific evidence.\textsuperscript{111} They want to wait for the scientific community to reach a general acceptance about the reliability of any scientific evidence.

Some Frye jurisdictions fault the Daubert test for being too restraining,\textsuperscript{112} an interesting twist since the Daubert Court faulted the Frye test for being too restrictive.\textsuperscript{113} The courts note that the Daubert test applies to all expert testimony, while Frye only concerns scientific evidence.\textsuperscript{114} Additionally, the Daubert test has not brought about a liberal admission of scientific evidence; instead Daubert has arguably placed a heavier burden on admitting evidence. Frye courts believe that their test keeps the proper balance between exclusion and admission.\textsuperscript{115}

\textsuperscript{109} See Grady v. Frito-Lay, Inc., 839 A.2d 1038, 1045 (Pa. 2003) (“We also believe that the Frye test … is more likely to yield uniform, objective, and predictable results among the courts, than is the application of the Daubert standard …”).

\textsuperscript{110} Brim, 695 So.2d at 271-72 (“Despite the federal adoption of a more lenient standard, we have maintained the higher standard of reliability as dictated by Frye.”).

\textsuperscript{111} See Id.

\textsuperscript{112} See Logerquist, 1 P.3d 113.

\textsuperscript{113} See Marsh, 977 So.2d at 546 (“Courts and commentators have since debated whether the Daubert standard is more lenient or more strict.”).

\textsuperscript{114} See Logerquist, 1 P.3d at 128-29.

\textsuperscript{115} See, e.g., Logerquist, 1 P.3d at 128.
The Frye jurisdictions also note that the Daubert test places too great a stress on judicial resources. First, the trial court must now conduct a Daubert hearing for all expert testimony, not just novel scientific testimony. Second, the trial court must examine more than just general acceptance, but also “all the factors so far identified and any other that appellate courts may yet deem appropriate to save us from hurries that have been led or misled down the garden path.” These two changes take far too many resources for little, if any, gain.

This travel through the rationales for adopting and continuing to use the Frye test has clarified three key interests of the Frye jurisdictions. First, they worry about institutional competency and they want only the scientific community to make a determination. Second, they worry about the effects on judicial resources and wish to keep the test’s reach limited only to novel scientific evidence. Third, they desire uniformity within the jurisdiction on how to treat scientific evidence. These basic concerns influence how the jurisdictions interpret the test for new applications.

B. The Meaning of Frye:

Examining decisions shows a divergence of views within the Frye community regarding the interests protected by the test. Under the majority view, the test ensures the court’s purity by keeping unaccepted science out of the courtroom. The minority understanding, currently held

---

116 See Id. at 129 (“… our trial judges [do not] have time for Kumho hearings in each case in which expert testimony is to be offered.”).

117 See Id.

118 Id.

119 See, e.g., Id. at 128.
only by California,\textsuperscript{120} believes the test protects the independence of the jury by scrutinizing any evidence that may overwhelm the jury with an aura of “mystic infallibility.”\textsuperscript{121} This difference of opinion, as demonstrated later, causes the courts to reach dissimilar conclusions about the “scientific” quality of the same evidence.\textsuperscript{122}

\textbf{1. Jury Centered Approach}

California justifies the \textit{Frye} test as a means of protecting the jury’s ability to reach an independent conclusion about the facts.\textsuperscript{123} It worries that the jury will be “awed by an ‘aura of mystic infallibility’ surrounding ‘scientific techniques,’ ‘experts’ and the ‘fancy devices’ employed.”\textsuperscript{124} It fears that jurors cease being critical of the evidence presented when the evidence masquerades as “science.” Thus the courts must be critical of the evidence prior to allowing the jury to consider it to remedy their misplaced unshakable trust in the evidence.

This approach places its emphasis on the jury rather than the evidence in question. The knowledge and belief of a reasonable juror becomes central to the analysis if proffered evidence will be considered “scientific.”\textsuperscript{125} It is not “scientific,” if a reasonable juror can critically analyze

\textsuperscript{120} Other jurisdictions once held this jury-centric view, but they subsequently abandoned the \textit{Frye} test. Yet, their cases will still provide an explanation of this view. \textit{See} State v. Hasan, 534 A.2d 877, 879 (Conn. 1987)

\textsuperscript{121} \textit{See, e.g.}, Roberti v. Andy’s Termite & Pest Control, Inc. 113 Cal.App.4th 893 (Cal. Ct. App. 2003).

\textsuperscript{122} \textit{Compare} People v. Stoll, 49 Cal.3d 1136 (Cal. 1989) (not applying the \textit{Frye} test to psychological testimony) \textit{with} Flanagan v. State, 625 So.2d 827 (Fla. 1993) (applying the \textit{Frye} test to psychological testimony).

\textsuperscript{123} \textit{See} Kuhn, 14 P.3d at 1181 (“The distinction [between pure opinion testimony and testimony relying upon a scientific technique] would be consistent with Kansas appellate decisions applying the \textit{Frye} test, almost all of which have involved devices or tests surrounded by an ‘aura of infallibility’ to which a trier of fact might tend to ascribe ‘an inordinately high degree of certainty.’”).

\textsuperscript{124} Hasan, 534 A.2d at 879.

\textsuperscript{125} \textit{See} Venegas, 18 Cal.4th at 80.
the proffered evidence. Thus, the evidence will be scientific if the jury would accept it as infallible.

This approach corresponds to the modern approach to liberalize the rules of evidence to encourage greater admission of evidence. The court will admit evidence so long as it is relevant, rather critically examining evidence themselves. The courts now permit jury’s a greater role in considering the weight of evidence. California however carved out a narrow exception, the court will critically examine novel scientific evidence when evidence may cause a jury to think it is infallible.

The jury centered Frye test is similar to the relevancy test adopted by Wisconsin. As a general matter, both trust the jury’s ability to question certain forms of evidence, especially when assisted with cross-examination and opposing expert witnesses. Of course California has a major difference from Wisconsin; the court will restrict certain relevant, proffered evidence from the jury. Noticeably, California only does so because it does not believe the jury can critically evaluate the evidence.

2. Purity Centered Approach

The remaining jurisdictions believe that the Frye test serves to protect the purity of the courtroom. These courts use the Frye test “to determine [what is] good science and what is bad

126 See Id.
127 See Id.
128 See, e.g., CAL. CODE EVID. 351, FED. RULE EVID. 402.
129 See Blinka, supra note 34, 90 MARQ. L. REV. at 179-80.
130 See 549 P.2d at 1244.
131 See, e.g., Watson, 219 N.W.2d at 403.
These states worry about the efficacy of the judicial system, rather than concerning themselves with jurors. Even if jurors possess the skills to critically examine the evidence, these states do not want to blemish the judicial system by even admitting such evidence that it deems unreliable because the scientific community does not generally accept it. This focus on purity causes the Frye test to be applied more frequently.

The purest courts more align themselves with the Daubert reliability test. In fact, some jurisdictions have adopted the gatekeeper imagery used frequently by Daubert jurisdictions. Some courts look Daubert jurisdictions when deciding what component’s of an expert’s scientific opinion must be examined by the court before the expert’s opinion will be admitted into evidence. Yet, unlike the Daubert test, these Frye states still only apply its test to novel scientific evidence.

IV. DETERMINING APPLICATION: SCIENCE, CLASSIFICATIONS, AND NOVEL

A. Introduction and the Role of the Expert

When confronted with an expert witness, the courts and litigants must ask themselves a series of questions in order to determine the necessity of a Frye analysis. First, one must ascertain the question posed to the expert. In other words, what is the issue that the expert will provide an opinion about? This question is essential because it frames the remaining questions.

---

132 United States v. Kenkins, 887 A.2d 1013 (D.C. 2005) (observing that the court relies on the scientific community “to determine good science and what is bad science”).

133 See Stecher v. Ford Motor Co., 779 A.2d 491, 506 (Pa. Super. Ct. 2001) (“The court, acting as the gatekeeper, must determine whether the science is good enough to serve as the basis for the jury’s findings of fact, or is dressed up to look good enough, but is so untrustworthy that no finding of fact can properly be based upon it.”).

134 See Blackwell, 971 A.2d at 255 (citing Joinder).

135 See, e.g., Donaldson, 767 N.E.2d at 324-25.
Next, one must ask if the opinion is scientific, meaning, does it explain or depend on an explanation of the natural world. Then one must break down the expert’s opinion into its basic components: facts, principles, device, methodologies, and conclusions. Last, one must ascertain if the principles, methodologies, and devices are novel, or in other words, if something less than a clear majority of the relevant scientific community accepts them as reliable. In the end, the Frye test becomes applicable if one determines that the expert provided a scientific opinion and his principles, methodologies, and devices are novel.

B. Science

The Frye jurisdictions have crafted three different definitions of science. First, California classifies an opinion as scientific when it purports to offer a definitive truth and is beyond the understanding of the common juror.136 Second, some courts look to the Daubert decision and consider an opinion as scientific if it relies on the scientific method.137 Third, other courts classify evidence as scientific if the opinion explains how the natural world functions. The third definition most corresponds with the purposes of the Frye test and the practices of the courts. While California will not likely abandon its definition, those courts that follow the Daubert definition should abandon it and use the third definition.

The purpose served by the qualifier “science” should be clarified before examining different definitions. When the courts classify an opinion as “scientific,” they do not grant any blessing that the opinion offers definitive truth on the matter or even follows methodologies the

---

136 See Stoll, 49 Cal.3d at 1156.

scientific community would accept. The classification of “scientific” simply means that the opinion involves a subject matter that the courts believe requires additional inquiry.

California used its unique justification for the Frye test to craft a definition of science.\textsuperscript{138} The California Supreme Court limited what qualifies as scientific to evidence that “appears in both name and description to provide some definitive truth which the expert need only accurately recognize and relay to the jury.”\textsuperscript{139} The Court created this definition based upon its understanding that the test serves the extremely limited purpose of protecting the jury from evidences that conveys a “misleading aura of certainty.”\textsuperscript{140} Thus if a lay person can critique the expert’s opinion using everyday experiences, common sense, and good judgment, then the Frye test is unnecessary.\textsuperscript{141} Yet, if the evidence is foreign or unusually difficult for a layperson to evaluate, then expert opinion testimony is classified as scientific.\textsuperscript{142} Under this definition most

\textsuperscript{138} California sought to limit the definition of science “[b]ecause the inventions and discoveries which could be considered ‘scientific’ have become virtually limitless…” Stoll, 49 Cal.3d at 1155.

\textsuperscript{139} Id. at 1156.

\textsuperscript{140} See Stoll, 49 Cal.3d at 1155-56 (“… near-70 years since Frye was decided, application of its principle has often been determined by reference to its narrow “common sense” purpose, i.e., to protect the jury from techniques which, though “new,” novel, or “experimental,” convey a “misleading aura of certainty.””).

\textsuperscript{141} See Venegas, 18 Cal.4th at 80. See also People v. McKown, 875 N.E.2d 1029, 1036 (Ill. 2007) (discussing that a test is scientific because “the results of [the] test are meaningless to an average person unless accompanied by expert testimony about what those results mean and what conclusions may be drawn from them.”).

\textsuperscript{142} See Venegas, 18 Cal.4th at 80.
forms of evidence will not be classified as scientific. Generally, the test applies when an expert relies on a mechanism, instrument, or procedure because “jurors tend to ascribe inordinately high degree of certainty to proof derived” from them, thus the Frye test will apply to them.

The second definition of science defines the term based on the methodologies used by the expert. These jurisdictions looked to the Daubert decision for guidance. Daubert defined science not by the purpose it served, but by the process used. The Court cited an Amici Curiae stated “[science] represents a process for proposing and refining theoretical explanations about the world that are subject to further testing and refinement.” Additionally, the Court affirmative quoted from an article by Michael Green that the scientific methodology “distinguishes science from other fields of human inquiry.” Thus when an expert depends on the scientific method, his opinion is scientific. On the other hand, an opinion is not scientific if the expert does not rely on the scientific methodology.

143 See, e.g., People v. Clark, 5 Cal.4th 950, 1015-17 (Cal. 1993) (holding that blood-spattered testimony does not constitute scientific evidence for Frye purposes).

144 Id.


147 See 509 U.S. at 590 (“But, in order to qualify as ‘scientific knowledge,’ an inference or assertion must be derived by the scientific method.”).

148 509 U.S. at 590 quoting Brief for American Association for the Advancement of Science et al. Amici Curiae 7-8.

The third definition of science does not depend on the methodology employed; instead it relies on the purpose of science. As the Amici Curiae in Daubert noted, science seeks to provide “theoretical explanations about the world…”150 Thus an opinion is classified as scientific if it explains or depends on an explanation of the physical, natural, biological, and, possibly, the social world.151 The courts have not openly embraced this definition, but their practice largely corresponds to this concept.

The courts would best be served through openly adopting the third (purposeful) definition of science. The California approach wrongly focuses its attention on the jury rather than the proffered evidence. The Frye test takes the basic position that the jury lacks the capacity to properly evaluate the evidence, even if jurors possess a basic understanding of it. Yet, California will unlikely change its position. Its jury-centric view is the focus of their understanding of the Frye test and changing the definition of science would then require the California courts to adopt additional rationales for using the test. Also, California has sought to keep the Frye test extremely limited and its current definition furthers that goal by excluding test when the jury possesses some knowledge about the evidence.

The courts that adopted the Daubert definition of science wrongfully followed the Supreme Court, which mistakenly placed its emphasis on the process rather than purpose. Defining scientific evidence by its methodology casts a too narrow net for the application of the Frye test. This definition encourages litigants to attempt to avoid the Frye test by claiming their

---

150 509 U.S. at 590 quoting Brief for American Association for the Advancement of Science et al. Amici Curiae 7-8.

151 See OXFORD ENGLISH DICTIONARY, “science” b (2nd ed. 1989). “In modern used, often treated as synonymous with ‘Natural and Physical Science’, and thus restricted to those branches of study that relate to the phenomena of the material universe and their laws, sometimes with implied exclusion of pure mathematics. This is now the dominant sense in ordinary use.”
expert’s are not scientific because they do not rely on the scientific method.\textsuperscript{152} The courts have rightly been unwilling fall for this trick. Even the states that follow the methodology definition will classify an expert’s testimony as scientific even though the expert did not use any scientific methodology, but still his testimony relies on an explanation of the natural world.\textsuperscript{153}

The purposeful definition of science stands as the superior definition and it most corresponds to the actual practices of courts. It requires completely examining an expert’s testimony to see if at any point he explains or depends on an explanation of the natural world. If he does, the expert offers scientific evidence that may be subject to the \textit{Frye} test. For example, an expert who testifies to the probability of a parent having two children die from Sudden Infant Death Syndrome (SIDS) is a scientific opinion.\textsuperscript{154} The expert relied on the mathematical, not scientific, tool of the product rule.\textsuperscript{155} The use of this rule requires each SIDS death to be independent of the other when the death occurs in a single family.\textsuperscript{156} Thus his opinion is scientific because it relied on an explanation of the natural world, the independence of the occurrence of SIDS deaths within a single family.

The following will provide a basic description of the categories that constitute scientific evidence. This analysis will only apply to the purposeful definition. Both the California and

\textsuperscript{152} See Carmichael, 131 F.3d at 1435-36.

\textsuperscript{153} See McKown, 875 N.E.2d at 1036.


\textsuperscript{155} See Id. at 1038, n. 2 (“In general terms, the product rule has been defined as follows: that ‘the probability of the joint occurrence of a number of \textit{mutually independent} events is equal to the product of the individual probabilities that each of the events will occur.’” (quoting People v. Collins, 438 P.2d 33, 36 (Cal. 1968) (emphasis in the original))).

\textsuperscript{156} See Id. at 1045.
methodological definitions generally require examining the specific expert and his exact testimony to conclude if it constitutes a scientific opinion; thus generalizations are difficult.

The purposeful definition easily separates most forms of evidence into scientific and non-scientific evidence. History would never be classified as scientific evidence as it does not seek to offer an explanation of the physical world. Likewise, political science would not classify as scientific evidence. On the other hand, physics, chemistry, and biology would all classify as scientific because they seek to explain the physical world.

The different definition of science has led a split in the Frye jurisdictions on whether the social sciences, such as sociology and psychology, constitute scientific evidence. The purity-centric jurisdictions conclude that the social sciences constitute a science for Frye purposes without much discussion. This likely results from the way the social sciences portray themselves, as a science. They also rely on the scientific method as a means of testing their hypotheses and improving them.


158 See, e.g., Bradley v. Perrodin, 106 Cal.App.4th 1153, 1159, n. 2 (Cal. Ct. App. 2003) (although the expert used a political science expert regarding the placement of a candidates name on a ballot), Seropian v. Forman, 652 So.2d 490, 497 (Fla. App. 1995) (reversing the trial courts admission of a political science expert, not because the trial court failed to conduct a Frye analysis, but because his opinion was highly prejudicial).


160 See, e.g., Clemons, 896 A.2d 1059 (requiring a Frye analysis for comparative lead analysis).


162 See, e.g., Flanagan, 625 So.2d at 828.
Yet, California with its jury-centric approach has reached the completely opposite result. These courts note that the social sciences do not blindside the jury, thus there is no need to have them undergo the Frye test. The social sciences typically do not rely on “technical” details beyond the jury’s understanding, instead the focus is on observation.\(^{163}\) The California Supreme Court noted the irony of excluding social science testimony because of a fear that the jury would be overly impressed by it.\(^{164}\) In fact, jurors are more likely to be suspicious of it.\(^{165}\) The California courts have completely embraced belief that the social sciences do not require a Frye test when an appellate court upheld the admission of Munchausen’s syndrome.\(^{166}\) At that time neither the American Psychiatric Association’s Diagnostic nor Statistical Manual of Mental Disorders recognized the disorder. The California Court found that irrelevant for the purpose of admissibility.\(^{167}\)

An expert’s assertion that his testimony is “scientific” will not make the evidence scientific for Frye purposes. In a dissolution proceeding, the wife relied on an expert to give an opinion about the good-will value of the husband’s medical practice.\(^{168}\) The expert arrives at this value by incorporating observation and applying basic math.\(^{169}\) The entire process largely


\(^{164}\) See People v. McDonald, 37 Cal.3d 351, 373 (Cal. 1984).

\(^{165}\) Id.

\(^{166}\) “Munchausen syndrome is a serious mental disorder in which someone with a deep need for attention pretends to be sick or gets sick or injured on purpose.” Munchausen syndrome, http://www.mayoclinic.com/health/munchausen-syndrome/DS00965 (last visited December 8, 2009).


\(^{169}\) Id. at 773.
depends on the discretion of the expert who has to make a “precise decision from imprecise and subjective criteria.” ¹⁷⁰ The expert claimed his process was “scientific” but the court looked beyond his subjective belief and concluded that he did not rely on scientific procedures. ¹⁷¹ Noticeably, the court in the dissolution case defined scientific evidence according to the procedures used by the expert, as compared to the purposeful definition. In this situation, the court would have reached the same result had it adopted the purposeful definition. An individual attesting to the good-will value of a business neither explains nor depends on an explanation of the physical world. Instead, the opinion only describes the business’ value in the community.

The courts have largely failed to provide much guidance on its definition of science and instead relied on an “I know it when I see it” approach. Yet, the purposeful definition of science can provide an explanation for the courts behavior. Additionally, this definition protects the court from sly litigants who attempt to argue that an expert provides a non-scientific opinion because he did not use the scientific method. Under this approach, the court looks beyond the expert’s methods and looks at this purpose to reach a conclusion about its scientific nature. Lastly, this definition corresponds with common sense; the average person would likely disagree with the California court that claimed an expert who discussed blood-spatters does not offer a scientific opinion. ¹⁷²

C. The Components of an Expert’s Opinion

The courts do not conduct a Frye general acceptance analysis on the entirety of the expert’s scientific testimony. Instead only certain portions of the expert’s testimony must be

¹⁷⁰ Id.
¹⁷¹ Id. at 774.
¹⁷² See Clark, 5 Cal.4th at 1015-17 (Cal. 1993).
generally accepted. All of the Frye jurisdictions agree that an expert’s conclusions do not need to be generally accepted. Yet, the expert’s principles, methodologies, and devices must be generally accepted. Some jurisdictions include additional classifications that require general acceptance. For example, Maryland requires the expert’s analytical reasoning comport to the generally accepted way. While these terms are easy to speak about in the abstract, the challenge becomes applying these classifications in specific instances because the determination is highly fact specific to the opinion provided by the expert.

When stripped to its most basic elements, an expert’s testimony involves the same basic process (Figure 1). An expert is presented with a specific problem, which requires him to collect facts and scientific theories, principles, and, sometimes, information derived from devices. Then an expert takes these elements and applies the proper methodology to analyze the facts and he reaches a conclusion. Before the expert can testify, the court will demand that his principles, methodologies, and devices are either not novel or are generally accepted by the relevant scientific community. This section will explore the following classifications: facts, principles, devices, methodologies, and conclusions. Then it will consider the application issues from these terms.

This process can be better illustrated and each element understood by working through an example (Figure 2). A group of plaintiffs’ alleged that illegally dumped chemicals leaked from

---


174 See Blackwell, 971 A.2d at 255.

175 See generally Ed Imwinkelried, EVIDENTIALY FOUNDATIONS, § 9.03(2) (7th 2008).

176 Under the old common law, an expert could not provide an opinion on the ultimate issue of the dispute. This rule has essentially disappeared. See generally McCORMICK ON EVIDENCE § 12 (5th ed. 1999).
the city’s landfill and caused their cancer.\textsuperscript{177} To support their claim, the plaintiff’s required expert opinion concerning causation. One of their experts was a toxicologist who opined that the plaintiff’s exposure to water that possessed chemicals that leaked from the landfill caused their cancer. The expert noted that the chemicals located in the landfill and the habits of the plaintiffs provided the basis of his analysis. Specifically, he observed that the plaintiffs swam in and fished from the water as well as ate vegetables grown on nearby land and watered with local water. The expert then recalled the known carcinogenic qualities of the chemicals and the dose response principle.\textsuperscript{178} Ultimately, the expert took this information and reached the conclusion that the chemicals from the landfill caused the cancer.\textsuperscript{179}

Facts are the basic information surrounding the dispute, on which the expert is asked to give an opinion. These are not required to be generally accepted by the scientific community because there is nothing scientific about them. It would be impossible for them to pass a general acceptance test as the scientific community lacks any opinion about, for example, the swimming habits of individuals. In the example, the chemicals contained in the landfill and its proximity to the plaintiffs can be classified as facts. Other facts were the plaintiff’s use of the water for fishing, swimming, and watering local gardens, as well as consumption vegetables from the gardens.

\textsuperscript{177} See Nonnon v. City of New York City, 32 A.D.3d 91 (N.Y. App. Div. 2006).

\textsuperscript{178} This concept states that a substance is a poison not based off of its contents, but by its dose size. Thus even water is a poison when consumed in a large enough quantity. See Id. at 112 (“Even water, if consumed in large enough quantities, can be toxic.”).

\textsuperscript{179} See Id. at 98-99.
Principles are the scientific concepts that the expert brings the question. The principles classification is a broad label that includes such ideas as the dose response principle,\textsuperscript{180} the genetic characteristics of a disease,\textsuperscript{181} and syndromes.\textsuperscript{182} Being scientific and relied upon by the expert, a \textit{Frye} analysis is necessary if these principles prove to be novel. In the example, the expert relied on the principles that the chemicals were carcinogenic and the dose response principle.\textsuperscript{183}

Devices are mechanisms used by an expert to gain a piece of information to use in his opinion. Devices include machines,\textsuperscript{184} but also diagnostic tests used by the psychological and medical community.\textsuperscript{185} The \textit{Frye} test has always expressed a special concern for devices; the namesake case involved the admissibility of the results from a device.\textsuperscript{186} The courts strictly apply the \textit{Frye} test to devices because they purport to provide an unassailable fact to the jury.\textsuperscript{187} Yet, when the court conducts a \textit{Frye} analysis for a device, it will not consider if the expert followed the proper procedures in using the device.\textsuperscript{188} Challenges to the exact procedures followed

\textsuperscript{180} See Trach, 817 A.2d at 1113.

\textsuperscript{181} See Wilson, 803 A.2d 1034 (requiring a \textit{Frye} hearing into the probability of two children dying from sudden infant death syndrome).


\textsuperscript{183} Nonnon, 32 A.D.3d at 98.


\textsuperscript{185} See Flanagan, 625 So.2d 827.

\textsuperscript{186} See Frye, 293 F. at 1014.

\textsuperscript{187} See McDonald, 37 Cal.3d at 372-73.

concern the weight of the evidence, not its admissibility.\textsuperscript{189} The expert in the example did not use any devices.

The methodology classification concerns the process that the expert uses to answer the questions posed to him. This classification includes such processes as differential diagnosis\textsuperscript{190} and extrapolation.\textsuperscript{191} It also includes what information is necessary to answer the question, thus what facts or scientific principles must be established before offering an opinion.\textsuperscript{192} In the example, the methodology consisted of the processed used by toxicologists to conclude that a toxin caused the individuals’ illness.\textsuperscript{193}

The conclusion consists of the expert’s opinion or answer to the question asked of him. The\textup{Frye} jurisdictions agree that an expert’s conclusion does not require a\textup{Frye} analysis.\textsuperscript{194} Pennsylvania for a short period decided that the\textup{Frye} test applied to an expert’s conclusion, but that was later corrected.\textsuperscript{195} The courts have decided not to require the conclusion to be generally accepted because it would place an undue restriction on the scientific evidence. The Florida Supreme Court observed “[o]therwise, the utility of expert testimony would not be opinion at all – it would simply be the recitation of recognized scientific principles to fact finder.”\textsuperscript{196}

\begin{enumerate}
\item \textsuperscript{189} Id.
\item \textsuperscript{190} See Gelsthorpe v. Weinstein, 897 So.2d 504, 510-511 (Fla. Dist. Ct. App. 2005).
\item \textsuperscript{191} See U.S. Sugar Corp. v. Henson, 823 So.2d 104, 109 (Fla. 2002).
\item \textsuperscript{192} See Styles v. General Motors Corp., 20 A.D.3d 338 (N.Y. App. Div. 2005) (holding that the combination of data from two tests does not provide generally accepted results concerning the crashworthy quality of a vehicle).
\item \textsuperscript{193} See Nonnon, 32 A.D.3d at 98-99.
\item \textsuperscript{194} See, e.g., Miller, 858 A.2d at 1061.
\end{enumerate}
example, the conclusion reached by the expert was that the chemicals from the landfill caused the plaintiff’s cancer.\textsuperscript{197}

Some jurisdictions have included another component of the expert’s testimony that requires general acceptance by the relevant scientific community. Both Minnesota and Maryland require that an expert’s analysis to be general acceptance.\textsuperscript{198} These courts fear that an expert could reach a conclusion by making “too great a leap” from the gather data.\textsuperscript{199} The courts that adopt this gain their support from to the Federal courts and conclude that an expert’s analysis must be generally accepted.\textsuperscript{200} Requiring an expert’s analysis to be generally accepted effectively means that the expert’s conclusions must also be generally accepted. The analysis used by the expert serves as the path he uses to reach his conclusion. When the courts limit which route an expert can take, they essentially direct the expert’s conclusion.

Unsurprisingly, the party proffering scientific evidence seeks to characterize the controversial portion of the expert’s testimony as a conclusion rather than a scientific principle, thereby avoiding the general acceptance standard. This dispute between conclusion and scientific principle largely occurs within the context of toxic tort litigation where the question of causation plays the central issue of the dispute.\textsuperscript{201} In any toxic tort case, the causation element is divided

\begin{itemize}
\item \textsuperscript{196} U.S. Sugar Corp., 823 So.2d at 110.
\item \textsuperscript{197} See Nonnon, 32 A.D.3d at 98-99.
\item \textsuperscript{198} See Blackwell, 971 A.2d at 254-55, Goeb, 615 N.W.2d at 816.
\item \textsuperscript{199} Goeb, 615 N.W.2d at 816.
\item \textsuperscript{200} See Blackwell, 971 A.2d at 255 (citing Joinder).
\item \textsuperscript{201} See TOXIC TORT LITIGATION, supra note 27, 9.
\end{itemize}
into two separate issues: general and specific causation. General causation poses the question can X toxin ever cause Y disease. Specific causation poses the question did X toxin cause Y disease in a specific person. While the question of specific causation is ultimately the dispute of any litigation, specific causation depends on general causation. If the toxin can never cause the disease, then it did not cause the disease in the plaintiff.

General causation can either be a scientific principle or a conclusion depending on the actual expert used in the litigation. The court will even admit novel and not generally accepted theories of causation so long as the expert has applied the proper scientific principles and methodologies. This occurs because in this instance the theory of general causation classifies as a conclusion rather than as a scientific principle. The Frye test only demands that the expert start with accepted scientific principles and then apply the proper methodology.

The plaintiff’s expert in Trach v. Fellin illustrates this approach where the expert opinion about general and specific causation classified as a conclusion (Figure 3). The defendant pharmacy gave the plaintiff, Trach, the incorrect drug when it filled his prescription; instead of receiving the antibiotic Amoxil, the plaintiff received the antidepressant Doxepin. The

\[\text{References}\]

202 See Id. at 144.
203 See Id. at 144-47.
204 See Id. at 147-48.
205 See Trach, 817 A.2d 1102.
206 The court will search the experts overall methodological process to reach his conclusion of causation. See Selig, 290 A.D.2d at 320.
207 817 A.2d 1102.
208 Id. at 1104-05.
plaintiff took the prescription according the instructions of his dentist and this resulted in a massive overdose of Doxepin.\textsuperscript{209} Trach experienced vision problems following the overdose and eight months later he was diagnosed with glaucoma.\textsuperscript{210} Ultimately, he suffered from a crescent-shaped blind spot in his right eye as a result of the glaucoma.\textsuperscript{211}

Trach proffered an expert, specialized in pathology and toxicology, who reached two conclusions, one about general causation and the other about specific causation.\textsuperscript{212} The scientific literature concerning Doxepin did not list Trach’s form of glaucoma as one of the known side-effects of the drug, yet the scientific community never previously given an individual such a high dose of the drug.\textsuperscript{213} The expert used the accepted scientific principles of how the drug affects the eyes and dose-response principle.\textsuperscript{214} Then he applied the generally accepted methodology of extrapolation to conclude that a high dose of Doxepin can cause glaucoma (general causation). Applying the general causation theory to the facts, the expert used the methodology of differential diagnosis to conclude that the overdose caused the plaintiff’s glaucoma (specific causation).\textsuperscript{215}

\textsuperscript{209} Id. at 1105. (‘According to Trach’s expert’s report, Trach took 1,800 milligrams (“mg.”) of Doxepin on the first day…. The recommended optimal dose range for Doxepin is between 75 mg. and 150 per day, while the maximum recommended does is 300 mg. per day. … Despite suffering hallucinations, heartburn, confusion, and extreme difficulty concentrating, Trach continued to take the medication until, according to Dr. Shane, he had consumed 4,800 mg. of Doxepin over a five-day period.”).

\textsuperscript{210} Id..

\textsuperscript{211} Id. Technically he suffered from an acute scotoma.

\textsuperscript{212} Id. at 1106.

\textsuperscript{213} Id.

\textsuperscript{214} Id. 1106, 1113.

\textsuperscript{215} Id. at 1114-116.
This approach will not permit an expert to merely conjure up a theory of causation and to be protected by claiming it is a conclusion. This approach requires the expert to follow the proper methodology. Therefore he must have the proper scientific principles and facts to apply the methodology according to the generally accepted method. If the expert lacks sufficient scientific principles or facts, the conclusion would be inadmissible because the expert failed to rely on the generally accepted methodology. Furthermore, if the expert merely assumes general causation, causation becomes a scientific principle and the proffering party must demonstrate that the general causation is generally accepted.

Protesters to this distinction argue that the court is permitting “junk science” to enter the courtroom. They argue that a litigant needs to find an expert that has simply checked the proper principle and methodological boxes and any theory of causation would be admissible. The argument first misunderstands the entire purpose of the Frye test. It seeks to only ensure that the expert follows the proper process, in other words, checks the boxes. Furthermore, this process does contain a mechanism to ensure “junk science” remains out of the courtroom. The expert must still use generally accepted principles and methodologies to reach his conclusion.

This approach to causation ultimately stands as a compromise by the courts. If general causation must be generally accepted, then most toxic tort cases would fail because the scientific community rarely has reached a generally accepted idea concerning general causation. The lack of general causation generally derives not from a dispute within the scientific community.

---


217 See Selig, 290 A.D.2d at 320 (“In the absence of any clinical data supporting their expert’s theory that there is a casual link between the use of the drug Viagra and heart attacks in men with preexisting coronary artery disease, it was incumbent upon plaintiffs to set forth other scientific evidence based on accepted principles showing such a causal link.”).
Instead, the scientific community has not analyzed the issue for various reasons. For example, in *Trach* the scientific community never experimented with the result of giving a human six times the maximum dose in one day because it would be unethical.\(^{218}\)

On the other hand, creating an exception to the *Frye* test for toxic tort cases creates an avenue for unreliable scientific evidence to enter into the courtroom.\(^{219}\) Additionally, it creates the possibility of non-uniformity within the jurisdictions concerning the admissibility of scientific evidence. Theoretically, a certain form of evidence would be admissible in a toxic tort case, but not in a criminal case. This approach simply undermines the *Frye* test.

When an expert relies exclusively on his own experiences a *Frye* analysis is not required.\(^{220}\) The courts have generally classified this testimony as “pure opinion” rather than scientific. This distinction depends on the methodological definition of science. The courts have reasoned that when an expert depends exclusively on his own “experience, observation or research” to provide an opinion, his testimony does not employ any “scientific methodologies,” thereby the opinion is not scientific.\(^{221}\)

Characterizing the opinion as not scientific is improper because the scientific community depends on a methodology of observation to reach a conclusion. Furthermore, this dichotomy offends common sense; most persons would classify an expert who gives an opinion about the

---

\(^{218}\) *Trach*, 817 A.2d at 1105.

\(^{219}\) *See, e.g.*, State v. Doriguzzi, 760 A.2d 336, 341 (N.J. Super. 2000) (observing that the *Frye* test does not apply to toxic tort cases).

\(^{220}\) *See* Hummert, 933 P.2d at 1193. *But see* Theresa Canavan’s Case, 733 N.E.2d 1042, 1049-50 (Mass. 2000) (rejecting the exception to the *Frye* test when the expert’s testimony depends on his observations or clinical experiences).

\(^{221}\) Logerquist, 1 P.3d at 133, Holy Cross Hosp., Inc. v. Marrone, 816 So.2d (Fla. App. 2001), reviewed dismissed, 832 So.2d 103 (Fla. 2002).
cause of an illness as providing a scientific opinion. Mindful of these criticisms, the courts should classify “pure opinion” testimony as an exception to the *Frye* test rather than categorizing it as not scientific. The policy justification for this exception still stands regardless of how one characterizes it. Pure opinion testimony presents less of a risk because the weight of the testimony rests solely on the witness who can be cross-examined.\(^{222}\)

The determination about pure opinion testimony requires looking beyond the experts testimony and inquiring into the basis of his opinion.\(^{223}\) The *Frye* test is unnecessary when the expert provides an opinion based upon his observation. The courts have sought to limit this exception’s reach. The testimony ceases being pure opinion if an expert relies on something other than his own experiences.\(^{224}\) For example, an expert does not provide a pure opinion when he relies on a profile to reach his conclusion.\(^{225}\) In this instance, the expert does not stand alone and the finder of fact must rely on the principles contained in the profile.\(^{226}\) Therefore the courts conduct a *Frye* analysis concerning the profile.

The jurisdictions are split on whether an expert reliance on the literature of others causes his testimony to shift from pure opinion to scientific. The courts that say it does so because the

---

\(^{222}\) *See* Roscoe, 700 P.2d at 1320 (“[The expert’s] knowledge experience and integrity which would give the evidence weight and it was Preston who was available for cross-examination. His credentials, his experience, his motives and his integrity were effectively probed and tested. Determination of these issues does not depend on science; it is the exclusive province of the jury.”).

\(^{223}\) *See* Hummert, 993 P.2d at 1193.

\(^{224}\) *See* Hadden, 690 So.2d at 580 (“... we find that profile or syndrome evidence is not admissible by combining such evidence with pure opinion testimony because such a combination is not pure opinion evidence based solely upon the expert’s clinical experience.”).

\(^{225}\) *See* Id.

\(^{226}\) *See* Id. (“We differentiate pure opinion testimony based upon clinical experience from profile and syndrome evidence because profile and syndrome evidence rely on conclusions based upon studies and tests.”).
expert no longer speaks on his own knowledge, thus the court needs to ensure its reliability.\textsuperscript{227} Yet, the court in Kansas does permit an expert to rely on others literature, but this likely relates to the scope of the *Frye* test.\textsuperscript{228} In Kansas, the *Frye* test only applies to techniques and not principles.\textsuperscript{229}

The pure opinion exception has only a limited application and when the courts too broadly apply it, they eat up the exception for the test. The Florida Supreme Court misapplied the pure opinion testimony in *Marsh v. Valyou*.\textsuperscript{230} The majority held that an expert who testified to the causal link between trauma and fibromyalgia did not require a *Frye* hearing.\textsuperscript{231} The Court held that the *Frye* test was unnecessary because the expert provided his opinion based on his experience and training.\textsuperscript{232}

The dissent rightful noted that the majority wrongly classified the expert’s testimony as a pure opinion.\textsuperscript{233} A diagnosis like a syndrome requires the general acceptance because the underlying diagnosis depends on scientific evidence.\textsuperscript{234} When an expert provides an opinion about the plaintiff’s illness, he is not providing his pure opinion because his opinion relies on the

\textsuperscript{227} *But see* Roberti, 113 Cal.App.4th at 901-03 (relying on literature will not alone make an expert’s testimony scientific). Noticeably, this case comes from California, which has adopted an entirely different approach to defining scientific.

\textsuperscript{228} *See* Kuhn, 14 P.3d at 1179-80.

\textsuperscript{229} *See* Id.

\textsuperscript{230} 977 So.3d 543 (Fla. 2008).

\textsuperscript{231} *Id.* at 550.

\textsuperscript{232} *Id.* at 448.

\textsuperscript{233} *Id.* at 561 (Cantero, J. dissenting).

\textsuperscript{234} *Id.* at
scientific principle of the sickness. Thus the court must conduct a *Frye* analysis into the general acceptance of the causation theory that trauma can cause fibromyalgia.²³⁵

The categorization of an expert’s testimony into its components is an essential, but frequently ignored aspect of the *Frye* test. The general acceptance requirement only applies to certain portions of an expert’s testimony, his principles, devices, and methodologies. A litigant who properly understands this aspect of the *Frye* test can carefully select his witnesses in order to avoid the heavy burden of the general acceptance requirement.

**D. Novel: The Standard that Never Was**

The *Frye* test justifies its deviation from the common law relevancy test based on a concern that new scientific evidence²³⁶ needs additional scrutiny to ensure reliability.²³⁷ The courts require the new scientific evidence to be relevant and generally accepted in order to gain admission,²³⁸ while familiar²³⁹ scientific evidence only needs to be relevant.²⁴⁰ Given the lower burden placed on familiar scientific evidence, one would expect litigants to frequently dispute the novelty of proffered evidence and courts to clarify the qualifications of novelty. Surprisingly

---

²³⁵ *Id.* at 561.

²³⁶ In this section, “scientific evidence” means the principles, methodologies, and devices used by an expert who gives a scientific opinion.

²³⁷ *See* Frye, 293 F. at 1014.


²³⁹ For purposes of this discussion, familiar means not novel.

²⁴⁰ *See, e.g.*, Roscoe, 700 P.2d. at 1319, Hummert, 933 P.2d at 1193, Dengler, 843 A.2d at 1246 (affirming the trial courts admission expert testimony that was not novel).
litigants rarely challenge and the courts rarely illuminate the differences between novel and familiar evidence.\footnote{But see Dengler, 843 A.2d at 1243-44 (analyzing the meaning of novelty).}

Courts typically profess the \textit{Frye} test only applies to novel scientific evidence. On closer examination, however, they conduct \textit{Frye} hearings on all scientific evidence.\footnote{Pennsylvania for six years adopted the position that the \textit{Frye} test applied every time science entered the courtroom. A later decision reversed this approach and limited the \textit{Frye} test only to novel scientific evidence. Unfortunately, the decision lacks any substantive discussion of what constitutes novel scientific evidence. \textit{See} Trach, 817 A.2d 1102 \textit{abrogating} Blum, 705 A2d. at 1317, Thomas, 760 A.2d at 1178.} A Florida appellate court supported this position when it stated that “‘new or novel’ is [not] necessarily a threshold requirement for \textit{Frye}…”\footnote{Williams v. State, 710 So.2d 24, 31 (Fla. App. 1998). But see Donaldson, 767 N.E.2d at 324-25 (“Only novelty requires that the trial court conduct a \textit{Frye} evidentiary hearing to consider general acceptance. We recognize that a ‘new’ or ‘novel’ scientific technique is not always easily to identify, especially in light of constant scientific advances in our modern era.”).} Other courts have not recognized this position,\footnote{See, \textit{e.g.}, Trach, 817 A.2d 1102.} but their decisions unfortunately fail to provide a clear single definition of novelty. Instead they present three definitions. First, novel is a term of art that means the courts have yet to conduct a \textit{Frye} hearing on a specific form of scientific evidence.\footnote{See Williams, 710 So.2d at 31.} Second, novel refers to the length of time that the scientific evidence has existed.\footnote{\textit{Id.}} Third, novel refers to the acceptance of the scientific evidence by the scientific community.\footnote{See Simons, 821 N.E.2d at 1192 (“whether or not [the science] is subject to \textit{Frye}, there is no question that it is generally accepted by professionals…”), \textit{see also} Dengler 890 A.2d at 382 (discussing novel science becoming generally accepted).}
Defining novelty according to the scientific community’s acceptance of the scientific evidence provides the only rational definition. Both the first and second options run contrary to the basic rationales behind the Frye test. The term of art definition over broadly the Frye test’s application and the time definition would poorly protect the court from unreliable science. This does not mean that a court will not consider either previous cases or time when considering novelty. It only means that these definitions exclusively define novelty, but they are factors that can assist in application. Defining novelty as a question of acceptance explains the overall absence of decisions discussing this prerequisite for the Frye test because it is difficult to prove. It also answers why litigants will rarely dispute the novelty of the scientific evidence. The following will explore each definitional approach, and then conclude by analyzing the shortcoming of the novelty definition.

The discussion of novelty requires asking for what purpose is the scientific evidence being used? For example, an expert used a mechanism to measure the downward force necessary to break a Doritos tortilla chip.\(^{248}\) He then used that number and reached the conclusion that the Doritos were unsafe to eat because they required too much force to break the chips. While the mechanism is familiar for the purpose of measuring the breaking force, it is novel for the purpose of determining the safety of a chip.\(^{249}\) Precisely clarifying the purpose of the evidence is important to any evaluation of novelty as a form of scientific evidence can be familiar for one purpose, yet novel for another purpose.

1. Defining Novelty
   a. Novel as a Term of Art

\(^{248}\) See Grady, 839 P.2d at 1047.

\(^{249}\) See Id.
A possible interpretation of novel considers it a term of art that would find the Frye test unnecessary only when a specific form of scientific evidence “has been Frye tested in the legal community…”250 This definition would explain the lack of a discussion of novelty because the presiding court will only have to cite a previous decision to say the scientific evidence is familiar. In the reverse, if a party fails to cite a case applying the Frye test to the scientific evidence, the court will find it novel without a further discussion.

While this definition offers simplicity, it violates the basic rationale behind the Frye test. Courts adopted Frye to guard against a class of evidence, novel scientific evidence, which the courts believed needed proper scrutiny to ensure reliability.251 The relevancy test remains the standard for all familiar scientific evidence.252 This term of art definition would require all forms of scientific evidence to undergo the Frye test at some point. This would too broadly apply the Frye test. Few would question the reliability of numerous types of scientific evidence even though they have not received a Frye analysis by the courts.253 This overly broad approach would subvert the limited purpose of the Frye test and thus must be rejected.

250 Williams, 710 So.2d at 30-31. See also People v. Basler, 740 N.E.2d 1, 4 (Ill. 2000) (“Where, as here, a scientific method has been shown to be generally accepted, a Frye test is no longer necessary each time the State seeks to use evidence obtained by that method.”), McKown, 875 N.E.2d at 1036 (“Defendant contends that the HGN test is a novel technique despite the fact that it has been used by police officers for many years, because no Frye hearing has ever been held in Illinois to determine if the HGN test has achieved general acceptance as a reliable indicator of alcohol impairment. We agree.”). But see Canaan, 964 P.2d at 692 (holding that trial court was not required to conduct a Frye hearing even though court never conduct on the luminol’s test ability to detect blood), State v. Lucero, 85 P.3d 1059, 1062 (Ariz. Ct. App. 2004) (holding that a certain science is not novel even though the court has not conducted a Frye test).

251 See Frye, 293 F. at 1014.

252 See, e.g., Dengler, 843 A.2d at 1246 (affirming the trial courts admission expert testimony that was not novel).

253 See, e.g., Porter, 618 A.2d at 645, n. 7 (“We will take judicial knowledge of the scientific fact that the earth is round. At the same time, we know there are still individuals who claim to be scientists who have other theories…”), People v. Wilke, 854 N.E.2d 275, 280-81 (Ill. App. Ct. 2006) (affirming the denial of a Frye test concerning the reliability of mathematics to find the product rate of a chemical reaction), Starr v. Campos, 655 P.2d 794, 798-99, n.
b. Novel as Referring to Time

Another possible definition of novelty refers to the length in time the scientific evidence has existed. This approach comes from a reasonable understanding that would define novelty as “having existed or having been made but in a short time: having originated or occurred lately.” Thus if the scientific evidence has existed for a certain length of time, it would cease being novel and would be admissible as long as it passes a relevancy test.

The application of such a definition would be awkward at best, arbitrary at worst. How long should a form of scientific evidence exist until it ceased being novel, five, ten, twenty, fifty years? Assuming that the court arrives at time length, this definition suffers from a fatal flaw. It assumes that the passage of time demonstrates reliability, but the passage of time does not ensure reliability.

While reliability typically goes to the weight of the evidence, the Frye test ensures a base level of reliability by requiring general acceptance. This goal of obtaining a base level of reliability would be thwarted by only requiring a form of scientific evidence to exist for a specified period of time to gain admissibility. The courts clearly do not believe that time will

---

3 (Ariz. Ct. App. 1982) (imploring the trial court to take judicial notice of the fundamental principles of Newtonian mechanics).

254 See Williams, 710 So.2d at 31 n. 11 (“The fact that a scientific technique has existed from some period of time or even has been admitted into evidence in prior cases does not, in and of itself, demonstrate a basis for admissibility”).


256 See, e.g., Brim, 695 So.2d at 273, n. 8 (Fla. 1997) (“We recognize, however, that there may be times at which new scientific revelations may actually prove older methods unreliable, as opposed to simply unnecessary. In those isolated contexts, the older methods would not satisfy a Frye test.”).

257 See McWhorter, 212 P.3d at 725 (“… evidence based upon application of a new scientific technique may be admitted only after the reliability of the method has been foundationally established…”).
John Johnson III  
“Mystic Infallibility” and “Fancy Devices”  
Page 47 of 66

ensure this basic reliability. For example, the predecessor to the modern lie detector test was developed during the early twentieth century. Yet, many decades later, the courts still consider it novel and subject it to a Frye test. This definition must be rejected because time alone cannot ensure a basic level of reliability.

c. Novel as Referring to Acceptance

The last possible option defines novelty in relation to the acceptance of the scientific evidence by the scientific community. Therefore, if a certain number accepts the evidence then it ceases being novel. This is similar to the general acceptance test and in fact this approach adopts most of that analysis except for the level of acceptance needed. This approach would explain why courts rarely address the topic of novelty and why they periodically find that the Frye test is unnecessary because the science is familiar and generally accepted.

This definition raises the possible interpretation that scientific evidence is familiar when it is generally accepted by the relevant scientific community. While this proposition has received some support by the courts; it cannot stand under scrutiny. If one accepts this proposition, the question of novelty becomes outcome determinative. In a situation where there lacks general

258 See Dengler, 843 A.2d at 1243 (observing that “astrology and lie detector test results are not admissible despite the fact that they have been around for many years…”).


260 See Simons, 821 N.E.2d at 1192 (“whether or not [the science] is subject to Frye, there is no question that it is generally accepted by professionals…”), see also Dengler 890 A.2d at 382 (discussing when novel science becomes generally accepted).

261 See Dengler, 890 A.2d at 382 (“… indeed, science deemed novel at the outset may lose its novelty and become generally accepted in the scientific community at a later date …”).
acceptance, the *Frye* test only applies to novel scientific evidence. This proposition states scientific evidence is novel when the scientific community does not generally accept it. The *Frye* test would be implicated because the scientific evidence would be novel. Yet the science will fail the *Frye* general acceptance test because it is not generally accepted by the scientific community (the definition of novel). Unsurprisingly, courts have not reached this predetermined result and have found proffered evidence both novel and generally accepted. Additionally, if novelty hinges on general acceptance, the court must examine the general acceptance of the scientific community when deciding if it needs to conduct a *Frye* general acceptance test in the first place. This approach requires that every science must undergo the *Frye* test, but the courts have rejected this position.

2. Defining Acceptance

Using acceptance to define novelty raises three questions: (1) who must accept the science, (2) what is the courts role in relation to that community, and (3) what level of acceptance must be reached. This entire process is akin to reputation testimony under the common law where the witness testifies about the community’s opinion on a given matter. In both processes, the witness serves as an expert about the community’s opinion. For the issue of novelty, the courts look to experts and literature for an opinion if relevant community accepts the

---

262 See Trach, 817 A.2d 1102.

263 See U. S. Sugar Corp., 787 So.2d 3 (conducting a *Frye* general acceptance test after holding as novel the proposition that organophosphates are neurotoxins).

264 See, e.g., Stoll, 49 Cal.3d at 1156 (“[The Frye test] only applies to that limited class of expert testimony which is based, in whole or part, on a technique, process, or theory which is new to science and, even more so, the law.”).

265 See RICE, supra note 32, 112.
scientific evidence by a clear majority, if so the evidence is familiar and the Frye test is unnecessary.

a. The Relevant Community

Inquiring into the acceptance of a form of scientific evidence raises the question, who must accept it? Unsurprisingly, the courts assign this task to the scientific community.\textsuperscript{266} The relevant scientific community consists of anyone “whose scientific background and training are sufficient to allow them to comprehend and understand the process and form a judgment about it.”\textsuperscript{267} This language can be interpreted broadly or narrowly depending on how demanding the presiding court asks an individual to have sufficient comprehension and understanding. Defining the community too broadly requires the court to consider the opinions of those who lack the critical skills to properly evaluate the science.\textsuperscript{268} On the other hand, a narrowly defined community can create a community of one.\textsuperscript{269}

Unfortunately, the courts frequently pass on clarifying exactly who constitutes the scientific community and only discuss the acceptance of the science.\textsuperscript{270} This forces individuals to

\textsuperscript{266} See Kelly, 549 P.2d at 1244 quoting United States v. Addison, 498 F.2d 741, 743-44 (Cal. 1976) (observing that the Frye test “assures those most qualified to assess the general a validity of a scientific method will have the determinative voice.”), Stoll, 49 Cal.3d. at 1155-56., Dengler, 890 A.2d at 381-82. \textit{But see} State v. Heath, 957 P.2d 449, 465 (Kan. 1998) (holding that when a science has gained wide judicial recognition the Frye test no longer applies).

\textsuperscript{267} Reed, 391 A.2d at 368. The founding case in Pennsylvania speaks about the community being limited to those “active in the field …” Commonwealth v. Topa, 369 A.2d 1277, 1281 (Penn. 1977).

\textsuperscript{268} See People v. Acri, 662 N.E.2d 115, 117 (Ill. App. Ct. 1996), Frye, 293 F. at 1014 (defining the relevant scientific community for the systolic blood pressure test as physiologists and psychologists).

\textsuperscript{269} Paul Giannelli, \textit{The Admissibility of Novel Scientific Evidence}, 80 COLUM. L. REV. 1197, 1209-10 (1980).

\textsuperscript{270} See Venegas, 954 P.2d 525 (relying on almost exclusively on a report by the National Research Council to conclude a science has received general acceptance by an undefined “relevant scientific community). \textit{But see} Commonwealth v. Blasioli, 713 A.2d 1117, 1119 (Pa. 1998) (defining the relevant scientific community to ascertain the validity of statistical probability to DNA forensic analysis as “the disciplines of population genetics, human genetics and population demographics.”).
divine whose opinions the courts considered. Knowing who the court considered becomes important in at least two instances: (1) when a party seeks to demonstrate the relevant scientific community no longer accepts the science as reliable;\(^{271}\) and (2) when a court from a different jurisdiction looks to this decision when conducting its own \textit{Frye} test on the same science.\(^{272}\)

Defining the relevant scientific community is an essential but often ignored step when determining the acceptance of any scientific evidence.

\textbf{b. What to do with the Community}

Once the court has established the relevant scientific community, it has an extremely limited interaction with it. The judge serves as the overseer of an election where the scientific community decides it accepts the scientific evidence as reliable.\(^{273}\) Then the judge receives the votes, counts them, and declares a victor. This is a passive role for the judge, he does not inquire into the reliability or soundness of the technology or theories used by the scientific

\footnotesize{\(^{271}\) See, \textit{e.g.}, Venegas, 954 P.2d at 544 (Cal. 1998) (“…if a published appellate decision in a prior case has already upheld the admission of evidence based on such a showing [of general acceptance], that decision becomes precedent for subsequent trials in the absence of evidence that the prevailing scientific opinion has materially changed.”).}

\footnotesize{\(^{272}\) See People v. Ferguson, 526 N.E.2d 525, 532 (Ill. App. Ct. 1988) (citing cases from California). This is an issue because the jurisdictions require different levels of community acceptance in order to satisfy general acceptance. \textit{Compare} Brim, 695 So.2d at 273 (“a clear majority”) \textit{with} Leahy, 882 P.2d at 329 (“‘general acceptance’ does not require unanimity, a consensus of opinion, or even majority support by the scientific community.”).}

\footnotesize{\(^{273}\) See Jones, 548 A.2d at 42 (“…the focus is primarily on counting scientists votes, rather than verifying the soundness of a scientific conclusions…”). \textit{But see} Hummert, 933 P.2d at 1196, n. 5 (“\textit{Frye} does not ask judges to engage in a numbers game. General acceptance is determined by considering “the quality, as well as quantity, of the evidence supporting or opposing a new scientific technique. Mere numerical majority support or opposition by persons minimally qualified to state an authoritative opinion is of little value…” (quoting Leahy, 882 P.2d at 336-37).}
The judge only considers if the community accepts the scientific evidence as reliable or not.\textsuperscript{275}

Describing the judge’s roles as a vote-counter gives the impression that the courts grant each community member one vote in the process. This description makes little sense theoretically and practice shows that this is untrue.\textsuperscript{276} Certain opinions on science will receive greater weight than other. Understandably, an opinion from recognized experts within the field receives greater weight than a new or fringe person.\textsuperscript{277} Also, where an article is published may carry greater weight, an article published in \textsc{Science} likely carries greater significance than one published in \textsc{Popular Science}.\textsuperscript{278}

This analogy to an election fails to appreciate the judge’s role as the finder of fact and gives a misleading perception that there is precision in determining the degree of acceptance. Instead of collecting votes from community members, the judge relies on literature and expert testimony as a means of ascertaining the community’s acceptance.\textsuperscript{279} This process inherently

\begin{footnotesize}
\textsuperscript{274} \textit{Id.}

\textsuperscript{275} \textit{See} Marsh v. Smyth, 12 A.D.3d 307 (N.Y. App. Div. 2004) (reversing the trial court for deciding merits of proffered scientific evidence, instead of only considering the general acceptance of it by the scientific community).

\textsuperscript{276} \textit{See} Johnson, 922 P.2d at 299 (“We, too, believe that endorsement by the NRC [National Research Council] … is strong evidence of general acceptance within the relevant scientific community.”).

\textsuperscript{277} \textit{See} Leahy, 882 P.2d at 336-37 (“Of course, the trial courts, in determining general acceptance issue, must consider the quality, as well as quantity, of the evidence supporting or opposing a new scientific technique. Mere numerical majority support or opposition by persons minimally qualified to state an authoritative opinion is little value…”).


\textsuperscript{279} \textit{See} Commonwealth v. Middleton, 550 A.2d 561, 566 (Pa. Super. Ct. 1998) (“… expert witness’s opinion is not merely based upon his personal views, or the views of a small segment of the scientific community, but rather, is to the effect that the scientific procedure has gained general acceptance in the scientific community as a whole due to its reliability, as evidence by published scientific studies, then the testimony of a single expert is not deficient merely because numerous experts were not called to testify.”).
requires the judge to consider the witness’s credibility when considering the persuasiveness to
the testimony.\textsuperscript{280} This is in addition to assigning different weight to opinions based on the
expertise of who made the vote.

The courts undertake a more active participation than what they claim. While the courts
do not independently investigate the science, they must decide how much weight they will assign
to each vote.\textsuperscript{281} A judge could interject his own evaluation of evidence by assigning weight to
different opinions based upon his personal preference, but such a possible harm is systemically
unavoidable. This weighted voting process reflects the state of science as some possess greater
knowledge than others and the courts should reflect this difference.

\textbf{c. How Many Must Accept It}

After “counting votes” from the scientific community, the courts must determine how
many votes are necessary. Unfortunately, the case law provides little guidance on this issue. As
noted earlier, the level acceptance must be greater than amount needed to satisfy general
acceptance.\textsuperscript{282} One must examine the definition of general acceptance to arrive at a level of
acceptance necessary to make a science familiar.

\textbf{i. Defining General Acceptance}

\textsuperscript{280} See Smyth, 12 A.D.3d at 311 (“… the implication of this approach [counting scientists votes] is that it entails a
process of weighing the views of each side’s experts, it is not surprising that a trial court would be tempted to weigh
the relative merits of the experts introduced by each side to decide whether the proposed expert testimony is reliable.
However, even where the court’s task is weighing, or counting, the scientists’ votes, nevertheless, it is not the
court’s job to decide … which expert’s conclusions are correct.”).

\textsuperscript{281} See People v. Shirley, 723 P.2d 1354, 1377 (Cal. 1982) (“scientists significant either in number or expertise
publicly oppose [a new techniques] as unreliable…”) (emphasis added).

\textsuperscript{282} See supra Section IV.D.1.c.
The courts and commentators have long struggled with the definition of general acceptance. All the jurisdictions agree that general acceptance does not require unanimity among the scientific community. Yet, the jurisdictions are divided where on a spectrum of acceptability to place general acceptance. In fact multiple jurisdictions have a case that supports one standard; then a later case adopts another standard without addressing this change. One level requires a “clear majority”, another requires a “consensus”, and the last something less than a majority or consensus.

The most stringent standard for general acceptance requires the proffering party to demonstrate the scientific evidence has been accepted as reliable “by a clear majority of the community.” This higher standard relates to the courts’ concern over the persuasive position

---

283 See, e.g., Giannelli, supra note 269, 80 COLUM. L. REV. at 1210-11 (observing the variety of definitions for general acceptance).

284 See, e.g., Ex parte Perry, 586 So.2d 242 (Ala. 1991).


287 Brim, 695 So.2d at 272 quoting Guerra, 690 P.2d at 656. See also State v. Superior Court In and For Cochise County, 718 P.2d 171, 181 (Ariz. 1986) (citing an authority that states general acceptance needs a “substantial majority”), Magaletti v. State, 847 So.2d 523, 528 (Fla. Dist. Ct. App. 2003).

The California Supreme Court has given contradictory guidance concerning the level of acceptance necessary. In Guerra the court noted a “clear majority” was necessary, yet in a later case the Supreme Court noted that “general acceptance’ does not require … even majority support…” Compare Venegas, 954 P.2d at 549 (Cal. 1998) quoting Guerra, 690 P.2d at 656 (“a clear majority”) with Leahy, 882 P.2d at 329.
science may make on a case’s outcome. As such, these courts require a clear assurance of acceptance by the scientific community before it will allow the evidence to enter the courtroom.

The middle standard requires that the scientific community has reached a “consensus versus controversy over a particular technique…” Under this standard, the courts will find general acceptance even if a debate still exists within the community. The courts will examine the debate closely and “only significant dispute between qualified experts will preclude a finding of ‘general acceptance.’” This position takes a middle ground between the stringent and lenient standard.

The newest and most lenient standard of general acceptance holds that “‘general acceptance’ does not require unanimity, a consensus of opinion, or even majority support by the scientific community.” This standard only requires a significant portion of the scientific community to accept the science. The courts will still admit the scientific evidence even if the scientific community continues to debate it. This approach permits the courts to admit more scientific evidence because it requires a lesser amount of acceptance. This definition most

---

288 See Stoll, 49 Cal.3d at 1155-56 (noting the concern that scientific evidence can have great influence over the outcome of a case).

289 Jones, 548 A.2d at 42. See also Dalcollo, 669 N.E.2d at 387.

290 But see Acri, 662 N.E.2d 115 (observing two qualified communities that dispute the acceptance of a science will preclude a finding of general acceptance).

291 Dalcollo, 669 N.E.2d at 387 (examining the literature and finding despite the claim of a “bitter debate”, the scientific community generally accepts FBI’s calculations of statistical probabilities for a DNA match is generally accepted).

292 Leahy, 882 P.2d at 329.
corresponds with the modern liberal approach to evidence that encourages the courts to admit all relevant evidence.\footnote{293}

To define general acceptance, the courts should adopt lenient standard as it offers the best compromise between the desire to keep “junk science” out of the courtroom and admit all relevant testimony. The scientific community has a delay in adopting any science that later proves to be reliable.\footnote{294} Thus the courts should not force litigants to wait until a “clear majority” accepts the scientific evidence as this would place too great of a delay on admitting new evidence. The consensus versus controversy standard possibly forces the courts to engaged in challenging task of determining if debate is significant or not.\footnote{295} This type of investigation can overly tax limited judicial resources.\footnote{296}

The lenient standard still ensures reliability without placing too onerous of a burden on the proffering party. The admission of the evidence on the lower standard does not place the opposing party in an unfair position. The opposition can still rely on the traditional methods for attacking evidence.\footnote{297} They can cross-examine the scientific expert as well as present their own experts to challenge the admitted science.

\textbf{ii. Defining the Level of Acceptance for Novelty}

\footnote{293} See, \textit{e.g.}, People v. Segura, 923 P.2d 266, 270 (Colo. App. 1995) (J. Jones, concurring) (observing the modern trend to liberalize the rules of evidence to encourage great admissibility).

\footnote{294} See Blum, 1996 WL 1358523, page *249-50.

\footnote{295} Dalcollo, 669 N.E.2d at 387.


\footnote{297} See Jones, 548 A.2d at 39 (“The party opposing the evidence, of course, may challenge the weight the jury ought to give it.”).
Novelty should depend on if a “clear majority” of the scientific community accepts the scientific evidence. This higher standard ensures that the scientific community has properly evaluated the science in question and ceased considering it something not previously imaginable. This higher standard also serves judicial efficiency and makes the term novel workable. If the courts adopt a lower standard, such as “consensus versus controversy”, the courts would have to look closely at a debate within the scientific community to reach a solution about the scientific evidence’s novelty. This would make the novelty requirement worthless as litigants and the courts would conserve their resources and only contemplate general acceptance.

The courts could quickly examine the authorities supporting or contradicting the scientific evidence to conclude the issue of novelty when using a “clear majority” standard. A few persuasive authorities could show the court that a clear majority of the scientific community accepts it. In the reverse, the opposing party needs to cite a single highly persuasive source to show that the scientific community has yet to accept it by a clear majority. This process would save judicial resources by avoiding a prolonged *Frye* analysis for non-novel scientific evidence. If the proffering party lacks such persuasive authorities, the science has not likely gained a clear majority, thus an analysis into general acceptance would be necessary.

The forgoing standard could not operate in jurisdictions that require the proffering party to demonstrate general acceptance by a clear majority. If these jurisdictions are unwilling to adopt a lower standard for general acceptance, then the acceptance required for familiarity would need to be higher, likely to a threshold just shy of unanimity. This system would be unworkable.

---

298 See Magaletti, 847 So.2d at 528.
as a collection of people rarely reach near unanimity on any issue. Thus the novelty prong would be effectively meaningless as few sciences would ever be classified as familiar instead of novel.

### 3. Application of this Approach

Our understanding of the natural world constantly changes as discoveries create new theories, confirm current ones, or disprove theories. Given the constant flux of scientific knowledge, the acceptance of any scientific idea will also change. For example, the scientific community accepted for centuries Ptolemy’s view that the sun rotated around the Earth. Yet, Nicolaus Copernicus’ work challenged that view and his heliocentric theory ultimately became widely accepted. The difference between theories does not need to be so stark. Copernicus argued that the planets rotated around the sun in circles. While accepted for a short period, this concept was ultimately rejected when Johannes Kepler demonstrated that planets moved in an ellipse, which became accepted by the scientific community.

The courts can account for a change in scientific opinion of any evidence when it defines novelty in relation to the acceptance of the scientific evidence. As long a clear majority of the scientific community accepts the science, the courts will not conduct a Frye analysis. Yet, when the science fall below a clear majority it becomes novel and it must satisfy a general acceptance test to gain admissibility. For example, Ptolemy’s geocentric theory would not have been novel prior to Copernicus’ proposition of heliocentricity; thus geocentricity would have been

---


300 See Lucero, 85 P.3d at 1062.

301 **Jackson J. Spielvogel, Western Civilization, Volume B**: 1300-1815 486-89 (7th ed.).

302 *Id.*
admissible without a *Frye* test. Yet following the adoption of Copernicus’ heliocentric theory, geocentric lost acceptance within the community, thereby becoming novel and requiring a *Frye* test to gain admission. This demonstrates that the same theory can go from admissible without a *Frye* test to requiring a *Frye* test before gaining admissibility, all depending on the scientific community’s acceptances.

### i. Shortcomings

Defining novelty by the acceptance of the scientific community presents multiple problems. The acceptance test depends on the imprecision of quantifying the non-numeric concept of community acceptance. This matter is further complicated because the courts assign a different weight to opinions based on factors such as the authority if the opinion-maker. This approach wrongly assumes that the relevant scientific community can be easily defined, the courts can discover its membership, and the courts can find if a majority accepts the science. Given these complications, it appears the courts in some cases might as well read tea leaves to discern the level acceptance.

Yet these complications match the difficulty in ascertaining the scope of any testimony concerning a community’s opinion. For the novelty prong specifically, the intellectual gymnastics is simplified by the standard of acceptance, a clear majority. This demands the experts and literature leave little doubt about the scientific evidence’s standing within that community. The decision to rely on the community’s opinion is the correct decision because scientists and not judges stand in a special position to interpret the acceptance of scientific evidence by the scientific community.

### ii. Judicial Notice
The courts rarely take judicial notice of scientific evidence and seem to equate finding scientific evidence as familiar instead of novel as a form of taking judicial notice of reliability.\textsuperscript{303} They fear that “judicial notice can be a means of manipulating Frye by allowing courts ‘to declare a priori, some technique “novel” and others not.’”\textsuperscript{304} Courts appear to only take judicial notice when the evidence is practically undisputed by any member of the scientific community.\textsuperscript{305} The courts justify their reluctance on their limited institutional competency; judges are not scientists and “a courtroom is not a laboratory…”\textsuperscript{306} Courts prefer the parties to debate the acceptance reliability of scientific evidence rather than foreclosing the issue completely from the consideration.\textsuperscript{307}

Courts ruling on novelty via the acceptance methodology do not awake the fear that judges will declare a priori on novelty. The process for ruling on novelty requires the courts to consider the scientific community’s opinion of the science. When the courts find the evidence as familiar, it only means that the evidence will be admitted without undergoing a Frye test. The parties can still introduce evidence about the reliability of the science.\textsuperscript{308}

\textsuperscript{303} See U.S. Sugar Corp., 787 So.2d at 16, Canulli, 792 N.E.2d 438 (reversing a trial court for taking judicial notice of the reliability of laser technology to measure the speed of a moving vehicle).

\textsuperscript{304} Id.

\textsuperscript{305} See Porter, 618 A.2d at 645, n. 7 (“We will take judicial knowledge of the scientific fact that the earth is round. At the same time, we know there are still individuals who claim to be scientists who have other theories…”), Starr, 655 P.2d at 798-99, n. 3 (imploring the trial court to take judicial notice of the fundamental principles of Newtonian mechanics).

\textsuperscript{306} Stokes v. State, 548 So.2d 188, 193-94 (Fla. 1989).

\textsuperscript{307} But see WIGMORE, 9 EVIDENCE IN TRIALS AT COMMON LAW § 2567a (Chadbourn rev. 1981) (advocating that judicial notice only creates a presumption of the truth of the fact, which the opposing party can bring forth evidence to dispute the noticed fact).

\textsuperscript{308} See Blasioli, 713 A.2d at 1119 (observing that the trial court permitted the opposing party to attack the reliability of the scientific evidence during the trial).
Still, judges should not require a briefing every time science enters the courtroom, nor should they permit the parties to dispute over the validity of the evidence in limited situations. Certain forms of scientific evidence have nearly universal acceptance and the courts should not waste time by permitted the litigants to argue about its reliability, even if some expert would be willing to argue to the contrary. In the instances of near universal acceptance, the judge should whole heartedly embrace judicial notice and foreclose the matter.

If the scientific community possesses a near universal acceptance of a science, then the courts should not question it. The fear that the science may prove in the future to be wrong should not concern the courts. This issue highlights a key difference between courts and the sciences. The courts resolve a dispute with the information as known when the case comes before them. In turn, the sciences seek to explain the natural world. If courts seriously fear that a case determining piece of scientific evidence may prove to be wrong later, then they should refuse to admit any form of scientific evidence. Since the courts have elected to admit scientific evidence, they must accept the scientific evidence as the scientific community

309 See Nicketta v. National Tea Co., 87 N.E.2d 30, 32 (Ill. App. Ct. 1949) (The fact that competent medical authority would testify that a human being could contract trichinosis by eating pork after it has been cooked does not prove or tend to prove that it is not well established and irrefutable scientific fact that human being cannot contract trichinosis from eating pork which has been properly cooked.”).

310 See Varcoe v. Lee, 181 P. 223, 226 (Cal. 1919) (observing that judicial notice forecloses a party from attempting to introduction contrary evidence).


312 See Id. (“Science seeks the discovery of ‘universal principles and their application… Science can wait a month, a year or a century until a body of knowledge develops and a scientific revolution results in a new consensus or paradigm.”).

313 Even the most widely accepted scientific principles are open to revision. For example, Isaac Newton’s laws of motion stood unquestioned within the physics’ community for centuries, but Albert Einstein’s theory of relatively shook the community to its core and observed that Newton was only partly correct. See ANTHONY J. G. HEY & PATRICK WALTERS, EINSTEIN’S MIRROR 94 (1997).
considers it when the trial occurs.\textsuperscript{314} Thus if the scientific community universally accepts the science, the courts should take judicial notice of it.\textsuperscript{315}

The \textit{Frye} test depends on the scientific evidence being novel, but the term proved to never be a ground of great dispute in litigation, nor will it likely ever be. Many practical concerns explain this result. Litigants and courts fail understand this concept, so both avoid it. Occasionally a party conclusory calls a science novel or not novel.\textsuperscript{316} The courts frequently ignore this allegation and goes on to discuss the general acceptance of the science.\textsuperscript{317} Other times the courts respond also in a conclusory manner and hold the science is not novel.\textsuperscript{318} In either case, the courts fail to provide any future guidance on this issue.

The courts’ unfamiliarity with the sciences generally directs them to cautiously treat the issue of novelty.\textsuperscript{319} The courts unsure how to define novelty equates ruling on that ground to taking judicial notice, which the courts have sought to apply sparingly.\textsuperscript{320} Rather than simply holding a science is not novel and closing the matter; the court allows both sides to bring forth evidence about the scientific community’s acceptance.

\textsuperscript{314} See Christopher Onstott, \textit{Judicial Notice and the Law’s “Scientific” Search for Truth}, 40 AKRON L. REV. 465, 466 (2007) (observing that certain forms of scientific evidence later proved to be untrue).


\textsuperscript{317} See Donaldson, 767 N.E.2d at 326-27, Fraser, 57 A.D.3d at 417-18.

\textsuperscript{318} See Canulli, 792 N.E.2d at 444-45 (reversing the trial court for taking judicial notice that laser evidence is reliable for measuring the speed of vehicles and remanding for a \textit{Frye} hearing).

\textsuperscript{319} See Donnellan, 891 N.E.2d at 480 (observing that the trial court “prudently” held a \textit{Frye} hearing even though the science was no longer novel).

\textsuperscript{320} U.S. Sugar Corp., 787 So.2d at 16.
The novelty of a science is often known entering into litigation, thus the parties rarely dispute the matter. Some issues are clearly new scientific evidence, especially in toxic tort cases where the issue of causation is central to the dispute. In these cases, the scientific community has rarely fully researched the causation issue, thus the litigation present a novel science before the court. Likewise, the litigants rarely dispute familiar scientific evidence. Rarely will a party challenge the proffering party’s use of Newtonian mechanics to prove the cause of an automobile accident.

These practical considerations that restricted the reliance on novelty as a true standard of limiting the Frye test’s application will likely continue into the future. Even if the litigants possess knowledge about how to define novelty, they will still avoid disputing the matter. Novelty and general acceptance only differ in one respect, how much acceptance is necessary. Unless the scientific community’s acceptance is overwhelming, the proffering party would likely conserve its resources by conceding novelty and arguing that the science is generally accepted, which is a lower standard.

E. Wrong Factors

Sometimes the courts will decide on the necessity of a Frye test depending on other factors than if the evidence in question is scientific or not. Some trial courts have permitted greater leeway for criminal defendants to admit evidence – depending on the possible severity of

321 Though some courts have been willing to narrow the application of the Frye test as a means to permit individuals to still have a means of redress in toxic tort situations. See Parker, 857 N.E.2d at 1120 (“As with any other type of expert evidence we recognize the danger in allowing unreliable or speculative information (or “junk science”) to go before the jury with the weight of an impressively credentialed expert behind it. But, it is similarly inappropriate to set an insurmountable standard that would effectively deprive toxic tort plaintiffs of their day in court.”).

punishment. For example, a trial court decided to admit certain evidence based solely on the nature of the case. The trial judge wrote, “If this was a products liability case, I would not allow the testimony in.” In other words “The science … is insufficient for purposes of any other than a first-degree murder case.” The appellate court reversed this reasoning by stating the “rules of evidence apply to all parties in a court of law.”

In other instances, the court will classify evidence as scientific, if it is “likely to have an enormous effect in resolving the matter in controversy.” This again wrongly focuses not on the evidence, but on the evidence’s relationship in a particular proceeding. The focus on the controversy would ruin the basic goal of uniform application of scientific evidence. Under this approach, evidence could be admitted.

V. CONCLUSION:

The previous analysis demonstrated that the courts overall have addressed the application of the Frye analysis in a piecemeal fashion with varying levels of consideration. The courts have largely avoided defining the term novel and only moderately considered the definition of scientific. Only the categorization of an expert’s opinion has received any detailed analysis from the courts. Unfortunately, this analysis discovered a wide divergence between the jurisdictions in defining the terms for test, for example some jurisdictions apply the abuse of standard level or review while others use the de novo standard. Yet, the fact that the same jurisdiction will change its course concerning the test without even noting the change is even more problematic. For

323 Demeniuk, 888 So.2d at 658.
324 Id.
325 Id. at 660.
example, some jurisdictions have defined the term general accepts in different ways without mentioning this divergence,

This study though is hopefully the first of numerous ventures into analyzing and synthesizing the Frye test. The clarification of various problems will hopefully allow the courts to rectify them. This analysis only concerned the application of the Frye test. The issues associated with applying the general acceptance standard remain for another day. Additionally, evaluations about how the Frye jurisdictions address specific forms of scientific evidence would be helpful. Each study further pulls the Frye dragon out of his cave so the legal community can properly evaluate it.327

327 See Oliver Wendell Holmes, The Path of the Law, 10 HARV. L. REV. 457, 469 (1897).
John Johnson III
“Mystic Infallibility” and “Fancy Devices”
Page 65 of 66

Figures

Key:

*Italic*: Requires general acceptance if novel
*Bold*: A conclusion and does not require general acceptance