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WHY ILLINOIS SHOULD ABANDON *FRYE*'S GENERAL ACCEPTENCE STANDARD FOR THE ADMISSION OF NOVEL SCIENTIFIC EVIDENCE

ANDREW R. STOLFI*

INTRODUCTION

Since the end of World War I, Americans literally have been to the moon and back. The Great Depression, the Civil Rights movement, and Watson & Crick have all had an impact on what we know and how we go about our lives. Our judiciary has not been immune to these changes. Seminal cases such as *NLRB v. Jones & Laughlin Steel Corp.*,¹ *Brown v. Board of Education*,² and *Griswold v. Connecticut*³ are all examples of societal influences persuading the High Court in the last seventy years. This demonstrates a perpetual seesaw, where our nation evolves due to both social and scientific influences and the courts follow suit. At times, however, the judiciary lags far behind the advances made in the laboratory.

In the 1923 case *Frye v. United States*, the Court of Appeals for the District of Columbia established what would long remain the dominant standard for determining the admissibility of novel scien-

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1. 301 U.S. 1 (1937). This was the major case testing the constitutionality of the National Labor Relations Act of 1935, one of President Roosevelt's New Deal plans. The Court had come under scrutiny from the President for several years for consistently rejecting New Deal regulations as unconstitutional. The President had recommended a "court packing plan," which was eventually rejected by Congress, but not before one Justice retired and the Court seemingly changed its direction in several decisions regarding regulatory statutes. See also ERWIN CHERMERINSKY, *CONSTITUTIONAL LAW, PRINCIPLES AND POLICIES* ch. 3 § 3.3.4 (2d ed. 2002), for further comments and cases on subject.

2. 347 U.S. 483 (1954). Arguably the most important Supreme Court decision ever handed down, *Brown* gave life and legal support to the civil rights movement of the 1960s.

3. 381 U.S. 479 (1965). The Court recognized a zone of privacy arising from the "penumbra" of the First Amendment, which was a basis for the decision in *Roe v. Wade*, 410 U.S. 113 (1973).

tific evidence at trial.⁴ In an opinion without a single citation, the court held that to be admissible at trial, an expert's testimony "must be sufficiently established to have gained general acceptance" in the relevant scientific community.⁵ This so-called *Frye* general acceptance standard stood as the dominant standard for the admission of scientific evidence in state and federal jurisdictions for nearly seventy years. The United States Supreme Court sounded the demise of *Frye* in *Daubert v. Merrell Dow Pharmaceutical, Inc.*,⁶ a 1993 decision holding that the adoption of the Federal Rules of Evidence supplanted the *Frye* standard. To date, thirty-four jurisdictions have rejected,⁷ three have modified,⁸ and fourteen still utilize the *Frye* standard.⁹ Illinois remains in the minority, retaining the outdated general acceptance standard.¹⁰

This Note examines the standard for the admission of novel scientific evidence at trial in Illinois. It traces the nationwide emergence, dominance, and current departure from *Frye's* general acceptance standard due to the inherent problems and ambiguities involved in *Frye's* application, and the problematic results that arise from using *Frye*. This Note then focuses on the conflict between *Frye* and *Daubert*, and *Daubert's* impact on the continued application of *Frye* in Illinois. As the Illinois Supreme Court has not yet addressed this conflict, this Note examines *Daubert's* impact, in part through an assessment of several jurisdictions that have considered the issue.

Part I of this Note traces the evolution of the standard for admission of novel scientific evidence over the past seven decades.¹¹ It outlines the transformation from *Frye* to *Daubert*. Part II discusses the *Frye* hydra, identifying the jurisdictions that adhere to *Frye*, those that utilize a modification of *Frye's* general acceptance standard, and those that have rejected *Frye* in favor of another approach.¹² Part III of this Note traces the Illinois approach to the admission of novel

4. *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923); see *infra* notes 22–31 and accompanying text.

5. *Frye*, 293 F. at 1014.

6. 509 U.S. 579 (1993).

7. See *infra* notes 107–25 and accompanying text, tbls. 1, 3, 4.

8. See *infra* notes 95–106 and accompanying text, tbls. 1, 3, 4.

9. See *infra* notes 78–94 and accompanying text, tbls. 1, 3, 4.

10. See *Donaldson v. Cent. Ill. Pub. Serv. Co.*, 767 N.E.2d 314, 323 (Ill. 2002) ("Illinois law is unequivocal: the exclusive test for the admission of expert testimony is governed by the standard first expressed in *Frye v. United States*.").

11. See *infra* notes 16–69 and accompanying text.

12. See *infra* notes 70–125 and accompanying text.

scientific evidence, including the Illinois Supreme Court's recent rejection of the Fourth District Appellate Court's "*Frye* plus reliability" standard.¹³ Part IV discusses the arguments supporting and denouncing both *Frye* and *Daubert*.¹⁴ Part IV also asserts that *Frye* has run its course, outliving its usefulness in our high-speed, technologically advanced nation. This Note then concludes that in order to protect the jury's fact-finding role, Illinois should abandon the outdated general acceptance standard in favor of either the more flexible approach of *Daubert* or at least a Federal Rule of Evidence ("FRE") 702-based approach. Finally, this Note provides an appendix containing several tables that summarize where all fifty states and the federal courts stand on the issues raised in this Note.¹⁵

I. *FRYE TO DAUBERT*: EVOLUTION OF THE ADMISSION OF NOVEL SCIENTIFIC TESTIMONY IN THE FEDERAL COURTS

The primary function of a trial is to determine the truth. To perform this function properly the trier of fact must receive relevant, reliable evidence. In order to be relevant, evidence must have probative force. In other words, the evidence must tend to make the existence of a determinative fact more probable or less probable than it is without the evidence. On the other hand, courts gauge reliability in relation to the form of the evidence presented. They evaluate the reliability of a statement according to the hearsay rules,¹⁶ while evaluating scientific principals and theories based on their degree of originality.¹⁷ Well-established scientific principals and theories are worthy of judicial or legislative notice.¹⁸ For example, in Illinois, forensic use of restriction fragment length polymorphism analysis

13. See *infra* notes 126–70 and accompanying text.

14. See *infra* notes 172–225 and accompanying text.

15. See *infra* tbls. 1–4.

16. See, e.g., FED. R. EVID. 801–07.

17. There is an important distinction in the difference between the relevance of a scientific technique or procedure and its reliability. The relevance of a particular scientific technique is subject to variance depending on the facts of a particular case. It would be inappropriate to determine the reliability of a scientific technique in the same manner. Considerations of uniformity and consistency dictate the need for a legal standard to judge the reliability of a scientific technique or procedure.

18. The Maryland Supreme Court noted this, asserting:

On occasion, the validity and reliability of a scientific technique may be so broadly and generally accepted in the scientific community that a trial court may take judicial notice of its reliability. Such is commonly the case today with regard to ballistics tests, fingerprint identification, blood tests, and the like.

Reed v. State, 391 A.2d 364, 367 (Md. Ct. App. 1978) (citation omitted).

(hereinafter, "RFLP") (a type of DNA testing) is so well established that trial courts may take judicial notice of its reliability, thereby relieving the proponent of RFLP evidence the burden of establishing its admissibility.¹⁹ Novel scientific principals and theories, however, are not subject to such notice. Therefore, courts have established certain standards to ensure the reliability of novel scientific evidence.²⁰ The importance of these standards cannot be understated, for as the California Supreme Court emphasized, "[I]ay jurors tend to give considerable weight to 'scientific' evidence when presented by 'experts' with impressive credentials."²¹ The evolution of an appropriate standard for the admission of novel scientific evidence began in 1923, with the unassuming decision of *Frye v. United States*.

A. *Frye v. United States: General Acceptance in the Relevant Scientific Community*

In *Frye v. United States*, the Court of Appeals for the District of Columbia considered the admissibility of evidence derived from a systolic blood pressure test.²² With neither explanation nor cited authority, the court proclaimed:

Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, 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.²³

Based on its newly pronounced "general acceptance" standard, the court held the systolic blood pressure test had "not yet gained such

19. See *People v. Hickey*, 687 N.E.2d 910, 920-21 (Ill. 1997) (holding that a *Frye* hearing to determine the admissibility of the forensic use of RFLP analysis was not needed due to the court's prior ruling of its admissibility).

20. See 1 PAUL C. GIANNELLI & EDWARD J. IMWINKELRIED, *SCIENTIFIC EVIDENCE* §§ 1-5, 1-6, 1-7 (3d ed. 1999) (discussing the three major approaches to the admission of novel scientific testimony: *Frye*, the relevancy approach, and *Daubert*).

21. *People v. Kelly*, 549 P.2d 1240, 1245 (Cal. 1976).

22. *Frye v. United States*, 293 F. 1013, 1013 (D.C. Cir. 1923). The device used in *Frye* was a crude forerunner of the polygraph machine, "more accurately described as a monograph, since, unlike the modern polygraph, it measured only one physiological response—blood pressure." Paul C. Giannelli, *The Admission of Novel Scientific Evidence: Frye v. United States, a Half-Century Later*, 80 COLUM. L. REV. 1197, 1204 n.41 (1980).

23. *Frye*, 293 F. at 1014.

standing and scientific recognition among physiological and psychological authorities as would justify the courts in admitting [it].”²⁴

Frye imposes a significant burden for the admission of novel scientific evidence: general acceptance by the relevant scientific community.²⁵ The general acceptance standard requires a two-step analysis. First, the court must identify the scientific community in which the underlying principle falls.²⁶ Second, it must be determined whether members of the identified scientific community have generally accepted the principle.²⁷

Initially, *Frye’s* general acceptance standard received little recognition.²⁸ As the introduction of novel scientific techniques increased, however, judges cited *Frye* as leading authority.²⁹ The rush by State courts to adopt *Frye* mirrored the D.C. Circuit’s opinion in one unfortunate respect, it was devoid of supporting justification.³⁰ Eventually, the *Frye* standard gained general acceptance itself and dominated the admissibility of novel scientific evidence for nearly seventy years.³¹

24. *Id.*

25. The process whereas a novel technique gains general acceptance has been described as “an evolutionary process.” A novel technique passes through an “experimental” stage, where it is subject to scrutiny by the relevant scientific community, to a “demonstrable” stage, where successful testing allows for judicial recognition. Giannelli, *supra* note 22, at 1205.

26. See, e.g., *Reed v. State*, 391 A.2d 364, 368 (Md. Ct. App. 1978).

The identity of the relevant scientific community is, of course, a matter which depends upon the particular technique in question. In general, members of the relevant scientific community will include those whose scientific background and training are sufficient to allow them to comprehend and understand the process and form a judgment about it.

Id.

27. What exactly constitutes general acceptance has never been clearly defined. See *infra* text accompanying notes 188–91.

28. David E. Bernstein, *Frye, Frye, Again: The Past, Present, and Future of the General Acceptance Test*, 41 JURIMETRICS 385, 388 (2001).

29. Giannelli, *supra* note 22, at 1204.

30. *Id.* at 1206 (adding that judicial adoption without a supporting rationale was especially true of the early cases to adopt *Frye*); see also *infra* notes 128–70 and accompanying text (discussing the lack of supporting rationale present throughout Illinois’ treatment of *Frye*).

31. See Giannelli, *supra* note 22, at 1205 (writing in 1980 that “the *Frye* test has dominated the admissibility of scientific evidence for more than half a century”); see also *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 585 (1993) (since its formation “general acceptance” has been the dominant test for determining admissibility of scientific evidence at trial); *Reed*, 391 A.2d at 368 (general acceptance has become the standard in almost all the courts in the country that have considered the issue); GIANNELLI & IMWINKELRIED, *supra* note 20, § 1-5, at 11.

B. *Daubert v. Merrell Dow: The Reliability Approach*

In 1993, the U.S. Supreme Court displaced *Frye* with the landmark decision of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*³² *Daubert* involved the admissibility of expert testimony linking the use of Bendectin, an antinausea drug, with birth defects.³³ The Court held that the Federal Rules of Evidence³⁴ displaced *Frye*'s general acceptance standard.³⁵ In so ruling, the Court noted "a rigid '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."³⁶ As for the new standard, the Court held that the rules themselves were to guide the courts, with judges acting as "gatekeepers"³⁷ protecting the jury from "junk science."³⁸ As gatekeeper, the trial judge has the task of ensuring that

32. 509 U.S. 579 (1993). The Court granted certiorari to resolve a circuit split concerning the standard for admission of scientific evidence in federal courts. *Id.* at 585.

33. *Id.* at 582–85. The case involved a summary judgment battle based on conflicting expert witness affidavits. The defense claimed that there was no link between ingestion of Bendectin and birth defects, as was shown through the review of more than twenty published studies involving over 130,000 patients. The plaintiffs countered with numerous experts of their own, all claiming a link between the drug and birth defects; however, their claims were supported by clinical studies and "reanalysis" of previously published studies. *Id.*

34. Specifically, the Court held that FRE 702, entitled "Testimony by Experts," spoke to the contested issue, noting that nothing in the text of FRE 702 "establishes 'general acceptance' as an absolute prerequisite to admissibility." *Id.* at 588. When *Daubert* was decided in 1993 the Rule provided, "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." FED. R. EVID. 702 (1972), reprinted in PAUL F. ROTHSTEIN, UNDERSTANDING THE NEW EVIDENCE RULES 94 (1973). The Rule was amended in 2000 in response to *Daubert* to include, after "otherwise," "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." FED. R. EVID. 702.

35. *Daubert*, 509 U.S. at 589. "Nothing in the text of this Rule [702] establishes 'general acceptance' as an absolute prerequisite to admissibility. Nor does respondent present any clear indication that FRE 702 or the rules as a whole were intended to incorporate a 'general acceptance' standard." *Id.* at 588.

36. *Id.* (internal citations omitted).

37. *Id.* The Court introduced the "gatekeeping" responsibility of a trial judge by stating: That the *Frye* test was displaced by the Rules of Evidence does not mean, however, that the Rules themselves place no limits on the admissibility of purportedly scientific evidence. Nor is the trial judge disabled from screening such evidence. To the contrary, under the Rules the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.

Id. at 589.

38. While an exact definition of "junk science" cannot easily be found, it seems to embody unproven, and perhaps even frivolous, theories or techniques that could unduly influence the jury. Junk science may look, smell, and taste like reliable science, but it is not.

an expert's testimony is both relevant and reliable.³⁹ To perform this task, the trial judge must determine at the outset whether, pursuant to FRE 104(a),⁴⁰ "the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue."⁴¹ Thus, the trial judge must resolve whether the proffered scientific evidence satisfies the requirements of FRE 702. Accordingly, in order to enable a trial judge to make the preliminary FRE 702 inquiry, the Court offered workable definitions of "scientific" and "knowledge."⁴² The Court defined scientific as implying "a grounding in the methods and procedures of science."⁴³ Knowledge, the Court held, "connotes more than subjective belief or unsupported speculation. The term 'applies to any body of known facts or to any body of ideas inferred from such facts or accepted as truths on good grounds.'"⁴⁴ Therefore, as the Court declared, "the requirement that an expert's testimony pertain to 'scientific knowledge' establishes a standard of evidentiary reliability."⁴⁵ At this point, the Court could have stopped and relied on trial judges to exercise their gatekeeping duties simply with FRE 702's language, and the Court's recent definitions, as a guide.⁴⁶ The Court, however, did not.

First, the Court expressed confidence in the ability of federal judges to make the initial FRE 702 determination.⁴⁷ Then, the Court bestowed some "general observations" to help guide a trial court in

39. *Id.*

40. FRE 104(a) provides:

Preliminary questions concerning the qualification of a person to be a witness, the existence of a privilege, or the admissibility of evidence shall be determined by the court, subject to the provisions of subdivision (b). In making its determination it is not bound by the rules of evidence except those with respect to privileges.

FED. R. EVID. 104(a).

41. *Daubert*, 509 U.S. at 592. The second consideration, that the evidence or testimony "assist the trier of fact to understand the evidence or to determine a fact in issue" is a factor of relevance similar to other issues of relevance a trial judge deals with on a daily basis. *See id.* at 591 (discussing FRE 702's requirement that the evidence or testimony assist the trier of fact).

42. The Court noted that FRE 702 also applies to "technical, or other specialized knowledge," but limited its discussion to scientific knowledge. *Daubert*, 509 U.S. at 590 n.8. *But see infra* text accompanying notes 65–69. (applying *Daubert* to the admission of technical evidence).

43. *Daubert*, 509 U.S. at 590.

44. *Id.* (citation omitted). The Court added that it would be unreasonable to require the subject of an expert's testimony be known to a certainty, for there are arguably no certainties in science. *Id.*

45. *Id.*; *see also infra* note 121.

46. This is the position that Chief Justice Rehnquist took in dissent. *Daubert*, 509 U.S. at 598–601 (Rehnquist, C.J., dissenting).

47. *Id.* at 593.

its ultimate determination of evidentiary reliability.⁴⁸ The Court began by stating that unlike the general acceptance standard, no one factor should control the admission of evidence; rather, several factors serve as a flexible guide.⁴⁹ Additionally, in assessing the admissibility of scientific evidence, the focus must be “solely on principles and methodology, not on the conclusions that they generate.”⁵⁰ With this in mind, the court offered five factors for consideration: (1) whether the theory or technique has been tested;⁵¹ (2) whether the theory or technique has been subject to peer review and publication;⁵² (3) whether the known or potential rate of error is acceptable;⁵³ (4) whether standards exist and are maintained to control the technique’s operation;⁵⁴ and (5) whether the theory or technique is generally accepted.⁵⁵

The Court concluded by addressing two important issues raised by the parties and amici. First, one raised a concern that relaxing the standard for admission by abandoning *Frye* would “result in a ‘free-for-all’ in which befuddled juries are confounded by absurd and irrational pseudoscientific assertions.”⁵⁶ The Court responded that “[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and

48. *Id.* at 592–95. The Court stressed that “[m]any factors will bear on the inquiry, and we do not presume to set out a definitive checklist or test. But some general observations are appropriate.” *Id.* at 593.

49. The Court stated that “[t]he inquiry envisioned by Rule 702 is, we emphasize, a flexible one.” This liberal approach is echoed throughout the Court’s opinion. *See generally id.*

50. *Id.* at 595.

51. *Id.* at 593. Clearly a scientific theory or technique presented absent proper testing is presumably unreliable. Therefore, the Court stated, “[o]rdinarily, a key question to be answered . . . will be whether [the theory or technique] can be (and has been) tested.” *Id.*

52. *Id.* at 593–94. The Court noted that “[p]ublication (which is one element of peer review) is not a *sine qua non* of admissibility; it does not necessarily correlate with reliability, and in some instances well-grounded but innovative theories will not have been published.” *Id.* at 593 (internal citations omitted).

53. *Id.* at 594; *see also* GIANNELLI & IMWINKELRIED, *supra* note 20, §1-7(B), at 39–41. (explaining the Court’s reasoning in light of several federal cases dealing with the factor of “error rate”).

54. *Daubert*, 509 U.S. at 594.

55. *Id.* (“Widespread acceptance can be an important factor in ruling particular evidence admissible, and ‘a known technique which has been able to attract only minimal support within the community,’ may properly be viewed with skepticism.”) (internal citations omitted).

56. The Respondent, Merrell Dow, raised this concern. *Id.* at 595. The Respondent, as the Court put it, was “overly pessimistic about the capabilities of the jury and of the adversary system generally.” *Id.* at 596.

appropriate means of attacking shaky but admissible evidence.”⁵⁷ Second, the Court addressed the concern that judges as gatekeepers will “sanction a stifling and repressive scientific orthodoxy and will be inimical to the search for truth.”⁵⁸ Although open debate is an essential component of both the legal and scientific communities, the Court warned “there are important differences between the quest for truth in the courtroom and the quest for truth in the laboratory. Scientific conclusions are subject to perpetual revision. Law, on the other hand, must resolve disputes finally and quickly.”⁵⁹ Recognizing that a judge as gatekeeper may practically exclude authentic scientific insights and innovations, the Court concluded that the “balance that is struck by the Rules of Evidence [is] designed not for the exhaustive search for cosmic understanding but for the particularized resolution of legal disputes.”⁶⁰

C. General Electric Co. v. Joiner & Kumho Tire Co., Ltd., v. Carmichael

Daubert may have succeeded in establishing a new standard for the admission of scientific evidence, but it left many issues unresolved. First, *Daubert* did not address the standard of review appellate courts should employ to evaluate evidentiary rulings. Traditionally, the Supreme Court has held that abuse of discretion is the appropriate standard for an appellate court reviewing trial judge’s evidentiary rulings.⁶¹ However, in *General Electric Co. v. Joiner*, the Eleventh Circuit suggested that *Daubert* had somehow altered this with regard to the exclusion of scientific evidence.⁶² In reviewing the district court’s exclusion of expert testimony, the circuit court applied

57. *Id.* The Court went on to state “conventional devices, rather than wholesale exclusion under an uncompromising ‘general acceptance’ test, are the appropriate safeguards where the basis of scientific testimony meets the standards of Rule 702.” *Id.*

58. The Petitioners, and amici representing the scientific community, supported this position. *Id.*

59. *Id.* at 596–97. The Court continued, stating:

The scientific project is advanced by broad and wide-ranging consideration of a multitude of hypothesis, for those that are incorrect will eventually be shown to be so, and that in itself is an advance. Conjectures that are probably wrong are of little use, however, in the project of reaching a quick, final, and binding legal judgment—often of great consequence—about a particular set of events in the past.

Id. at 597.

60. *Id.*

61. See *Old Chief v. U.S.*, 519 U.S. 172, 174 n.1 (1997).

62. *Gen. Elec. Co. v. Joiner*, 78 F.3d 524 (11th Cir. 1997), *rev’d* 522 U.S. 136 (1997).

“a particularly stringent standard of review.”⁶³ The Supreme Court held this application incorrect, stressing that:

[W]hile the Federal Rules of Evidence allow district courts to admit a somewhat broader range of scientific testimony than would have been admissible under *Frye*, they leave in place the “gatekeeper” role of the trial judge in screening such evidence. A court of appeals applying “abuse-of-discretion” review to such rulings may not categorically distinguish between rulings allowing expert testimony and rulings disallowing it . . . In applying an overly “stringent” review to that ruling, [the court of appeals] failed to give the trial court the deference that is the hallmark of abuse-of-discretion review.⁶⁴

Second, FRE 702 pertains not only to “scientific,” but also to “technical, or other specialized knowledge,”⁶⁵ while *Daubert* address only scientific knowledge. The Supreme Court in *Kumho Tire Co., Ltd. v. Carmichael*⁶⁶ addressed this gap. In *Kumho*, the Court held that *Daubert*’s gatekeeping function applies not only to “scientific” testimony, but to all other expert testimony as well.⁶⁷ FRE 702 grants all expert witnesses, technical as well as scientific, the opportunity to testify as long as that expert’s testimony has a reliable basis grounded in the knowledge of their discipline.⁶⁸ The Court further stated that a trial judge determining the admissibility of a technical witness’s testimony may use the *Daubert* criteria as a guide, but need not rely on them.⁶⁹

II. THE *FRYE* HYDRA: USE, MODIFICATION, OR REJECTION AMONG THE STATES

The *Daubert* trilogy⁷⁰ establishes a common approach to the admission of novel scientific evidence in the federal courts. By doing so, it fulfills two important tasks: it preserves the jury’s fact-finding role and provides the uniformity required of a reliability-evaluating

63. *Id.* at 529.

64. *Joiner*, 522 U.S. at 142–43.

65. FED R. EVID. 702; *see also supra* note 34.

66. 526 U.S. 137 (1999).

67. *Kumho Tire Co, Ltd. v. Carmichael*, 526 U.S. 137, 141 (1999).

68. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 592 (1993).

69. *Kumho*, 526 U.S. at 141–42. (stating that the *Daubert* test is “flexible,” its factors neither necessarily nor exclusively apply to every expert in every case, and the law grants the district court broad discretion in determining the admissibility of expert testimony under FRE 702).

70. *Daubert*, *Joiner*, and *Kumho Tire* are routinely referred to as the *Daubert* trilogy.

standard.⁷¹ This Note, however, is not specifically concerned with novel scientific evidence in the federal system, or even its admission in trial courts of other states. Rather, this Note focuses on the proper standard for the admission of novel scientific evidence in Illinois. However, to categorize jurisdictional approaches outside of Illinois as unimportant would be a mistake. The rule-based *Daubert* standard, and the reaction of other states to *Daubert*, can serve as a guide to Illinois. This is especially true in light of two factors. First, the present standard utilized by Illinois courts, the *Frye* standard, emerged long before the scientific developments of today were imaginable. Second, despite the criticism of *Frye* and its displacement in the federal courts and the majority of other states that have abandoned it, the Illinois Supreme Court has refused to address *Frye's* continued legitimacy.⁷² Therefore, in order to evaluate properly whether *Frye* should remain the standard for admission of novel scientific evidence in Illinois, it is appropriate to consider the standards employed by other jurisdictions in light of the *Frye/Daubert* dichotomy.

Jurisdictions can be broken down into three categories (or placed in one of three) based on their approach to the admission of novel scientific evidence: *Frye*, modified-*Frye*, or non-*Frye*. There are currently⁷³ fourteen *Frye* jurisdictions, three modified-*Frye* jurisdictions, and thirty-four non-*Frye* jurisdictions.⁷⁴ Because courts may base a departure from *Frye*, as in *Daubert*, in part on FRE 702, it is also helpful to compare whether a jurisdiction has adopted FRE 702 with its standard for the admission of novel scientific evidence.⁷⁵ There are currently forty-five FRE 702 jurisdictions, with Illinois in the minority of six jurisdictions that have not adopted FRE 702.⁷⁶ In addition to one non-FRE 702 jurisdiction, thirty-three of the forty-five FRE 702 jurisdictions have rejected *Frye*.⁷⁷ While an assessment

71. See *supra* text accompanying notes 16–21 (discussing the role of relevance and reliability in ensuring the jury performs its proper fact-finding role).

72. See *Donaldson v. Cent. Ill. Pub. Serv. Co.*, 767 N.E.2d 314, 325–26 n.1 (noting that the parties did not argue, and the court did not consider, adopting a new standard in line with *Daubert*); *People v. Miller*, 670 N.E.2d 721, 731 (Ill. 1996) (declining to raise the issue *sua sponte* whether to abandon *Frye* and adopt the reasoning of *Daubert*), *cert. denied*, 520 U.S. 1157 (1997), *dismissal of post-conviction relief aff'd*, No. 89408, 2002 WL 31839183 (Ill. Sept. 4, 2002), *opinion modified on denial of reh'g*, No. 89408, 2003 WL 1705274 (Ill. April 1, 2003).

73. As of March 3, 2002.

74. See *infra* tbl. 1.

75. See *infra* tbls. 2–4.

76. See *infra* tbl. 2.

77. See *infra* tbls. 3, 4.

of trends may be persuasive on its own, an examination of the post-*Daubert* factors several jurisdictions considered while determining which head of the *Frye*-hydra to assume may prove the most useful to Illinois. This Part does just that, focusing on several jurisdictions illustrative of the *Frye*, modified-*Frye*, and non-*Frye* approaches in light of the *Daubert* trilogy.

A. *Frye* Jurisdictions

There are currently⁷⁸ fourteen *Frye* jurisdictions,⁷⁹ eight of which have adopted FRE 702, or a variation thereof.⁸⁰ The supreme courts of only three jurisdictions, Arizona,⁸¹ California,⁸² and Washington,⁸³ have discussed *Daubert* while reaffirming loyalty to the *Frye* general acceptance standard.⁸⁴ Both Arizona and Washington have adopted

78. As of March 3, 2002.

79. See *infra* tbl. 1 (Arizona, California, D.C., Florida, Illinois, Kansas, Maryland, Michigan, Mississippi, Missouri, New Hampshire, New York, Pennsylvania, and Washington).

80. See *infra* tbl. 3.

81. *Logerquist v. McVey*, 1 P.3d 113 (Ariz. 2000).

82. *People v. Leahy*, 882 P.2d 321 (Cal. 1994).

83. *State v. Copeland*, 922 P.2d 1304 (Wash. 1996).

84. Maryland adopted *Frye* in 1978, only three years after the adoption of the Federal Rules of Evidence, and fifteen years before *Daubert*. See *Reed v. State*, 391 A.2d 364 (Md. Ct. App. 1978) (noting that in order to be admissible, a court must determine that a scientific process or technique is generally accepted within the relevant scientific community). In a footnote in 1995, the Maryland Supreme Court stated their continued allegiance to *Frye* despite the state's adoption of Federal Rule of Evidence 702. *Hutton v. State*, 663 A.2d 1289, 1296 n.10 (Md. 1995) (mentioning that when Maryland adopted its Rule of Evidence 5-702 in 1994, the committee made sure to note the adoption was not to overrule *Frye*'s general acceptance standard). The 1995 footnote was but one of four times the state supreme court mentioned *Daubert* in the nine years since its inception. See *Buxton v. Buxton*, 770 A.2d 152, 161 (Md. 2000); *Burrall v. State*, 724 A.2d 65, 70, 80 (Md. 1999); *Armstead v. State*, 673 A.2d 221, 226 n.4 (Md. 1996); *id.* at 247 n.1 (Bell, J., dissenting).

In 1996 the Michigan legislature amended their version of FRE 702, MICH. COMP. LAWS. ANN. § 600.2955(1) (West 2000), to mirror *Daubert*'s considerations. Section 600.2955, entitled "Expert scientific opinion, admissibility; court determination, factors; novel scientific evidence; medical malpractice actions," reads in pertinent part:

(1) In an action for the death of a person or for injury to a person or property, a scientific opinion rendered by an otherwise qualified expert is not admissible unless the court determines that the opinion is reliable and will assist the trier of fact. In making that determination, the court shall examine the opinion and the basis for the opinion, which basis includes the facts, technique, methodology, and reasoning relied on by the expert, and shall consider all of the following factors:

(a) Whether the opinion and its basis have been subjected to scientific testing and replication.

(b) Whether the opinion and its basis have been subjected to peer review publication.

(c) The existence and maintenance of generally accepted standards governing the application and interpretation of a methodology or technique and whether the opinion and its basis are consistent with those standards.

(d) The known or potential error rate of the opinion and its basis.

FRE 702, and have framed their arguments in part on the relation between FRE 702 and *Frye*, not necessarily the merits of retaining *Frye* absent FRE 702. First, Arizona and Washington claim, contrary to the United States Supreme Court, that adoption of FRE 702 did

(e) The degree to which the opinion and its basis are generally accepted within the relevant expert community. As used in this subdivision, "relevant expert community" means individuals who are knowledgeable in the field of study and are gainfully employed applying that knowledge on the free market.

(f) Whether the basis for the opinion is reliable and whether experts in that field would rely on the same basis to reach the type of opinion being proffered.

(g) Whether the opinion or methodology is relied upon by experts outside of the context of litigation.

MICH. COMP. LAWS ANN. §600.2955. The Michigan Supreme Court has not dealt with the application of *Daubert* since, but at least one Michigan appellate court has held that *Frye* has officially been displaced. See, e.g., *Greathouse v. Rhodes*, 618 N.W.2d 106 (Mich. Ct. App. 2000) (stating the legislature enacted section 600.2955(1) in an apparent effort to codify *Daubert*, and therefore abandoning the general acceptance test, and applying *Daubert*), *rev'd on other grounds*, *Greathouse v. Rhodes*, 636 N.W.2d 138 (Mich. 2001). However, until the Michigan Supreme Court acknowledges the legislature's intent, the *Frye* standard retains its precedential value. *Frye* has been declared by the Michigan Supreme Court as the proper standard, see *People v. Peterson*, 537 N.W.2d 857 (Mich. 1995), and an appellate court lacks the authority to supplant this.

The supreme courts of Florida, New Hampshire, and Pennsylvania have all mentioned, yet passed on determining whether *Frye* should still continue as the standard after *Daubert*. See *Flanagan v. State*, 625 So. 2d 827, 829 n.2 (Fla. 1993) (avoiding discussion of *Daubert*, but remaining mindful); *State v. Cort*, 766 A.2d 260, 265 (N.H. 2000) (avoiding decision as to whether *Frye* has been superseded by FRE 702 because the parties did not raise issue); *Blum ex rel. Blum v. Merrell Dow Pharm., Inc.*, 764 A.2d 1, 7-8 (Pa. 2000) (stating that it would be jurisprudentially unsound to use the present case to evaluate a change from *Frye* to *Daubert*). Further, an examination of Florida case law reveals that a lack of sufficient reasoning and justification is the common flaw of *Frye*'s adoption. The Florida Supreme Court repeatedly cites *Stokes v. State*, 548 So. 2d 188 (Fla. 1989), as expressly adopting the *Frye* standard for admission of novel scientific testimony. See, e.g., *Brim v. State*, 695 So. 2d 268, 271 (Fla. 1997) (citing *Stokes* for the proposition that *Frye* is the standard for admission of novel scientific testimony in Florida); *Hadden v. State*, 690 So. 2d 573, 577 (Fla. 1997) (stating that "[i]n *Stokes*, this Court specifically rejected a balancing approach as being too impractical and difficult to apply, and stated that the *Frye* standard is the proper standard for admission of novel scientific expert testimony.") (internal citations omitted); *Ramirez v. State*, 651 So. 2d 1164, 1167 (Fla. 1995) (instructing that "the '*Frye* test,' was expressly adopted by this Court in *Bundy v. State*, and *Stokes v. State*") (internal citations omitted); *Flanagan*, 625 So. 2d at 828 (citing *Stokes* to support the claim that novel scientific testimony is not admissible unless it meets the *Frye* standard). In *Stokes*, the court addressed a concern over the admissibility of posthypnotic testimony. After evaluating several other states approaches to the admission of posthypnotic testimony, the court concluded that the *Frye* standard "properly addresses the issue of the admissibility of posthypnotic testimony." *Stokes*, 548 So. 2d at 195 (emphasis added). The court went through a litany of decisions germane to the issue of posthypnotic testimony from other states, and wound up favoring the *Frye* standard as applied by the California Supreme Court in *People v. Shirley*, 723 P.2d 1354 (Cal. 1982), to a balancing approach mirroring FRE 403. *Stokes*, 548 So. 2d at 193-96. The *Stokes* court applied the *Frye* standard to the facts of the case, but to say this established a standard for the admission of all novel scientific testimony is an unsound leap common to *Frye* jurisdictions. See also *Nixon v. United States*, 728 A.2d 582 (D.C. 1999); *Kuhn v. Sandoz Pharm. Co.*, 14 P.3d 1170 (Kan. 2000); *Gleeton v. State*, 716 So. 2d 1083 (Miss. 1998); *People v. Wernick*, 674 N.E.2d 322 (N.Y. 1996); *Callahan v. Cardinal Glennon Hosp.*, 863 S.W.2d 852 (Mo. 1993) (en banc).

not in effect supersede the general acceptance standard.⁸⁵ The Washington Supreme Court stated that the FRE 702 inquiry and *Frye/Daubert* issue are separate, that in practice “[Rule] 702 has a significant role in admissibility of scientific evidence aside from *Frye*.”⁸⁶ The Arizona Supreme Court noted that nothing in either the text, the comments by the court or its committees, or the cases decided after the adoption of the Federal Rules of Evidence, suggested the intention to include a reliability standard in Arizona Rule of Evidence 702.⁸⁷ Second, Arizona and Washington claimed there is simply no reason to abandon *Frye*, for as the Arizona court asserted, “our experience with the *Frye* rule has not been bad.”⁸⁸ Third, Arizona and Washington were skeptical of the role of a judge as gatekeeper. Judges, as the Arizona Supreme Court put it, lack the scientific or technical expertise necessary to properly tell “good science from junk, true scientists from charlatans, truthful experts from liars, and venal from objective experts.”⁸⁹

California, however, based its argument in part on the doctrine of stare decisis.⁹⁰ The California Supreme Court claimed that since the controlling decision of *People v. Kelly*,⁹¹ which adopted the general acceptance standard in 1976, there has been “[n]o significant relevant developments . . . to justify abandoning its conclusions.”⁹²

85. After noting how the Supreme Court found a reliability standard inherent in the adoption of FRE 702, the Arizona court stated:

Turning to our rules, nothing in the comments of this court or its committees indicated that a reliability standard was contemplated by our adoption of Ariz. R. Evid. 702. Given the rule’s text and cases . . . all decided after we adopted Ariz. R. Evid. 702—we could not now discover such a standard implicit in the language of the rule.

Logerquist, 1 P.3d at 128. The Washington supreme court commented that while in *Daubert* the Court observed that the legislative adoption of the federal rules of evidence postdated and superseded the *Frye* decision, in Washington the rules of evidence were adopted by this court and do not constitute a legislative enactment superseding *Frye*. Thus, when this court, after the rules of evidence were adopted, continued to adhere to *Frye*, we signaled that *Frye* and the evidence rules coexist as the law of this state.

Copeland, 922 P.2d at 1314 (citation omitted).

86. *Copeland*, 922 P.2d at 1314 (emphasis added). The court further stated that FRE 702 has independent force and effect, where utilizing both a “helpfulness standard” of FRE 702, and the general acceptance standard of *Frye* provides the “best of both worlds.” *Id.*

87. *Logerquist*, 1 P.3d at 128.

88. *Id.*; *Copeland*, 922 P.2d at 1314 (“the *Frye* standard has endured for over 70 years, indicating that it has not been so difficult to apply as to call for its abandonment”).

89. *Logerquist*, 1 P.3d at 129; see also *Copeland*, 922 P.2d at 1315 (“judges may lack the understanding of scientific principles and methodology to evaluate science, including social science, as now required by *Daubert*”).

90. *People v. Leahy*, 882 P.2d 321, 328 (Cal. 1994).

91. 549 P.2d 1240 (Cal. 1979).

92. *Leahy*, 882 P.2d at 328.

Specifically, the court states that it has applied *Kelly/Frye* numerous times without a problem,⁹³ and the legislature has had ample time to modify the evidence code to preclude general acceptance.⁹⁴

B. Modified-Frye Jurisdictions

As *Frye's* general acceptance standard is not a constitutionally mandated requirement,⁹⁵ it is susceptible to modification as well as acceptance or rejection. There are currently⁹⁶ three jurisdictions that use a modified *Frye* standard: Alabama,⁹⁷ Minnesota,⁹⁸ and New Jersey.⁹⁹ All have adopted FRE 702, or a variation thereof.¹⁰⁰ Alabama utilizes both the *Frye* and *Daubert* standards, basing the choice of application on the type of evidence presented for admission. Alabama courts apply *Daubert* in all cases concerning the admission of DNA evidence, while *Frye* remains the standard for other types of scientific evidence.¹⁰¹ Accordingly, Alabama escapes characterization as either a *Frye* or a *Daubert* jurisdiction. Minnesota employs a two-prong test for the admission of novel scientific evidence.¹⁰² The first

93. *Id.* at 331. (“Despite the criticism of *Kelly/Frye*, this court has had numerous occasions to review and apply the doctrine, and has done so without apparent difficulty or critical comment.”).

94. *Id.*:

[T]he Legislature has had ample opportunity to amend the Evidence Code provisions to abrogate or modify the general acceptance standard that *Kelly* found implicit within them. The Legislature has made frequent amendments to the expert testimony provisions of that code since its adoption in 1965. Legislative failure to amend sections 720 or 801, although not conclusive, may be presumed to signify legislative acquiescence in our *Kelly* decision.

(internal citations omitted).

95. Likewise, since *Daubert* involves the interpretation of a statute, FRE 702, and not the constitution, it is not binding on the states.

96. As of March 3, 2002.

97. *Turner v. State*, 746 So. 2d 355 (Ala. 1998).

98. *Goeb v. Tharaldson*, 615 N.W.2d 800 (Minn. 2000).

99. *Rubanick v. Witco Chem. Corp.*, 593 A.2d 733 (N.J. 1991).

100. *See infra* tbl. 2.

101. *See Turner*, 746 So. 2d 355; *Ex parte Perry*, 586 So. 2d 242 (Ala. 1991). Two years before the United States Supreme Court decided *Daubert*, the Alabama Supreme Court modified the *Frye* standard to deal with the admission of DNA evidence, creating a *Frye*-plus standard. *See id.* at 248. One year after *Daubert*, the Alabama legislature established a state DNA data bank, Ala. Code § 36-18-20, and in the process specifically addressed the admissibility of DNA evidence. In *Turner*, the Alabama Supreme Court held that the state's DNA statute, Ala. Code §36-18-30(f), which states that “genetic identification established through DNA testing and analysis should be admissible as a matter of evidence in all courts of this state and that juries, both civil and criminal, should be responsible for assessing the weight, if any, to be given to expert testimony or evidence,” as an explicit undertaking by the state legislature to adopt the *Daubert* standard in place of *Frye*. *Turner*, 746 So. 2d at 359.

102. *See Goeb*, 615 N.W.2d at 809-14 (reaffirming adherence to *Frye/Mack* standard after examination of *Daubert*).

prong consists of the *Frye* standard, requiring general acceptance in the relevant scientific community.¹⁰³ The second prong, first announced in *State v. Mack*, requires that the particular evidence derived from the generally accepted test have a scientifically reliable foundation.¹⁰⁴ New Jersey has modified the *Frye* standard in toxic-tort litigation based on the assumption that “toxic-tort litigation does not frequently encounter well-established and widely-accepted scientific theories of causation that can, at the level demanded by the scientific method, precisely delineate the causal path between the toxin and the pathology.”¹⁰⁵ Therefore, the New Jersey Supreme Court stated that:

[I]n toxic-tort litigation, a scientific theory of causation that has not yet reached general acceptance may be found to be sufficiently reliable if it is based on a sound, adequately-founded scientific methodology involving data and information of the type reasonably relied on by experts in the scientific field.¹⁰⁶

C. *Non-Frye Jurisdictions*

In addition to the *Frye* and modified-*Frye* jurisdictions are those that can be classified as non-*Frye* jurisdictions. There are currently¹⁰⁷ thirty-four jurisdictions that have rejected *Frye*'s general acceptance standard.¹⁰⁸ Of these, only one state, Georgia, has failed to adopt FRE 702, or a variation thereof.¹⁰⁹ These jurisdictions can be broken down into three categories based on their present standard for admission of novel scientific evidence: common law jurisdictions,¹¹⁰

103. *Id.* at 809.

104. *State v. Mack*, 292 N.W.2d 764, 768–69 (Minn. 1980). Minnesota recognized that in order to ensure reliability, *Frye* must be modified to specifically include a test for reliability. See also *Harris v. Cropmate*, 706 N.E.2d 55, 60 (Ill. App. Ct. 1999) (pronouncing the since overruled “*Frye* plus reliability” test), *overruled by* *Donaldson v. Cent. Ill. Pub. Serv. Co.*, 767 N.E.2d 314 (Ill. 2002).

105. *Rubanick v. Witco Chem. Corp.*, 593 A.2d 733, 747 (N.J. 1991).

106. *Id.* at 747–48.

107. As of March 3, 2002.

108. See *infra* tbls. 1–2 (Alaska, Arkansas, Colorado, Connecticut, Delaware, Georgia, Hawaii, Idaho, Indiana, Iowa, Kentucky, Louisiana, Maine, Massachusetts, Montana, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming).

109. See *infra* tbl. 2.

110. There are two common law jurisdictions, Georgia and Utah. In *Harper v. State*, the Georgia Supreme Court determined the *Frye* rule of “counting heads” inappropriate for determining the admissibility of a scientific procedure, choosing instead to adopt a standard allowing “the trial judge to decide whether the procedure or technique in question has reached

Daubert jurisdictions,¹¹¹ and rule-based jurisdictions.¹¹² Georgia and Utah, the two common law jurisdictions, employ judicially created

a scientific stage of verifiable certainty.” 292 S.E.2d 389, 395 (Ga. 1982). The court noted three problems inherent in the *Frye* standard:

First, the expert is selected and compensated by a party seeking to demonstrate a specific premise: that the scientific principle sought to be proved either is or is not accepted in the scientific community. Such a process may result in a battle between each party’s experts at trial. Also, there are limits on what any one “expert” may understand about a particular discipline. And, last, we acknowledge that wide variations in intradisciplinary opinions frequently exist.

Id. The court also provided several methods to determine when a scientific technique or procedure has achieved a scientific stage of “verifiable certainty,” such as (1) expert testimony by the parties, (2) exhibits, (3) treatises or (4) case law from outside jurisdictions. *Id.* at 395–96. Additionally, important to note (as Georgia is the only non-*Frye* non-FRE 702 state) is Georgia’s applicable equivalent to FRE 702; it is much broader, stating that expert opinion “on any question of science, skill, trade, or like questions shall always be admissible.” GA. CODE ANN. § 24-9-67 (1995).

Utah courts apply a three-part test in determining the admissibility of scientific evidence, a test recently upheld reflecting *Daubert*’s “more flexible approach.” *State v. Crosby*, 927 P.2d 638, 642 (Utah 1996). The test requires the trial court to determine (1) “whether the scientific principles and techniques underlying the expert’s testimony are inherently reliable”; (2) whether “the scientific principles or techniques at issue have been properly applied to the facts of the particular case by sufficiently qualified experts”; and (3) “whether the proffered scientific evidence will be more probative than prejudicial.” *Id.* at 641. The Utah Supreme Court determined their standard, which was established four years prior to *Daubert*, to be an effective guide, adding that it “was based, in part, on Utah case law which ‘superimposes a more restrictive test whenever scientific evidence is at issue.’” *Id.* at 642. (citation omitted). The goal of Utah’s standard is to ensure “inherent reliability,” instructing the trial court to consider “general scientific acceptance and widespread practical application, [but] must focus in all events on proof of inherent reliability.” *Phillips v. Jackson*, 615 P.2d 1228, 1234 (Utah 1980).

111. Alaska, Arkansas, Connecticut, Delaware, Kentucky, Louisiana, Massachusetts, Montana, Nebraska, Oklahoma, Oregon, Rhode Island, South Dakota, Texas, Vermont, West Virginia, and Wyoming are *Daubert* jurisdictions. See *infra* tbl. 1.

112. Rule-based jurisdictions include: Colorado, Hawaii, Idaho, Indiana, Iowa, Maine, Nevada, New Mexico, North Carolina, North Dakota, and Ohio. See *infra* tbl. 1. These states base their standard for the admission of scientific testimony on their versions of FRE 702. These approaches parallel *Daubert* in all respects but one, as the courts formulate their own methods to ensure reliability apart from the five *Daubert* considerations. By definition every jurisdiction could be called a rule-based jurisdiction, as all follow their own evidentiary statutes. In this Note, however, rule-based jurisdictions refers to those that utilize FRE 702 as their standard for the admission of novel scientific evidence without also using *Daubert*’s five considerations. In South Carolina, for example, a trial court analyzes scientific evidence to determine if (1) the evidence will assist the trier of fact, (2) the expert witness is properly qualified, and (3) the underlying science is reliable. *State v. Council*, 515 S.E.2d 508, 518 (S.C. 1999). As far as ensuring reliability, the South Carolina Supreme Court has outlined a four-part test similar to *Daubert*, requiring the trial court to look at: (1) publications and peer review; (2) prior application of the method to the type of evidence involved; (3) quality control procedures used to ensure reliability; and (4) consistency of the method with recognized scientific laws and procedures. See, e.g., *State v. Ford*, 392 S.E.2d 781, 783 (S.C. 1990); see also *State v. Gleason*, 844 P.2d 691, 694 (Idaho 1992) (“reaffirm[ing] that the appropriate test for measuring the scientific reliability of evidence is I.R.E. 702.”); *Sears Roebuck & Co. v. Manuilov*, 742 N.E.2d 453, 460–61 (Ind. 2001) (stating that the adoption of FRE 702 intended to liberalize the admission of reliable scientific testimony, contrary to *Frye*’s narrow standard, yet declining to utilize *Daubert* as more than helpful jurisprudence); *Miller v. Bike Athletic Co.*, 687 N.E.2d 735, 739 (Ohio 1998) (stating the state’s version of FRE 702 governs the admissibility of expert testimony); *Yamaha Motor Co., U.S.A. v. Arnoult*, 955 P.2d 661, 667 (Nev. 1998) (declaring that

standards based on both prior case law and, in the case of Georgia, an applicable state statute.¹¹³ Rule-based jurisdictions have all adopted versions of FRE 702 and frame their standard for the admission of novel scientific evidence on an interpretation of their versions of FRE 702.¹¹⁴ Rule-based jurisdictions differ from *Daubert* jurisdictions solely in their lack of reliance on the five considerations announced by the Supreme Court in *Daubert*.¹¹⁵ Finally, *Daubert* jurisdictions are exactly what their categorization implies, jurisdictions that have adopted the reasoning and approach of *Daubert* and its progeny. While each jurisdiction may differ slightly in its reasoning and process, there are certain common elements essential to a full and proper evaluation of the change from *Frye* to *Daubert*. The Alaska Supreme Court did a thorough job in considering all of the relevant arguments both for *Frye*'s retention and for *Daubert*'s adoption.

In *State v. Coon*, the Alaska Supreme Court evaluated the shift from *Frye* to *Daubert* in light of the state's evidentiary rules, specifically Rules 702 and 703.¹¹⁶ The court held that its evidentiary rules

expert testimony must assist the trier of fact in understanding the evidence or issue in dispute, and "must also satisfy the prerequisites of all relevant evidence, *i.e.*, that its probative value is not substantially outweighed by its prejudicial effect."); *State v. Goode*, 461 S.E.2d 631, 639-40 (N.C. 1995) (providing that the admissibility of expert testimony is governed by North Carolina's version of FRE 702).

113. See *supra* note 110.

114. See *supra* note 112.

115. See *supra* note 112; see also *supra* text accompanying notes 51-55 (listing the five *Daubert* considerations).

116. *State v. Coon*, 974 P.2d 386 (Alaska 1999). Alaska Rules of Evidence 702 and 703 were substantively identical to FRE 702 and 703. The following is the argument presented to the court, which is the typical anti-*Frye* argument:

The State argues that we should abandon the *Frye* standard. It asserts that *Frye* has become outdated and inadequate for modern litigation, where many cases involve sophisticated scientific data and knowledge. It argues that *Frye* uses social, rather than scientific, criteria for determining reliability and validity when reviewing a novel scientific technique. This causes trial courts simply to "count hands" to determine whether scientists in the relevant scientific community accept the technique as reliable, and "abdicates" judicial responsibility for determining admissibility to scientists uneducated in the law.

The State also argues that a few dissenters within a scientific community may prevent a finding of general acceptance, leading to overrepresentation of the dissenters' views. In addition, the State contends that *Frye*'s conservative nature causes a "gross time lag" between the development of a new scientific technique and its judicial admissibility. This can cause certain cutting edge science to become obsolete before it is admissible under *Frye*.

Id. at 392. The court further noted that:

Although the United States Supreme Court stated in *Daubert* that Federal Rule of Evidence 702 is the "locus" for determining the admissibility of scientific evidence, the commentary to the Alaska Rules of Evidence provides support for the State's view that Alaska Rule of Evidence 703 is also a source for an approach broader than the *Frye* standard.

“give the trial courts both the authority and the responsibility to determine the admissibility of [scientific] evidence without being limited to the general acceptance standard,” adding further that “[o]ur evidence rules contemplate a broader inquiry, allowing a proponent to establish admissibility even if general acceptance is absent, and allowing an opponent to challenge admissibility even if general acceptance is present.”¹¹⁷ The court also recognized the “capricious” effect of *Frye* in “exclud[ing] scientifically reliable evidence which is not yet generally accepted, and admit[ting] scientifically unreliable evidence which although generally accepted, cannot meet rigorous scientific scrutiny.”¹¹⁸ Thus, the court announced its adoption of *Daubert* and continued by dealing with several arguments and “dire predictions supporting the status quo.”¹¹⁹

First, the court addressed the concern that *Daubert* will unduly burden trial judges, requiring them to be amateur scientists assessing scientific reliability. In quelling this fear, the court first acknowledged the initial persuasion of this concern: that scientists are better suited to assess scientific reliability than are judges, as the latter rarely receive scientific training. However, “closer consideration reveals that the notion is misleading and irrelevant,” as “scientific reliability is not necessarily congruent with judicial reliability.”¹²⁰ Rather than allow scientists to assess legal admissibility, the court emphasized that “[d]etermining reliability for judicial purposes is unavoidably the responsibility of trial courts, and should not be delegated to an

Id. at 393. This should be particularly interesting to Illinois, as FRE 703 was adopted in 1981. See *infra* notes 219–25 and accompanying text.

117. *Coon*, 974 P.2d. at 393.

118. *Id.* at 393–94. The court added that “[b]ecause the Frye test potentially excludes evidence that should be admitted under our rules, and also potentially admits evidence that should be excluded under our rules, we conclude that it is both unduly restrictive and unduly permissive.” *Id.* at 394.

119. *Id.* at 395.

120. *Id.* at 396. The court adds that *Frye* illustrates the difference between scientific reliability and judicial reliability itself, stating that the “‘general acceptance’ standard does not define scientific reliability; it is simply a judicial construction. And for reasons noted above, it is a flawed judicial construction.” *Id.*; see also *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 590 n.9 (1993) (internal citations omitted):

We note that scientists typically distinguish between “validity” (does the principle support what it purports to show?) and “reliability” (does application of the principle produce consistent results?). Although “the difference between accuracy, validity, and reliability may be such that each is distinct from the other by no more than a hen’s kick,” our reference here is to *evidentiary* reliability—that is, trustworthiness. . . . In a case involving scientific evidence, *evidentiary reliability* will be based upon *scientific validity*.

expert's peers."¹²¹ The court concluded that the burden of evaluating novel scientific evidence may be substantial, but it is a burden that trial and appellate courts must bear.¹²²

Second, the court tackled the concern that *Daubert's* more liberal approach will result in "junk science" making its way to the jury.¹²³ In dealing with this contention, the court noted the problems inherent in *Frye*: its manipulability and failure to define clear parameters for its application.¹²⁴ Comparing these problems to the results from several reported decisions applying *Daubert*, the court concluded, "[w]e are not convinced that 'junk science' is more likely to be admitted under *Daubert* than under *Frye*."¹²⁵

III. THE ILLINOIS APPROACH

The history of *Frye* in Illinois is short and ill defined. It was not until the mid-1970s that *Frye's* general acceptance standard was first mentioned, the early-1980s that the Illinois Supreme Court arguably first applied *Frye*, and the mid-1990s before it was clear that Illinois was in fact a *Frye* jurisdiction. One explanation for this ragged past may be the increased use of expert testimony at trial.

The 1970s saw a dramatic increase in the use of scientific evidence, forcing courts to rule on the admissibility of many newly discovered or applied scientific principals. It was a time of great discovery and progress, with developments such as the microprocessor, ultrasound diagnostics, and DNA mapping. Medical malpractice, product liability, and personal injury claims became commonplace and complex. As a result, expert witness testimony became a re-

121. *Coon*, 974 P.2d at 396.

122. At this point the court noted that independent expert witnesses could be employed by courts in adjudging difficult disputes, but that most disputes will be solved with "relatively little effort." *Id.*

123. *Id.* at 396-97; see also *Phillips v. Indus, Mach.*, 597 N.W.2d 377, 388-89 (Neb. 1999) (Gerrard, J., concurring):

The "gatekeeper" function exercised by trial courts under the *Daubert/Kumho Tire* analysis is, in fact, a more effective means of excluding unreliable expert testimony than is the *Frye* test. The experience in jurisdictions which have adopted the *Daubert* standards suggests that the admission of so-called "junk science" evidence is a minimal risk.

124. *Id.*; see also *infra* Part IV.A-B (discussing the problems applying *Frye*, and also the problems resulting from its application).

125. *Coon*, 974 P.2d at 397 (asserting "[f]urthermore, *Frye* also potentially permits admission of unreliable scientific evidence, because a methodology that has been generally accepted might nonetheless have been discredited during a *Daubert* inquiry").

quirement.¹²⁶ As the comments to FRE 702 state, “[a]n intelligent evaluation of facts is often difficult or impossible without the application of some scientific, technical, or other specialized knowledge. The most common source of this knowledge is the expert witness. . . .”¹²⁷ In order to preserve the proper role of the jury, courts fashioned rules regulating the admission of novel scientific evidence, and the era of *Frye* in Illinois began.

A. *Frye’s Evolution in Illinois*

The first Illinois court to cite¹²⁸ *Frye* was the Second District Appellate Court in 1976,¹²⁹ followed shortly thereafter by the Fifth District Appellate Court in 1979.¹³⁰ The Illinois Supreme Court first mentioned, and purportedly adopted *Frye* in the 1981 decision of *People v. Baynes*.¹³¹ The *Baynes* court considered an issue similar to that in *Frye*: whether to allow the admission of polygraph evidence at trial.¹³² Before discussing the merits of the case, the court briefly described the history of the polygraph test, in large part by quoting *Frye*.¹³³ The court then concluded its discussion¹³⁴ of *Frye* by adding

126. See, e.g., 735 ILL. COMP. STAT. § 5/2-623 (2001) (effective July 1, 1982) (requiring plaintiff to file affidavit of expert averring merits of claim); Cynthia H. Cwik, *Guarding the Gate: Expert Evidence Admissibility*, LITIG., Summer 1999, at 6. According to Cwik:

As our world and our courtrooms have become more and more complex, expert evidence has become more and more important. In litigation that involves issues on the frontier of science—toxic tort litigation, for example—the success or failure of the case may well hinge on the admissibility of expert testimony. In medical malpractice or product liability cases, admissible expert testimony on such issues as proximate cause will almost certainly be needed to avoid a directed verdict and get to the jury. Without expert support, there is very often no case.

Id.

127. FED. R. EVID. 702 cmt.

128. As of April 12, 2003, only seventy published Illinois cases have cited *Frye*.

129. See *People v. Milone*, 356 N.E.2d 1350 (Ill. App. Ct. 1976) (admitting expert testimony concerning bite-mark evidence due to its sufficient reliability after citing *Frye*).

130. See *People v. Monigan*, 390 N.E.2d 562 (Ill. App. Ct. 1979) (excluding polygraph evidence as unreliable and untrustworthy after acknowledging and quoting the “landmark” case of *Frye*).

131. 430 N.E.2d 1070 (Ill. 1981).

132. *Id.* at 1072. The defendant took a polygraph test prior to trial, after defense counsel, the defendant, and the state’s attorney stipulated the results would be admissible at trial. The results, which were unfavorable to the defendant, were introduced at trial without objection. The Illinois Supreme Court granted leave to appeal, one issue being whether admission of the polygraph evidence had an obvious prejudicial impact on the jury. *Id.* at 1072–74.

133. *Id.* at 1074 (quoting the *Frye* court’s description of the systolic blood pressure test).

134. The court in *People v. Miller*, 670 N.E.2d 721, 731 (Ill. 1996) identifies *Baynes* as “discussing” *Frye*. If the *Miller* court meant quoting *Frye*’s general acceptance passage as discussion it is correct. If the *Miller* court meant discussion as in a meaningful examination of *Frye* and its soundness, however, the *Miller* court would be wrong.

the D.C. court's famous passage announcing the general acceptance standard.¹³⁵ That was the extent of the discussion of *Frye* and its general acceptance standard.¹³⁶ The polygraph evidence was then held inadmissible, not because of a failure to attain general acceptance, but rather because "[p]olygraph evidence is not reliable enough to be admitted. The prejudicial effects substantially outweigh the probative value of admitting such testimony."¹³⁷ The court, therefore, framed the issue in terms of the probative versus prejudicial value of polygraph evidence, not necessarily the level of acceptance in the scientific community as *Frye* dictates.¹³⁸

Although the *Baynes* court fell short of expressly adopting or applying the *Frye* test, the Illinois Supreme Court subsequently recognized the decision as doing just that. In *People v. Jordan*,¹³⁹ the court cited *Baynes* as adopting the proposition that while "rendering an opinion, the expert must rely upon scientific theories which have gained general acceptance in his field."¹⁴⁰ Once again, however, the *Jordan* court merely mentioned the general acceptance standard without either analyzing or relying on it for the disposition of the

135. See *supra* text accompanying note 23.

136. "Unfortunately, in most instances judicial adoption of the general acceptance standard has not been accompanied by a supporting rationale. This is especially true of the early cases, which often cited *Frye* without comment or analysis." Giannelli, *supra* note 22, at 1206. This, unfortunately, seems to be the situation in Illinois.

137. *Baynes*, 430 N.E.2d at 1079. The polygraph evidence was determined to be unreliable, and as such inadmissible. The court then addressed the parties stipulation to admission of the polygraph evidence, stating:

A stipulation does not necessarily make inadmissible evidence admissible. By what logic should stipulated polygraph evidence be admitted if the same evidence, absent a stipulation, is barred? How does the agreement lend credibility to an examination that would not otherwise be given judicial recognition? If evidence is unreliable, agreeing to its admission does not make it reliable.

Id. at 1077.

138. The court held that "if the instrument is accurate and the recording of the instrument's results reliable, then we should conclude it is acceptable. But the process has not reached a level of sophistication that makes it generally more probative than prejudicial." *Id.* This is similar to an inquiry under FRE 403. FED. R. EVID. 403; see also *People v. Cruz*, 643 N.E.2d 636, 652 (Ill. 1994) (court can exclude evidence if probative value is outweighed by danger of prejudice, confusion, or delay).

139. 469 N.E.2d 569, 576 (Ill. 1984) (the second Illinois Supreme Court decision to cite *Frye*).

140. *Id.* (citations omitted). The defendants objected to testimony regarding the "pink-tooth" theory as evidence of cause of death. The court upheld the expert's testimony because (1) the defense experts did not deny the existence of the "pink-tooth phenomenon," (2) the "pink-tooth" theory is outside the realm of knowledge of lay persons, and (3) the experts' testimony aided the trier of fact in understanding the theory and its causes. *Id.* at 577.

case.¹⁴¹ In *People v. Zayas*,¹⁴² the Illinois Supreme Court held that it had in fact *applied* the *Frye* standard in *Baynes*. The *Zayas* court held that hypnotically induced testimony was unreliable, and as such, inadmissible at trial. In doing so, it applied the “*Baynes* polygraph analysis,” while noting the similarities of inaccuracy and intrusion upon the proper functioning of the jury.¹⁴³ The court then provided its first substantive reasoning for application of the *Frye* standard. Quoting an Alaska Supreme Court case,¹⁴⁴ the *Zayas* court emphasized:

[F]our persuasive reasons why the *Frye* standard is particularly well suited to handle *this* question:

“(1) [T]he standard is judicially manageable; (2) the standard saves judicial time and resources; (3) the standard assures that juries will not be misled by unproven, unsound ‘scientific’ procedures, thus safeguarding the court’s truth-finding role; and (4) the standard assures fairness and uniformity of decision-making.”¹⁴⁵

The *Zayas* court held the evidence inadmissible, but once again failed to frame its holding in terms of general acceptance. The court stated “that because its reliability is suspect . . . [it] is not admissible in Illinois courts,” adding “[w]e are not concerned with whether evidence is plausible but, rather, whether evidence is reliable.”¹⁴⁶ In addition to its unreliability, the court noted the probative value of hypnotically induced testimony as questionable, and admission as a strain on the judicial process.¹⁴⁷ Thus, although the Illinois Supreme Court has repeatedly cited *Baynes* and *Zayas* as the basis for the adoption of *Frye*, those decisions simply mention the general acceptance standard while framing the issue in terms of reliability and probative versus prejudicial value. Perhaps due to this ambiguity, in

141. The court made no statement regarding general acceptance of the “pink-tooth” theory in the relevant scientific community, simply that no experts testified at trial that it was not recognized in the dental community. *Id.*

142. 546 N.E.2d 513 (Ill. 1989).

143. *Id.* at 517 (“Jurors seem to demonstrate the same misunderstanding and false sense of confidence in hypnotic evidence as they have historically shown with regard to polygraph evidence.” (citation omitted)).

144. *Contreras v. State*, 718 P.2d 129 (Alaska 1986). Alaska has since abandoned the *Frye* standard in favor of *Daubert*. See *State v. Coon*, 974 P.2d 386 (Alaska 1999); *supra* notes 116–25 and accompanying text.

145. *Zayas*, 546 N.E.2d at 517–18 (emphasis added).

146. *Id.* at 518.

147. *Id.*

Harris v. Cropmate,¹⁴⁸ the Illinois Fourth District Appellate Court added a reliability prong to *Frye*'s general acceptance standard.¹⁴⁹

B. *Harris v. Cropmate: The "Frye Plus Reliability" Standard*

In the 1999 case of *Harris v. Cropmate*, the Illinois Fourth District Appellate Court announced its "*Frye* plus reliability" standard for the admission of novel scientific evidence.¹⁵⁰ Because a trial judge may always exclude evidence that is in fact unreliable, the new standard requires a judge to make a determination of the reliability of evidence separate from and in addition to the *Frye* test. After noting the goals the *Frye* standard seeks to achieve,¹⁵¹ the court recommended a six-part analytical inquiry for the admission of novel scientific evidence.¹⁵² First, the court must determine precisely what the party has offered the evidence to prove.¹⁵³ Second, the court will decide whether the proffered evidence will assist the trier of fact to understand the evidence or determine facts in issue.¹⁵⁴ Third, the court will consider whether the evidence constitutes science, or if it is the nonscientific specialized knowledge of an expert.¹⁵⁵ Fourth, if the evidence is scientific, the court will determine if it is novel science, or if it involves a firmly established method or technique.¹⁵⁶ Fifth, if the evidence is novel, the court will decide if the evidence meets the *Frye*

148. 706 N.E.2d 55 (Ill. App. Ct. 1999).

149. See *infra* notes 150–66 and accompanying text.

150. *Cropmate*, 706 N.E.2d 55; see also JOHN E. CORKERY, ILLINOIS CIVIL AND CRIMINAL EVIDENCE § 702.112 (2000) (discussing the "*Frye* plus reliability" standard).

151. The court lists six accomplishments of the *Frye* standard, including its ability to ensure the reliability of the evidence, protect the jury from evidence that could unduly influence their proper role, and impose a threshold standard of reliability in light of the fact that cross-examination cannot bring inaccuracies to the attention of the jury. *Cropmate*, 706 N.E.2d at 59–60.

152. *Id.* at 59–65.

153. *Id.* at 59–60.

154. *Id.* This is similar to the second prong of the trial judges role as gatekeeper under *Daubert*. See *supra* note 41 and accompanying text.

155. *Cropmate*, 706 N.E.2d at 59–62. Determining whether the proffered evidence constitutes scientific knowledge is another of the gatekeeping functions a *Daubert* court must perform. See *supra* notes 41–45 and accompanying text. The court stated that although Illinois has not adopted *Daubert*, the Court's discussion of what constitutes "scientific knowledge" is helpful in its analysis of what constitutes scientific opinion testimony. *Id.*; see also *Daubert*, 509 U.S. at 590 (describing what constitutes "scientific knowledge").

156. *Cropmate*, 706 N.E.2d. at 60, 62–64. The court stated that similar controlling precedent should be examined to determine the novelty of the scientific evidence. Further, if the evidence is not novel, than *Frye* has been satisfied as the scientific method or technique has been generally accepted by the relevant scientific community. *Id.*

standard.¹⁵⁷ Sixth, after determining whether the evidence satisfies the general acceptance standard, the court must ask if the evidence is reliable.¹⁵⁸ As for the sixth inquiry, the court offered six nonexclusive questions the trial court may ask to determine reliability. While considering the “totality of the circumstances,” the court may ask:

- (1) Can the scientific technique or method employed be empirically tested, and if so, has it been?^[159] (2) Has the technique or method been subjected to peer review and publication?^[160] (3) What is the technique or method’s known or potential error rate?^[161] (4) Are its underlying data reliable?^[162] (5) Is the witness proposing to testify about matters growing naturally and directly out of research she has conducted independently of the litigation, or has the witness developed her opinion solely for the purpose of testifying?^[163] and (6) Did the witness form her opinion and then look for reasons to support it, rather than doing research that led her to her conclusion?^[164]

After pronouncing what has also been called a “*Frye* plus *Daubert*” standard, the court stressed that the trial court’s inquiry should be flexible.¹⁶⁵ The court stated that while reliance on the community of experts to help decide admissibility is necessary to an extent, “the court may not delegate its authority as *gatekeeper* to the scientific community.”¹⁶⁶ *Cropmate*’s new standard would not survive long.

157. *Id.* at 60, 64. The court goes on to state that a *Frye* hearing can and *should* be held if the evidence is novel. *Id.*

158. *Id.* at 60, 64–65. Assuring the reliability of novel scientific evidence is the driving force behind the *Daubert* test.

159. This is the first consideration under *Daubert*. See *supra* note 51 and accompanying text.

160. This is the second consideration under *Daubert*. See *supra* note 52 and accompanying text.

161. This is the third consideration under *Daubert*. See *supra* note 53 and accompanying text.

162. This is also comparable to the third consideration under *Daubert*. See *supra* note 53 and accompanying text. Once a court is aware of the known or potential rate of error for a scientific technique or method, the reliability of the underlying data is most likely already known. In other words, the reliability of the data involved is one factor in the known or potential rate of error for that technique or method.

163. This is a question any competent attorney would ask on cross-examination, and would appear to go more toward the weight of the testimony than its reliability.

164. *Cropmate*, 706 N.E.2d at 65 (citations omitted). The process of forming a hypothesis and then finding data to support it is disfavored in the scientific community. It is comparable to drawing a target centered around shots already fired, and firing at a target already drawn; only the latter produces meaningful, reliable results.

165. *Id.*; see also *Daubert*, 509 U.S. at 588 (noting the liberal thrust of the Federal Rules of Evidence favors relaxing the traditional barriers to opinion testimony).

166. *Cropmate*, 706 N.E.2d at 65 (emphasis added).

C. Donaldson v. Central Illinois Public Service Co.:
A Step Backwards

In *Donaldson v. Central Illinois Public Service Co.*, the Illinois Supreme Court emphatically declared that “Illinois law is unequivocal: the exclusive test for the admission of expert testimony is governed by the standard first expressed in *Frye v. United States*.”¹⁶⁷ The *Donaldson* court overruled *Cropmate’s* “*Frye plus reliability*” standard, asserting that a “trial court is not required to conduct a two-part inquiry into both the reliability of the methodology and its general acceptance.”¹⁶⁸ In doing so, the court claimed that a “determination of the reliability of an expert’s methodology is naturally subsumed by the inquiry into its general acceptance in the scientific community. Simply put, *a principle or technique is not generally accepted in the scientific community if it is by nature unreliable*.”¹⁶⁹ The “*Frye plus reliability*” standard therefore met its demise, and the general acceptance standard was once again endorsed by yet another Illinois Supreme Court opinion without legitimate discussion or supporting rationale.¹⁷⁰

IV. THE *FRYE/DAUBERT* DEBATE

The *Frye* general acceptance standard has been either rejected or modified by a large majority of jurisdictions, and has been widely criticized in legal journals.¹⁷¹ Illinois should follow suit by rejecting *Frye* in favor of a *Daubert* and/or FRE 702-based approach. *Frye’s*

167. *Donaldson v. Cent. Ill. Pub. Serv. Co.*, 767 N.E.2d 314, 323 (Ill. 2002). The court went on to cite *Miller, Zayas, Jordan, and Baynes* to support this claim. *Id.*

168. *Id.* at 326.

169. *Id.* (emphasis added) (citation omitted). *But see infra* notes 216–18 and accompanying text (argument that reliability is not subsumed in general acceptance as the court declares).

170. The court also included some rather confusing, contradictory language in its opinion. In subsequent paragraphs, the court stated:

First, “general acceptance” does not concern the ultimate conclusion. Rather, the proper focus of the general acceptance test is on the underlying methodology used to generate the conclusion. *If the underlying method used to generate an expert’s opinion are reasonably relied upon by the experts in the field*, the fact finder may consider the opinion—despite the novelty of the conclusion rendered by the expert. . . .

Second, general acceptance of methodologies does not mean “universal” acceptance of methodologies. The medical community may entertain diverse opinions regarding causal relationships, but this diversity of opinion does not preclude the admission of testimony that a causal relationship exists *if the expert used generally accepted methodology to develop the conclusion*.

Donaldson, 767 N.E.2d at 324. The distinction can most likely be credited to the clash between FRE 703 and *Frye*. *See infra* note 224.

171. *See* GIANNELLI & IMWINKELRIED, *supra* note 20, § 1-5(G), at 27.

criticism and problems fall into two broad categories: problems in applying *Frye* and problems resulting from *Frye's* use. When a trial court attempts to apply *Frye*, it must itself define many of the standard parameters, such as the relevant scientific community and the amount of approval required for general acceptance. Once a court utilizes *Frye*, the problems continue, as it may either include unreliable evidence or exclude reliable evidence. After seventy years, these problems and many others remain unsolved, begging the question: why adhere to an outdated, seldom-followed standard with faults still unresolved after seventy years? The better approach is to adopt the *Daubert* trilogy, or at least a flexible FRE 702-based standard capable of evolving with the times.

A. *Problems Applying Frye: The What, Who, How, and How Much*

Frye, on its face and through its operation, applies only to novel scientific evidence.¹⁷² This fact raises the following problems: (1) defining “novel,” (2) defining “scientific evidence,” and (3) determining what standard to apply to the admission of other types of expert evidence. Since *Frye* applies only to novel science, a trial court must initially determine if the technique or method in question is novel. The Illinois Supreme Court has correctly recognized that “a ‘new’ or ‘novel’ scientific technique is not always easy to identify, especially in light of constant scientific advances in our modern era.”¹⁷³ With this in mind, the court defined “novel” by quoting *Webster's Dictionary*, stating that “a scientific technique is ‘new’ or ‘novel’ if it is ‘original or striking’ or does ‘not resembl[e] something formerly known or used.’”¹⁷⁴ This type of vague and virtually useless explanation leaves a trial court in no better a position, *especially* in our modern scientific era. A court may perceive as new a technique only months old when, as is often the case, it is old news in the scientific community. Additionally, *Frye* does not specify whether the general acceptance standard applies to scientifically novel or judicially novel techniques and methods. Further, *Frye* fails to specify the standard to apply in subsequent hearings to admit a scientific technique previously held

172. The standard deals with scientific principles or discoveries, without mention of technical or other specialized knowledge. *Frye*, 293 F. at 1014.

173. *Donaldson*, 767 N.E.2d at 325.

174. *Id.* (quoting WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 1546 (1993)).

inadmissible.¹⁷⁵ To illustrate, consider polygraph evidence, the issue that gave rise to *Frye* itself. The Illinois Supreme Court has held polygraph evidence inadmissible at trial due to its failure to satisfy *Frye*.¹⁷⁶ The polygraph technique is not scientifically novel, and though it is not admissible in Illinois courts, it is not judicially novel either. According to *Donaldson*, *Frye* applies only to novel techniques, and novel is defined as “original or striking.” Polygraph evidence, thus, falls outside that definition, as it is not original or striking, so *Frye*’s strict general acceptance standard arguably would not apply. Under *Frye*’s reasoning, it is not clear what standard a court would apply. This vagueness plagues *Frye*’s general acceptance standard.

FRE 702 and the *Daubert* trilogy, on the other hand, not only provide a definitive approach to the admission of all types of expert testimony, but also a body of modern case law to aid a court in its role of ensuring reliability. First, FRE 702 applies regardless of the novelty of the evidence, foregoing the daunting task of determining whether something is novel. Next, *Daubert* offers a workable definition of what constitutes science (and knowledge), a fact the Fourth District noted in *Cropmate*.¹⁷⁷ Last, *Daubert*, as extended through *Kumho*, applies to all types of expert testimony providing uniformity at the trial level. Therefore, unlike the rigid *Frye* standard, *Daubert* is better suited to advance and adapt in a high-speed, technologically advanced world.

While the *Frye* standard requires general acceptance by the relevant scientific community, it fails to provide guidance as to who makes up that community. Not only may scientific methods or techniques fall within many different communities, but selection of the relevant community may prove dispositive of the case.¹⁷⁸ If the relevant community chosen is too narrow, the views of a few fringe scientists may satisfy the test, contrary to *Frye*’s rationale. Alterna-

175. Alternatively, as the Nebraska Supreme Court notes, “once an issue is determined under *Frye*, it is closed to further *Frye* analysis because it is no longer ‘novel.’ *Daubert*, on the other hand, permits re-examination of the issue if the validity of the prior determination can be appropriately questioned.” *Schafersman v. Agland Coop*, 631 N.W.2d 862, 874 (Neb. 2001).

176. See *Baynes*, 430 N.E.2d 1070. But see *supra* notes 131–38 and accompanying text (discussing how, although the Illinois Supreme Court repeatedly cites *Baynes* as utilizing *Frye*, the *Baynes* court framed its decision in terms of reliability and prejudice).

177. See *Cropmate*, 706 N.E.2d at 60–62 (discussing the third prong of the “*Frye* plus reliability test,” which asks if the proffered testimony constitutes scientific evidence).

178. See GIANNELLI & IMWINKELRIED, *supra* note 20, § 1-5(B); Giannelli, *supra* note 22, at 1208–10.

tively, if the community chosen is too broad, for example including many different scientific disciplines, general acceptance may be impossible to prove due to disagreement between disciplines despite widespread approval within one discipline. For example, research shows that the admission of talker identification techniques correlates directly with the size of the scientific community chosen.¹⁷⁹ If the relevant scientific community chosen is broad, consisting of all applicable relevant practice areas,¹⁸⁰ not one jurisdiction examined admitted the expert's testimony. However, if the scientific community chosen consisted of solely the field that performed the talker identification test, not one jurisdiction examined excluded the expert's testimony.¹⁸¹ Additionally, David H. Kaye & George F. Sensabaugh, Jr. have declared that it is not possible to define the appropriate relevant scientific communities with regard to DNA testing.¹⁸² *Daubert* solves this dilemma by making general acceptance but one of the factors to consider, therefore diluting the problems inherent in a one-factor test. Therefore, if under *Daubert* the relevant scientific community chosen is incorrect, and this results in an incorrect determination of general acceptance, the ultimate reliability of the technique can still be decided correctly due to the flexible five-part test. The same situation under *Frye* would result in either the inclusion of unreliable evidence, or the exclusion of reliable evidence. This would result in an impairment of the jury's fact-finding role, an impairment that a court could easily avoid by rejecting *Frye*.

Even assuming that the proper relevant scientific community can be identified, the concern over how to prove general acceptance within that community remains. Courts have utilized three methods to establish general acceptance: (1) expert testimony, (2) scientific and legal publications, and (3) judicial opinions.¹⁸³ Each method has

179. See David L. Faigman et. al., *Talker Identification*, in SCIENCE IN THE LAW, FORENSIC SCIENCE ISSUES § 6-1.1 (2002).

180. In relation to talker identification all relevant fields could include: acoustical engineering, anatomy, electrical engineering, linguistics, phonetics, physics, physiology, psychology, and statistics. *Id.* at n.4.

181. *Id.*

182. See David H. Kaye & George F. Sensabaugh, Jr., *The Scientific Status of DNA Testing*, in SCIENCE IN THE LAW, FORENSIC SCIENCE ISSUES § 11-2.7.4 (2002) ("Given the great diversity of forensic questions to which DNA testing might be applied, it is not possible to define specific scientific expertises appropriate to each."). The authors go on to state: "Just as highly focused specialists may be unaware of aspects of an application outside their field of expertise, so too scientists who have not previously dealt with forensic samples can be unaware of case-specific factors that can confound the interpretation of test results." *Id.*

183. Giannelli, *supra* note 22, at 1215.

its problems. Expert testimony may be biased, as the expert testifying may often be the leading proponent of the novel technique. Further, trial courts must determine how many experts are needed before general acceptance is proven. The California Supreme Court stated that “[i]deally, resolution of the general acceptance issue would require consideration of the views of a typical cross-section of the scientific community, including representatives, if there are such, of those who oppose or question the new technique.”¹⁸⁴ As if a trial court’s guidance were not vague enough under *Frye*, California would now have the trial court determine a “typical cross-section” of the already difficult to define relevant scientific community. *Frye*’s search for general acceptance requires neither corroboration nor impartiality, two factors seemingly indispensable in a search for the reliability of a scientific technique, making expert testimony as to general acceptance a suspect method.

Apart from expert testimony, many *Frye* courts rely upon published articles, cases, and treatises as a method of judicial notice. The problems inherent in this method include a failure to discover all of the relevant materials and the lag time between general acceptance (or rejection of a technique previously accepted) and publication. As the New Mexico Supreme Court stated:

[I]n practice too many courts reference reported case law to determine what is generally accepted in the scientific community. It is improper to look for scientific acceptance only from reported case law because that amounts to finding a consensus in the legal community based on scientific evidence that is sometimes many years old.¹⁸⁵

As the Supreme Court in *Daubert* noted, courts should determine evidentiary reliability based on scientific validity.¹⁸⁶ By focusing solely on previous judicial decisions a trial court instead focuses on *judicial* validity, a method incapable of independently determining reliability.¹⁸⁷ Be it expert testimony, judicial opinions, or legal and scientific journals, each method of demonstrating general acceptance has its flaws. *Daubert*’s flexible approach holds an advantage over

184. *People v. Kelly*, 549 P.2d 1240, 1248 (Cal. 1976).

185. *State v. Alberico*, 861 P.2d 192, 203 (N.M. 1993).

186. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 590 n.9 (1993); *see also supra* note 120.

187. A trial may be a search for truth, but its procedures are not set up to determine to the degree necessary the reliability of a scientific proposition. The scientific process, unlike the adversary process, is formulated to prove to a certifiable degree the truthfulness of a proposition.

Frye's method of demonstrating reliability. By examining more than just general acceptance, *Daubert* expands the amount of relevant information that could prove a technique's reliability. Adherence to *Frye* requires devotion to a standard no longer able to properly ensure the reliability of scientific evidence, and thus possibly impairs the jury's proper fact-finding role.

Distinct from this method of satisfying *Frye's* standard is the measure of support required to prove general acceptance. The term "general" is by definition vague, making the term "general acceptance" virtually useless. Courts have not precisely addressed what percentage of the relevant community must approve of the technique or method before it is generally accepted. Unanimity is not required, and the mere existence of a dispute does not forbid a finding of general acceptance; otherwise, there is no adequate definition among the *Frye* jurisdictions. Illinois courts have used phrases such as "most"¹⁸⁸ and a "majority,"¹⁸⁹ which afford little more aid than "general."¹⁹⁰ Akin to choosing the improper relevant scientific community,¹⁹¹ this provides another example of how the malleability of *Frye* might result in the admission of evidence that has not gained approval by the majority.

The *Frye* standard requires general acceptance of "the thing from which the deduction is made."¹⁹² It remains unsettled what this requires: general acceptance of the scientific technique or of both the underlying theory and the scientific technique applying that theory.¹⁹³

188. *People v. Zayas*, 546 N.E.2d 513, 518 (Ill. 1989) ("testimony is questionable since most scientists doubt its accuracy.").

189. *People v. Miller*, 670 N.E.2d 721, 731 (Ill. 1996) ("[T]he majority of courts deciding the issue of the admissibility of evidence on the six-step RFLP process have found such evidence to be admissible.").

190. In *Donaldson*, the Illinois Supreme Court summarized its acceptance requirement, holding that:

Simply stated, general acceptance does not require that the methodology be accepted by unanimity, consensus, or even a majority of experts. A technique, however, is not "generally accepted" if it is experimental or of dubious validity. Thus, the *Frye* rule is meant to exclude methods new to science that undeservedly create a perception of certainty when the basis for the evidence or opinion is actually invalid.

Donaldson v. Cent. Ill. Pub. Serv. Co., 767 N.E.2d 314, 324 (Ill. 2002). What the court meant by this explanation is questionable, as it attempts to describe the limits of acceptance required not by quantity but quality.

191. See *supra* notes 178–82 and accompanying text.

192. *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923).

193. Compare *Kuhn v. Sandoz Pharm. Corp.*, 14 P.3d 1170, 1180 (Kan. 2000) ("The *Frye* test is concerned with whether the expert's opinion is based on a technique that has earned general acceptance in the expert's scientific field as reliable."), with *State v. Copeland*, 922 P.2d 1304, 1312 (Wash. 1996). ("The rationale of the *Frye* standard, which requires general acceptance in the relevant scientific community, is that expert testimony should be presented to the trier of

The distinction is the difference between general acceptance of how the technique works and why the technique works. In order to understand fully the reliability of a scientific technique, courts should analyze testimony concerning both how and why it works. This is because evidence based on faulty methods is as unreliable as evidence based on faulty reasoning. *Frye*, however, fails to make a distinction, thus providing yet another area of disagreement among jurisdictions. For example, in Illinois the Second and Fourth Districts disagree concerning exactly what must be generally accepted. The Second District has held that the procedures applying a generally accepted theory are not subject to *Frye*.¹⁹⁴ The Fourth District disagrees, holding instead that "both the theory and the techniques or procedures implementing the theory must be generally accepted in the relevant scientific community."¹⁹⁵ This provides another drawback of *Frye*, as disagreement and lack of clarity could result in inconsistency, or worse, the inclusion of unreliable evidence through a failure to examine why a technique works.

B. Problems After Application

Apart from the numerous problems encountered in applying the general acceptance standard are those that arise from its operation. Most notably are the exclusion of reliable evidence and the inclusion of unreliable evidence,¹⁹⁶ both of which impact the jury's fact-finding role. The time lag before a new technique or method can gain enough support to attain general acceptance unsuitably precludes reliable evidence. By keeping reliable evidence away from the jury, *Frye* fails by not allowing a proper inquiry and determination of the facts at issue. In Illinois, the admissibility of evidence derived from the product rule (the final step of DNA profiling) demonstrates the

fact only when the scientific community has accepted the reliability of the underlying principles." (citation omitted).

194. See *People v. Miles*, 577 N.E.2d 477, 485 (Ill. App. Ct. 1991) (echoing and applying the holding in *Lipscomb* that procedures applying generally accepted scientific theories are not subject to *Frye*); *People v. Lipscomb*, 574 N.E.2d 1345, 1357 (Ill. App. Ct. 1991) (asserting that "[a]ny question concerning the specific procedures used by the company or expert goes to the reliability of the evidence and is properly considered by the jury in determining what weight to give to this evidence").

195. *People v. Dalcollo*, 669 N.E.2d 378, 385-86 (Ill. App. Ct. 1996) (citations omitted).

196. As the Supreme Court noted in *Daubert*, the exclusion of reliable evidence will occur no matter how flexible the approach, and this must be tolerated to an extent. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 597 (1993). However, the inclusion of unreliable evidence (or junk science) is not to be tolerated, as this more than any other factor may impair the jury's fact finding role. It is here that *Frye* fails most blaringly.

unnecessary time lag resulting from *Frye*. The product rule is a method of forensic DNA analysis that helps to determine the statistical probability that DNA found at a crime scene matches a defendant's DNA.¹⁹⁷ In 1994, the Illinois First District Appellate Court held that the product rule had not yet gained general acceptance in the relevant scientific community after reviewing the relevant legal and scientific authority.¹⁹⁸ Two and a half years later, the Illinois Supreme Court concluded that the product rule method qualified as generally accepted, once again after reviewing the relevant legal and scientific authority.¹⁹⁹ During this two and a half year period, the prohibition against using a reliable DNA profiling statistic harmed criminal defendants, state's attorneys, and countless others.²⁰⁰ By relying on more than simply general acceptance, *Daubert* succeeds in avoiding unnecessary time lapses, and therefore affords the jury a proper opportunity to perform its fact-finding role.

The exclusion of reliable evidence may prevent a jury from fully fulfilling its role, but the introduction of unreliable expert evidence is even more harmful, as it may permanently affect parties' rights by a decision reached contrary to fact.²⁰¹ Again, there may be a time lag before testimony, literature, or judicial opinion shows certain evidence to be unreliable, or in other words no longer generally accepted. For example, in the 1930s courts began admitting evidence

197. See generally David H. Kaye & George F. Sensabaugh, Jr., *The Scientific Status of DNA Testing*, in SCIENCE IN THE LAW, FORENSIC SCIENCE ISSUES § 11-2.6.2 (2002), for discussion of the product rule and its uses.

198. See *People v. Watson*, 629 N.E.2d 634, 644 (Ill. App. Ct. 1994). Not only did this preclude product rule testimony, but evidence that the two samples of DNA matched. The court held that in order to give meaning to a DNA match it was essential to provide a probability assessment, and thus, as the probability assessment was inadmissible so was any fact of a match. *Id.*

199. See *People v. Miller*, 670 N.E.2d 721, 731-32 (Ill. 1996).

200. Not only was the product rule shown to be generally accepted in Illinois and other states, see cases cited in *Miller*, *id.* at 732, but during the time lag in Illinois the Oklahoma Criminal Appeals Court, utilizing the *Daubert* standard, held the product rule reliable and admissible. See *Taylor v. State*, 889 P.2d 319, 333-38 (Okla. Crim. App. 1995).

201. This could play out in one of two ways. In one situation the jury, parties, and court may all be unaware of the unreliability of the evidence. Here although the losing party does not feel wronged, there is still an injustice, as the court may reach a decision that is contrary to what actually should have happened. In the other situation, one party may be aware of the unreliability of the evidence, lose a *Frye* hearing due to general acceptance, and attempt to persuade the jury of the unreliability through cross-examination or presentation of contrary evidence. No matter what evidence the party presents to the jury to challenge the evidence's reliability, however, the jury heard the testimony, and as the California Supreme Court wisely stated, "[I]ay jurors tend to give considerable weight to 'scientific' evidence when presented by 'experts' with impressive credentials." *People v. Kelly*, 549 P.2d 1240, 1245 (Cal. 1976).

based on paraffin tests.²⁰² Law enforcement agencies performed the test to detect gunshot residue on the hand of a person who had recently fired a gun.²⁰³ For nearly thirty years, courts deemed the test generally accepted; it was not until 1967 that the first comprehensive study found the test unreliable.²⁰⁴ Thus, by relying on the incorrect assumption that general acceptance equates to scientific validity, courts used an unreliable test to admit faulty evidence and taint the jury's role, and possibly a criminal defendant's freedom.

C. Daubert Criticisms

The attack on *Daubert's* standard began with its dissent. Chief Justice Rehnquist, joined by Justice Stevens, concurred that *Frye* did not survive the enactment of the Federal Rules of Evidence. The Justices' dissent focused on the "[g]eneral observations" of the majority, categorizing them as suffering "from the flaw common to most such observations . . . they tend to be not only general, but vague and abstract."²⁰⁵ It must be recalled, however, that the majority stressed the FRE 702 inquiry as a flexible one, and provided the considerations as a mere guide to the trial court.²⁰⁶ A trial court is free to fashion and utilize any number of factors in order to ensure the reliability of scientific evidence. Additionally, as the Nebraska Supreme Court emphasized in adopting the *Daubert* standard, there has been substantial development of the *Daubert* standard in state and federal courts since its inception.²⁰⁷ Furthermore, testing, peer review and publication, error rate, and controlling standards are not vague or abstract propositions in which to inquire. Conversely, there are readily identifiable concrete methods to gauge the scientific validity of a technique or method. Most importantly, this information is not subject to the subjectivity of a survey of general acceptance. The *Daubert* considerations taken as a whole, unlike a single query into general acceptance, provide a more accurate window into the reliability of a proposed technique or method.²⁰⁸

202. See *Giannelli*, *supra* note 22, at 1224–25.

203. See *id.* at 1224–28 for a more detailed description of the paraffin test.

204. *Id.* at 1224–25.

205. *Daubert*, 509 U.S. at 598 (Rehnquist, C.J., dissenting).

206. *Id.* at 594–95.

207. See *Schafersman v. Agland Coop*, 631 N.W.2d 862, 872–73 (Neb. 2001).

208. The dissent also raised questions concerning *Daubert's* scope in regard to technical or other forms of evidence admissible under FRE 702, questions that were answered by *Kumho* and *Joiner*. See *supra* notes 61–69 and accompanying text.

By placing the gatekeeping function with trial judges, critics have accused *Daubert* of unduly burdening trial judges by requiring them to be amateur scientists. They argue *Frye* is better suited because it relies on scientists rather than judges to determine scientific reliability. This notion requires three assumptions: first, scientists are the proper authorities to gauge the scientific validity of a technique or method; second, general acceptance of a scientific technique or method equates scientific validity; and third, scientific validity equals evidentiary reliability. The first assumption is correct, for as well-educated as a trial judge may be, it is the proper role of a scientist to gauge scientific validity. The next two assumptions are incorrect. First, although general acceptance may be proof of the scientific validity of a technique or method, it is not the only way to prove validity and is not even a scientifically created method. A court rather than a scientific journal or association declared general acceptance as the measure of scientific validity. Second, the Supreme Court in *Daubert* may have noted that evidentiary reliability is based upon scientific validity,²⁰⁹ but nowhere is it stated that scientific validity equates evidentiary reliability. It is just as improper for a scientist to rely on a judge to determine scientific validity as it is for a judge to rely on a scientist to determine evidentiary reliability. Rather, it is the proper role of the trial judge to determine the admissibility of evidence, as it is the trial judge that is subject to appellate review for those rulings. *Daubert* allows trial judges to perform their role—to determine the admissibility of scientific evidence based on scientific validity, grounded in evidentiary reliability.

D. *The Solution: Adoption of FRE 702 and/or Daubert*

Adopting FRE 702²¹⁰ and/or *Daubert* can provide structure and guidance to an area of Illinois law that its courts have sparsely defined, and that is at times confusing.²¹¹ Since 1923, Illinois courts have

209. *Daubert*, 509 U.S. at 590 n.9.

210. Many jurisdictions utilize FRE 702 as their standard for the admission of expert testimony without adhering to *Daubert's* considerations. See, e.g., *supra* note 112.

211. The Supreme Court of Nebraska put it well, stating that:

Given the number of jurisdictions that have adopted the *Daubert* standards and the extensive development of the *Daubert* standards in the state and federal courts, it can no longer be said that the nature and implications of *Daubert* are unknown. In fact, to the extent that this consideration is still relevant, it militates in favor of adopting the *Daubert* standards, as Nebraska courts risk losing the benefit of helpful and persuasive authority from other jurisdictions on newly presented evidentiary issues by their con-

cited *Frye* only seventy times, compared with 673 times in highest courts of every other jurisdiction.²¹² In its short nine-year history, the highest courts in every jurisdiction have cited *Daubert* 403 times, and the Seventh Circuit alone has done so ninety-nine times.²¹³ The number of *Frye* jurisdictions is slowly yet assuredly dwindling, a fact which Illinois must take note of. The Fourth District Appellate Court in *Cropmate* signaled the beginning of *Daubert's* infusion into Illinois law.²¹⁴ Unfortunately, the Illinois Supreme Court did not see it that way, and overruled the “*Frye* plus reliability” standard.²¹⁵ In doing so, however, the court declared that a determination of reliability is “subsumed” by an inquiry into general acceptance and, most astonishingly, that “a principle or technique is not generally accepted in the scientific community if it is by nature unreliable.”²¹⁶ The history of the paraffin test instructs otherwise.²¹⁷ Further, it is a mistake to infer scientific validity from a judicially created standard that demonstrates nothing more than general acceptance among the relevant scientific community. In short, *Frye* cannot ensure reliability because it does not test for reliability; it simply asks whether a technique or method is generally accepted. In order to protect the judicial process, “the focus should not be solely on whether the scientific technique has gained general acceptance within its particular field. Rather, it should be on the validity and the soundness of the scientific method used to generate the evidence.”²¹⁸ Therefore, Illinois courts must replace *Frye* with a standard that can

tinued reliance on a test that is being increasingly removed from the jurisprudential mainstream.

Schafersman, 631 N.W.2d at 873 (citation omitted).

212. It is safe to assume that simple citation of *Frye* does not include, in every instance, analysis, examination, or discussion of the general acceptance standard. The figures for Illinois and the Seventh Circuit include only published opinions. *Supra*, note 128. The figure for the highest courts in every jurisdiction includes all cases.

213. Information based on a Westlaw search of *Frye* and *Daubert* on April 13, 2003. *Daubert* has been cited, as of April 13, 2003: eight times in the Supreme court, forty-two times in the First Circuit, twenty-six times in the Second Circuit, thirty-three times in the Third Circuit, twenty-four times in the Fourth circuit, sixty-two times in the Fifth Circuit, forty-six times in the Sixth circuit, ninety times in the Eighth circuit, eighty-one times in the Ninth circuit, fifty-one times in the Tenth circuit, twenty-four times in the Eleventh Circuit, ten times in the D.C. Circuit, and twenty-one times in the Federal Circuit. These numbers include only published cases and do not include cases that mention *Daubert*, but do not actually cite thereto.

214. See *Harris v. Cropmate*, 706 N.E.2d 55, 65 (Ill. App. Ct. 1999), overruled by *Donaldson v. Cent. Ill. Pub. Serv. Co.*, 767 N.E.2d 314 (Ill. 2002).

215. See *Donaldson*, 767 N.E.2d at 314; *supra* notes 167–70 and accompanying text.

216. *Donaldson*, 767 N.E.2d at 326. (citation omitted)

217. See *supra* notes 202–04 and accompanying text.

218. *State v. Alberico*, 861 P.2d 192, 203 (N.M. 1993).

with a standard that can ensure reliability through a genuine inquiry into scientific validity: FRE 702 and/or *Daubert*.

The United States Supreme Court emphasized the flexible, liberal thrust of FRE 702 on the way to formulating the *Daubert* standard.²¹⁹ Should Illinois adopt FRE 702, it would not be the first time the state has judicially adopted an evidentiary rule intended to liberalize trial procedures. In 1981, the Illinois Supreme Court adopted FRE 703, in line with the “modern trend liberalizing certain trial procedures.”²²⁰ FRE 703 states that an expert may give an opinion or inference based on facts or data not admissible in evidence if the facts or data are “of a type *reasonably relied upon* by experts in the particular field in forming opinions or inferences upon the subject.”²²¹ Further, the Rule provides that “[f]acts or data that are otherwise inadmissible shall not be disclosed to the jury . . . unless the court determines that their probative value in assisting the jury to evaluate the expert’s opinion substantially outweighs their prejudicial effect.”²²² Therefore, according to FRE 703, an expert may presumably give an opinion based on a scientific technique or theory that experts in their field reasonably rely upon, regardless of whether the scientific technique meets the more stringent standard of general acceptance.²²³ Apart from the internal conflict presented between

219. See *supra* text accompanying note 36.

220. *Wilson v. Clark*, 417 N.E.2d 1322, 1327 (Ill. 1981). The court also adopted FRE 705. *Id.*

221. FED. R. EVID. 703.

222. *Id.* Additionally, although the underlying facts or data are not admitted for their truthfulness (they may be admitted for the limited purpose of explaining the expert’s opinion), the expert’s opinion is admitted as substantive evidence. Similarly, the Illinois Supreme Court has held that it can be reversible error *not* to allow the expert to disclose to the jury inadmissible hearsay they relied upon if the jury is left to believe the expert has no reasonable basis for their opinion. See *People v. Anderson*, 495 N.E.2d 485 (Ill. 1986); see generally CORKERY, *supra* note 150, § 703.000.

223. In choosing whether to apply *Frye*, many states draw a distinction between an expert’s opinion based on their own experience, observation and study, and an opinion based on novel scientific principles presented by others. Only in the latter example would the testimony be subject to *Frye*. See, e.g., *Kuhn v. Sandoz Pharm. Corp.*, 14 P.3d 1170, 1181 (Kan. 2000); *Logerquist v. McVey*, 1 P.3d 113, 123 (Ariz. 2000). The *Logerquist* court explained this distinction as follows:

Frye is applicable when an expert witness reaches a conclusion by deduction from the application of novel scientific principles, formulae, or procedures developed by others. It is inapplicable when a witness reaches a conclusion by inductive reasoning based on his or her own experience []. In the latter case, the validity of the premise is tested by interrogation of the witness; in the former case, it is tested by inquiring into general acceptance.

Id. at 133; see also *Flanagan*, 625 So. 2d at 828 (asserting that “pure opinion testimony, such as an expert’s opinion that a defendant is incompetent, does not have to meet *Frye*, because this type of testimony is based on the expert’s personal experience and training”). The results of

FRE 703 and the intentions of *Frye*²²⁴ is the lesson—Illinois has already recognized the flexible trial procedures embodied in FRE 702 and *Daubert* through its adoption of FRE 703.²²⁵

CONCLUSION

The presence of scientific and technical evidence at trial has increased markedly over the last thirty years, as it will no doubt long into the future. Coupled with this increase has been the speed at which new technology becomes old and obsolete. In order to keep up with the advances made in the laboratory, and to allow the jury to perform its proper fact-finding role, courts must arm themselves with a standard capable of evolving with the times. *Frye* is incapable of this. The rigid general acceptance standard admits unreliable evidence and excludes reliable evidence. It creates an impermissible time lag between the discovery of a reliable technique or method and its admissibility. *Frye's* factors and boundaries are hard to define, and have long been the subject of widespread criticism. These reasons, among others, have led thirty-seven jurisdictions to modify or abandon *Frye's* general acceptance standard. Illinois should follow suit, abandoning the general acceptance standard in favor the more flexible FRE 702 and/or *Daubert*-based approaches capable of evolving with the times. In one final application, Illinois should find that *Frye* is no longer generally accepted and finally lay it to rest.

this distinction are illogical, as the jury could be tainted by junk science just because the expert presenting it was the one who thought of it.

224. The Alaska Supreme Court recognized this conflict, stating that “our decisions in *Contreras* [incorrectly assuming that the Federal Rules of Evidence did not change the *Frye* test] ignored Alaska Rule of Evidence 703, which employs a ‘reasonably relied upon by experts’ standard in contrast to *Frye's* ‘general acceptance’ standard.” *State v. Coon*, 974 P.2d 386, 394 (Alaska 1999). Additionally, the court based its adoption of *Daubert* not on its version of FRE 702, but rather its version and comments to FRE 703. Thus, even if Illinois were not to adopt FRE 702, it could already have enough of a basis to adopt *Daubert* based in FRE 703.

225. The Illinois Supreme Court took notice in *Wilson v. Clark* of the number of other states that had already adopted FRE 703 and FRE 705, those being eighteen and seventeen states respectively. *Clark*, 417 N.E.2d at 1327. The court should likewise take note of the forty-five states that have adopted a version of Rule 702. See *infra* tbl. 2.

APPENDIX

TABLE 1.
 JURISDICTION'S STANCE ON THE ADMISSION OF NOVEL
 SCIENTIFIC EVIDENCE

JURISDICTION	ILLUSTRATIVE HIGH COURT DECISION	FRE 702 OR SIMILAR	STANDARD FOR ADMISSION ²²⁶
Alabama	<i>S. Energy Homes, Inc. v. Washington</i> , 774 So. 2d 505 (Ala. 2000); <i>Ex parte Perry</i> , 586 So. 2d 242 (Ala. 1991)	Yes	MF
Alaska	<i>State v. Coon</i> , 974 P.2d 386 (Alaska 1999)	Yes	D
Arizona	<i>Logerquist v. McVey</i> , 1 P.3d 113 (Ariz. 2000)	Yes	F
Arkansas	<i>Farm Bureau Mut. Ins.e Co. of Ark., Inc. v. Foote</i> , 14 S.W.3d 512 (Ark. 2000)	Yes	D
California	<i>People v. Leahy</i> , 882 P.2d 321 (Cal. 1994); <i>People v. Kelly</i> , 549 P.2d 1240 (Cal. 1979)	No ²²⁷	F
Colorado	<i>People v. Shreck</i> , 22 P.3d 68 (Colo. 2001)	Yes	R ²²⁸
Connecticut	<i>State v. Porter</i> , 698 A.2d 739 (Conn. 1997)	Yes	D
Delaware	<i>M.G. Bancorporation, Inc. v. LeBeau</i> , 737 A.2d 513 (Del. 1999)	Yes	D
D.C.	<i>Nixon v. U.S.</i> , 728 A.2d 582 (D.C. 1999)	No	F

226. Standard for the admission of novel scientific evidence. CL: common law jurisdiction; D: *Daubert* jurisdiction; F: *Frye* jurisdiction; MF: modified *Frye* jurisdiction; R: rule based jurisdiction; R/D: rule based jurisdiction which utilizes, without adopting, *Daubert* criteria.

227. *But see* *People v. Leahy*, 882 P.2d 321, 327–28 (Cal. 1994) (stating that California Evidence Code sections 720 and 801 are the “functional equivalent” of FRE 702).

228. Although Colorado has not adopted *Daubert*, the state acknowledged *Daubert*'s criteria as useful. *See* *People v. Shreck*, 22 P.3d 68, 78 (Colo. 2001).

Florida	<i>Ramirez v. State</i> , 810 So. 2d 836 (Fla. 2001)	Yes	F
Georgia	<i>Harper v. State</i> , 292 S.E.2d 389 (Ga. 1982)	No	CL ²²⁹
Hawaii	<i>State v. Fukusaka</i> , 946 P.2d 32 (Haw. 1997)	Yes	R
Idaho	<i>Walker v. American Cyanamid Co.</i> , 948 P.2d 1123 (Idaho 1997); <i>State v. Gleason</i> , 844 P.2d 691 (Idaho 1992)	Yes	R
Illinois	<i>Donaldson v. Ill. Pub. Serv. Co.</i> , 767 N.E.2d 314 (Ill. 2002); <i>People v. Miller</i> , 670 N.E.2d 721 (Ill. 1996)	No	F
Indiana	<i>Sears Roebuck & Co. v. Manuilov</i> , 742 N.E.2d 453 (Ind. 2001)	Yes	R
Iowa	<i>Leaf v. Goodyear Tire & Rubber Co.</i> , 590 N.W.2d 525 (Iowa 1999)	Yes	R
Kansas	<i>Kuhn v. Sandoz Pharm. Co.</i> , 14 P.3d 1170 (Kan. 2000)	No	F
Kentucky	<i>Goodyear Tire & Rubber Co. v. Thompson</i> , 11 S.W.3d 575 (Ky. 2000)	Yes	D
Louisiana	<i>Blank v. Sid Richardson Carbon & Gasoline Co.</i> , 762 So. 2d 1115 (La. 2000); <i>State v. Foret</i> , 628 So. 2d 1116 (La. 1993)	Yes	D
Maine	<i>State v. Tomah</i> , 736 A.2d 1047 (Me. 1999); <i>State v. Williams</i> , 388 A.2d 500 (Me. 1978)	Yes	R

229. The state's test requires the court to ask whether the procedure or technique in question has reached a scientific stage of verifiable certainty. *Harper v. State*, 292 S.E.2d 389, 395 (Ga. 1982).

Maryland	<i>Burrall v. State</i> , 724 A.2d 65 (Md. 1999); <i>Reed v. State</i> , 391 A.2d 364 (Md. 1978);	Yes	F
Massachusetts	<i>Commonwealth v. Lanigan</i> , 641 N.E.2d 1342 (Mass. 1994)	Yes	D
Michigan	<i>People v. Peterson</i> , 537 N.W.2d 857 (Mich. 1995)	Yes	F
Minnesota	<i>Goeb v. Tharaldson</i> , 615 N.W.2d 800 (Minn. 2000)	Yes	MF
Mississippi	<i>Gleaton v. State</i> , 716 So. 2d 1083 (Miss. 1998)	Yes	F
Missouri	<i>Callahan v. Cardinal Glennon Hosp.</i> , 863 S.W.2d 852 (Mo. 1993)	Yes	F
Montana	<i>Gilkey v. Schweitzer</i> , 983 P.2d 869 (Mont. 1999)	Yes	D
Nebraska	<i>Schafersman v. Agland Coop</i> , 631 N.W.2d 862 (Neb. 2001)	Yes	D
Nevada	<i>Yahama Motor Co., U.S.A. v. Arnoult</i> , 955 P.2d 661 (Nev. 1998); <i>Townsend v. State</i> , 734 P.2d 705 (Nev. 1987)	Yes	R
New Hampshire	<i>State v. Cort</i> , 766 A.2d 260 (N.H. 2000)	Yes	F
New Jersey	<i>State v. Harvey</i> , 699 A.2d 596 (N.J. 1997); <i>Rubanick v. Witco Chem. Corp.</i> , 593 A.2d 733, 747 (N.J. 1991) (toxic tort exception)	Yes	MF
New Mexico	<i>State v. Alberico</i> , 861 P.2d 192 (N.M. 1993)	Yes	R
New York	<i>People v. Wernick</i> , 674 N.E.2d 322 (N.Y. 1996) ²³⁰	No	F

230. *But see* *Clemente v. Blumenberg*, 705 N.Y.S.2d 792 (N.Y. Sup.Ct. 1999); *Wahl v. Am. Honda Motor Co.*, 693 N.Y.S.2d 875 (N.Y. Sup. Ct. 1999).

North Carolina	<i>State v. Goode</i> , 461 S.E.2d 631 (N.C. 1995)	Yes	R
North Dakota	<i>Meyer v. Rygg</i> , 630 N.W.2d 62 (N.D. 2001)	Yes	R
Ohio	<i>Miller v. Bike Athletic Co.</i> , 687 N.E.2d 735 (Ohio 1998)	Yes	R
Oklahoma	<i>Taylor v. State</i> , 889 P.2d 319 (Ok. Crim. App. 1995) ²³¹	Yes	D
Oregon	<i>State v. O'Key</i> , 899 P.2d 663 (Or. 1995)	Yes	D
Pennsylvania	<i>Blum ex rel. Blum v. Merrell Dow Pharm., Inc.</i> , 764 A.2d 1 (Pa. 2000)	Yes	F
Rhode Island	<i>Raimbeault v. Takeuchi Mfg. (U.S.), Ltd.</i> , 772 A.2d 1056 (R.I. 2001)	Yes	D
South Carolina	<i>State v. Council</i> , 515 S.E.2d 508 (S.C. 1999)	Yes	R
South Dakota	<i>State v. Hofer</i> , 512 N.W.2d 482 (S.D. 1994)	Yes	D
Tennessee	<i>McDaniel v. CSZ Transp., Inc.</i> , 955 S.W.2d 257 (Tenn. 1997)	Yes	R ²³²
Texas	<i>E.I. Du Pont Nemours and Co., Inc. v. Robinson</i> , 923 S.W.2d 549 (Tex. 1995)	Yes	D
Utah	<i>State v. Crosby</i> , 927 P.2d 638 (Utah 1996)	Yes	CL ²³³
Vermont	<i>State v. Streich</i> , 658 A.2d 38 (Vt. 1995)	Yes	D
Virginia	<i>Spencer v. Commonwealth</i> , 393 S.E.2d 609 (Va. 1990)	Yes	R
Washington	<i>Medcalf v. Dept. of Licensing</i> , 944 P.2d 1014 (Wash. 1997)	Yes	F

231. There is no illustrative state supreme court decision on point.

232. "Although we do not expressly adopt *Daubert*, the non-exclusive list of factors to determine reliability are useful in applying our Rules 702 and 703." *McDaniel v. CSX Transp., Inc.*, 955 S.W.2d 257, 265 (Tenn. 1997).

233. The jurisdiction uses an "inherent reliability" test. *State v. Crosby*, 927 P.2d 638, 640 (Utah 1996).

	1997); <i>State v. Copeland</i> , 922 P.2d 1304 (Wash. 1996)		
West Virginia	<i>Wilt v. Buracker</i> , 443 S.E.2d 196 (W. Va. 1993)	Yes	D
Wisconsin	<i>State v. Walstad</i> , 351 N.W.2d 469 (Wis. 1984)	Yes	R
Wyoming	<i>Bunting v. Jamieson</i> , 984 P.2d 467 (Wyo. 1999)	Yes	D

TABLE 2.

JURISDICTIONAL ADOPTION OF FRE 702

JURISDICTIONS THAT HAVE ADOPTED FRE 702 OR SIMILAR (45)	JURISDICTIONS THAT HAVE NOT ADOPTED FRE 702 OR SIMILAR (6)
Alabama, Alaska, Arizona, Arkansas, Colorado, Connecticut, Delaware, Florida, Hawaii, Idaho, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming	California, District of Columbia, Georgia, Illinois, Kansas, New York

TABLE 3.
RULE 702 JURISDICTIONS AND THE FRYE HYDRA

FRE 702 JURISDICTIONS THAT UTILIZE <i>FRYE</i> (8)	FRE 702 JURISDICTIONS THAT MODIFY <i>FRYE</i> (4)	FRE 702 JURISDICTIONS THAT REJECT <i>FRYE</i> (33)
Arizona, Florida, Maryland, Michigan, Mississippi, New Hampshire, Pennsylvania, Washington	Alabama, Minnesota, Missouri, New Jersey	Alaska, Arkansas, Colorado, Connecticut, Delaware, Hawaii, Idaho, Indiana, Iowa, Kentucky, Louisiana, Maine, Massachusetts, Montana, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia, Wisconsin, Wyoming

TABLE 4.
NON-RULE 702 JURISDICTIONS AND THE FRYE HYDRA

NON-FRE 702 JURISDICTIONS THAT UTILIZE <i>FRYE</i> (5)	NON-FRE 702 JURISDICTIONS THAT REJECT <i>FRYE</i> (1)
California, District of Columbia, Illinois, Kansas, New York	Georgia