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(Partial) Clarity: Eliminating the Confusion About the Regulation of the "Fact"ual Bases for Expert Testimony Under the Federal Rules of Evidence

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(PARTIAL) CLARITY: ELIMINATING THE CONFUSION ABOUT THE REGULATION OF THE “FACT”UAL BASES FOR EXPERT TESTIMONY UNDER THE FEDERAL RULES OF EVIDENCE

EDWARD J. IMWINKELRIED*

ABSTRACT

Expert testimony is offered at the vast majority of trials in courts of general jurisdiction in the United States. Federal Rules of Evidence 702-06 govern the admissibility of such testimony. In its May 15, 2021, report accompanying the most recent proposed amendment to Rule 702, the Advisory Committee on the Evidence Rules asserts that “many courts” have misapplied Rule 702 by holding that questions as to whether “the expert has relied on sufficient facts or data ... are questions of weight and not admissibility.” Rule 702(b) states that to be admissible, an expert opinion must be “based on sufficient fact or data.” The Committee adds that this error has occurred “in a fair number of cases.”

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The Committee's criticism is valid—but incomplete. The central contention of this Article is that another major, contributing cause to the problem is the courts' misunderstanding of the relationship between the expression "scientific ... knowledge" in Rule 702 and the expressions "facts" or "facts or data" which appear in Rules 702(b), 702(d), 703, and 705. This Article contends that properly interpreted, the latter expressions include only case-specific information, not research data relevant to the validation of the expert's methodology as reliable "scientific ... knowledge."

Positing that interpretation, this Article then attempts to clarify the judge's and jury's roles in evaluating the credibility, quality, and quantity of the factual bases for proffered expert opinions. More specifically, the Article argues that the jury has the exclusive authority to pass on the credibility of the testimony about the factual bases of admitted opinions. However, before admitting the opinion, the judge must assess the quality of the type of case-specific information that the expert contemplates relying on. If the information takes the form of secondhand reports about out-of-court statements, under Rule 703 the judge must determine whether the "experts in the particular field would reasonably rely on those kinds of facts or data."

Moreover, again before allowing the expert to submit his or her opinion to the jury, under Rule 702(b) the judge must independently assess the quantity of the information. For example, if an accident reconstruction expert proposes opining about the point of impact (POI) in a case, the judge must inquire whether the expert has identified enough case-specific information such as testimony about the vehicles' final resting places and the location of the debris to adequately support a conclusion about POI.

These conclusions not only respect the legitimate authority of both judge and jury, but they also give the Rule provisions on expert testimony logical coherence.

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INTRODUCTION

“[C]larity is the hardest thing of all.”—Julian Barnes¹

It is a commonplace observation that expert testimony figures prominently in modern trials. In 1980, the National Center for State Courts released the results of a nationwide survey of trial judges and attorneys.² In that survey, the respondents indicated that they encountered expert testimony in approximately one-third of their trials.³ However, by the early 1990s the use of expert testimony had dramatically accelerated and become much more widespread.⁴ By the time of the famous 1990 RAND Corporation study of the use of such testimony in California Superior Court civil trials,⁵ the researchers discovered that experts appeared in 86 percent of the cases.⁶ On average, there were 3.3 experts per trial.⁷ A more recent study reported that that figure has risen to 4.3 experts per trial.⁸ One prosecutor has claimed that today expert testimony on such topics as DNA typing is “the backbone of every circumstantial evidence case.”⁹ One commentator committed only mild hyperbole when he asserted that in the United States, trial by jury is evolving into trial by expert.¹⁰

Article VII of the Federal Rules of Evidence contains the provisions governing the admissibility of opinion testimony.¹¹ While Rule 701 controls the admission of lay opinion testimony, Rules 702-06

1. JULIAN BARNES, *FLAUBERT’S PARROT* 102 (1984).

2. *Study to Investigate Use of Scientific Evidence*, 7 NAT’L CTR. FOR STATE CTS. REP. 1 (Aug. 1980).

3. *Id.*

4. See Edward J. Imwinkelried, *The Admissibility of Scientific Evidence: Exploring the Significance of the Distinction Between Foundational Validity and Validity as Applied*, 70 SYRACUSE L. REV. 817, 817 (2020).

5. See Samuel R. Gross, *Expert Evidence*, 1991 WIS. L. REV. 1113, 1120 n.19.

6. *Id.* at 1119.

7. *Id.*

8. See RONALD J. ALLEN, RICHARD B. KUHN, ELEANOR SWIFT, DAVID S. SCHWARTZ & MICHAEL S. PARDO, *EVIDENCE: TEXT, PROBLEMS, AND CASES* 649 (5th ed. 2011).

9. Ward F. Clark, *Scientific Evidence*, in *THE PROSECUTOR’S DESKBOOK* 542 (Patrick F. Healy & James P. Manak eds., 1971).

10. William T. Pizzi, *Expert Testimony in the US*, 145 NEW L.J. 82 (1995).

11. FED. R. EVID. 701.

contain numerous prescriptions regulating expert testimony.¹² Some of those provisions surface again and again in the published opinions.¹³ For example, when the judge faces the threshold question of whether there is an absolute or relative necessity for resorting to expert testimony, Rule 702(a) is on point; 702(a) announces that the judge must find that the testimony would “help the trier of fact to understand the evidence or to determine a fact in issue.”¹⁴ If the judge concludes that an expert opinion on the subject would be helpful, the proponent must then lay the other elements of the foundation.¹⁵ To begin with, under the Supreme Court’s celebrated 1993 *Daubert* decision, the proponent must establish that the expert employed a reliable methodology;¹⁶ in the words of Rule 702(c), these must be “reliable principles and methods.”¹⁷ Next, the expert applies that methodology to assess the significance of certain facts in the case, such as a DNA sample or a psychiatric patient’s case history. Rule 703 speaks to the “kinds” of facts the expert applies the methodology to,¹⁸ and Rule 702(b) announces that the expert’s opinion must be “based on sufficient facts or data.”¹⁹ Rule 702(d) demands proof that the expert “reliably applied” the methodology to those facts.²⁰ Ultimately, the application of the methodology to the facts of the case yields the expert’s final opinion. Rule 704 addresses the limitations on the wording of that opinion,²¹ and Rule 705 discusses which components of his or her reasoning the expert may withhold on direct examination.²² At least at first blush, these provisions seem to constitute a detailed, comprehensive framework for a judge passing on the admissibility of expert testimony.

Given this apparently comprehensive framework and the frequency with which expert testimony is proffered at trial, one would hope that by now the courts would have developed a clear, coherent

12. See FED. R. EVID. 701-06.

13. See *id.*

14. FED. R. EVID. 702(a).

15. See EDWARD J. IMWINKELRIED, EVIDENTIARY FOUNDATIONS § 4.10 (11th ed. 2020).

16. See *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 597 (1993).

17. FED. R. EVID. 702(c).

18. FED. R. EVID. 703.

19. FED. R. EVID. 702(b).

20. FED. R. EVID. 702(d); see Imwinkelried, *supra* note 4, at 819, 828 (discussing *United States v. Gissantaner*, 417 F. Supp. 3d 857 (W.D. Mich. 2019)).

21. See FED. R. EVID. 704.

22. See FED. R. EVID. 705.

analysis to assess the admissibility of expert testimony. After all, the basic structure of the Rule 702-06 scheme has been in place for almost half a century.²³ In their earliest form, these provisions became law on July 1, 1975, the effective date of the Federal Rules of Evidence.²⁴ Yet, sadly, forty-seven years later a coherent analytic framework is still lacking. Even today both judges²⁵ and academic commentators loudly complain that the judicial application of the Federal Rules' expert testimony provisions is confused and unsatisfactory.²⁶ In particular, the critics assert that despite the thousands of cases applying Rules 702-06 to date, it remains unclear to what extent and how the courts should evaluate the "factual" bases of expert opinion testimony.²⁷ These questions relate to the fundamental problem of the tripartite division of labor with respect to the factual bases: What is the extent of the judge's authority, what role does the jury play, and which issues, if any, does the expert have the final say on?

This short Article does not undertake the Herculean task of trying to end all the controversies surrounding Article VII. For example, this Article does not address the longstanding, thorny problem of determining the reliability of methodologies used by nonscientific expert witnesses.²⁸ Rather, the limited objective of this

23. See RONALD L. CARLSON, EDWARD J. IMWINKELRIED, JULIE SEAMAN & ERICA BEECHER-MONAS, *EVIDENCE: TEACHING MATERIALS FOR AN AGE OF SCIENCE AND STATUTES* 13, 15 (8th ed. 2018).

24. See *id.*

25. See Thomas D. Schroeder, *Toward a More Apparent Approach to Considering the Admission of Expert Testimony*, 95 NOTRE DAME L. REV. 2039, 2043, 2059-60 (2020).

26. See generally David E. Bernstein & Eric G. Lasker, *Defending Daubert: It's Time to Amend Federal Rule of Evidence 702*, 57 WM. & MARY L. REV. 1 (2015); Joseph Sanders, *Applying Daubert Inconsistently?: Proof of Individual Causation in Toxic Tort and Forensic Cases*, 75 BROOK. L. REV. 1367 (2010); Jennifer Laser, Note, *Inconsistent Gatekeeping in Federal Courts: Application of Daubert v. Merrell Dow Pharmaceuticals, Inc. to Nonscientific Expert Testimony*, 30 LOY. L.A. L. REV. 1379 (1997).

27. See Schroeder, *supra* note 25, at 2045, 2049, 2055, 2057; Bernstein & Lasker, *supra* note 26, at 17, 30-33.

28. See Edward J. Imwinkelried, *Evaluating the Reliability of Nonscientific Expert Testimony: A Partial Answer to the Questions Left Unresolved by Kumho Tire Co. v. Carmichael*, 52 ME. L. REV. 19, 35 (2000) [hereinafter Imwinkelried, *Evaluating the Reliability of Nonscientific Expert Testimony*]; Edward J. Imwinkelried, *Admissibility of Nonscientific Expert Testimony*, 32 TRIAL, Oct. 1996, at 58; Edward J. Imwinkelried, *The Next Step After Daubert: Developing a Similarly Epistemological Approach to Ensuring the Reliability of Nonscientific Expert Testimony*, 15 CARDOZO L. REV. 2271, 2273-74, 2279 (1994) [hereinafter Imwinkelried, *Next Step After Daubert*].

Article is to clarify the regulation of the “factual” bases of expert opinion testimony. One thesis of this Article is that the root source of the confusion is the failure of many courts to identify the key interpretive issue, namely, the meaning of the expression “facts and data”—language that appears identically in Rules 702(b), 703, and 705. Admittedly, on its face, the reference to “data” is broad enough to refer to scientific research data, such as the empirical data in studies validating new DNA methodologies—data that could be applied in multiple cases.²⁹ However, this Article instead argues that the language ought to be construed narrowly to apply only to case-specific facts such as the who, what, where, when, why, and how of the historical events disputed in the particular case. The Article further contends that if the courts were to embrace that interpretation of the language in Rules 702(b), 703, and 705, there would emerge a clear picture of the parameters of legitimate regulation of the factual bases of expert opinions.

To develop those theses, this Article proceeds in four parts. Parts I and II are descriptive. Part I chronicles the history of Rules 702-05, including the important 2000 amendments and the 2011 restyling. Part II then surveys the confusion in the cases about the respective roles of the judge, jury, and expert in assessing the factual bases of expert opinions. In contrast, Parts III and IV are evaluative. Part III addresses the key statutory construction question: the meaning of the expression “facts or data” in Rules 702(b), 703, and 705. Again, Part III argues for a narrow construction of that language, excluding scientific research “data” transcending the historical events in the specific case. Positing that construction, Part IV then shifts to the question of the regulation of the factual bases of expert opinions. Part IV defines the legitimate roles of the judge and expert under Article VII and, by process of elimination, the remaining, critical role of the jury in gauging the credibility of testimony setting out the factual bases for expert opinions.

29. See Edward J. Imwinkelried, *Developing a Coherent Theory of the Structure of Federal Rule of Evidence 703*, 47 MERCER L. REV. 447, 452-54 (1996).

I. A DESCRIPTION OF THE HISTORY OF THE FEDERAL RULES OF EVIDENCE PROVISIONS GOVERNING THE ADMISSIBILITY OF EXPERT TESTIMONY

As previously stated, Article VII of the Federal Rules of Evidence contains five provisions, Rules 702 through 706, that purport to control the admissibility of expert testimony.³⁰ The current version of three provisions, Rules 702(b), 703, and 705, contains the language that is the focus of this Article, “facts or data.”³¹ If the Rules’ scheme governing expert testimony is to cohere at all, those provisions must be harmonized. It is one of the most basic,³² default principles in statutory construction that if a statutory scheme repeats the same wording in several passages, the passages should ordinarily be given the same meaning.³³ The court of appeals³⁴ and district court³⁵ cases recognizing the principle are legion. The Supreme Court itself has invoked the principle on numerous occasions.³⁶ Admittedly, this interpretive maxim does not operate as a full-fledged, invariable rule.³⁷ Rather, the maxim functions as a

30. See FED. R. EVID. 702-06.

31. FED. R. EVID. 702(b), 703, 705.

32. *First City Bank v. Nat’l Credit Union Admin. Bd.*, 111 F.3d 433, 437-38 (6th Cir. 1997), *cert. denied*, 522 U.S. 1146 (1998); *Hanson Cold Storage Co. v. Chizek Elevator & Transp., Inc.*, 205 F. Supp. 3d 920, 924-25 (W.D. Mich. 2016).

33. *Sargeant v. Hall*, 951 F.3d 1280, 1283 (11th Cir. 2020).

34. See *Freeman v. Quicken Loans, Inc.*, 626 F.3d 799, 803 (5th Cir. 2010); *Caldwell v. Dretke*, 429 F.3d 521, 526 (5th Cir. 2005); *Jackson v. State Bd. of Pardons & Paroles*, 331 F.3d 790, 795 (11th Cir. 2003); *Hous. Police Officers’ Union v. City of Houston*, 330 F.3d 298, 303 (5th Cir. 2003); *Vielma v. Eureka Co.*, 218 F.3d 458, 465 (5th Cir. 2000); *Timex V.I., Inc. v. United States*, 157 F.3d 879, 882 (Fed. Cir. 1998); *United States v. Regents of Univ. of Minn.*, 154 F.3d 870, 874 (8th Cir. 1998); *United States v. Sinskey*, 119 F.3d 712, 715 (8th Cir. 1997); *United States v. Slevin*, 106 F.3d 1086, 1088 (2d Cir. 1996); *United States v. Hopkins*, 53 F.3d 533, 537 (2d Cir. 1995), *cert. denied*, 516 U.S. 1072 (1996).

35. See *Burns v. Cicchi*, 702 F. Supp. 2d 281, 288 (D.N.J. 2010); *Former Emps. of Murray Eng’g v. Chao*, 358 F. Supp. 2d 1269, 1272 (Ct. Int’l Trade 2004); *Dillard v. Jones*, 89 F. Supp. 2d 1362, 1365, 1369 (N.D. Ga. 2000), *aff’d*, 46 F. App’x 617 (11th Cir. 2002); *Johnson v. Garraghty*, 57 F. Supp. 2d 321, 325-26 (E.D. Va. 1999); *Student Loan Mktg. Ass’n v. Riley*, 907 F. Supp. 464, 475 (D.D.C. 1995), *aff’d*, 104 F.3d 397 (D.C. Cir. 1997), *cert. denied*, 522 U.S. 913 (1997); *Mittendorf v. Stone Lumber Co.*, 874 F. Supp. 292, 295 (D. Or. 1994).

36. See *Util. Air Regul. Grp. v. EPA*, 573 U.S. 302, 320 (2014); *Cohen v. de la Cruz*, 523 U.S. 213, 220-21 (1998); *Gustafson v. Alloyd Co.*, 513 U.S. 561, 573-74 (1995); *Dep’t of Revenue of Or. v. ACF Indus., Inc.*, 510 U.S. 332, 342 (1994); *Atl. Cleaners & Dyers v. United States*, 286 U.S. 427, 433 (1932).

37. *United States v. Rivera*, 662 F.3d 166, 176 (2d Cir. 2011); *United States v. Damon*, 595

rebuttable presumption.³⁸ Nevertheless, it is a strong presumption³⁹ because it rests on a natural,⁴⁰ sensible assumption as to the drafters' intent.⁴¹

In some situations, the presumption has special force.⁴² For several reasons, this is one of those situations. To begin with, the words of these Rules were carefully chosen. The Rules of Evidence legislative package was not rushed or hurried; the Judicial Conference devoted seven years to studying the project before the Supreme Court transmitted the draft to Congress, and Congress then deliberated over the draft for more than two years.⁴³ Rather than rubberstamping the draft, in some cases, such as Article V on privileges, Congress made extensive changes to the draft's wording.⁴⁴ Moreover, the drafters worked on the three provisions simultaneously; as they worked on each provision, the drafters must have been aware of the other provisions. In addition, the subject matters

F.3d 395, 400 (1st Cir. 2010), *cert. denied*, 571 U.S. 1220 (2014); *Verizon Cal., Inc. v. FCC*, 555 F.3d 270, 273, 275 (D.C. Cir. 2009); *Lippoldt v. Cole*, 468 F.3d 1204, 1213 (10th Cir. 2006) (stating no per se rule); *Moreland v. Fed. Bureau of Prisons*, 431 F.3d 180, 188 (5th Cir. 2005) (declaring that it is not an absolute directive), *cert. denied*, 547 U.S. 1106 (2006); *Theodoropoulos v. Immigr. & Naturalization Serv.*, 358 F.3d 162, 171 (2d Cir. 2002) (not rigid), *cert. denied*, 543 U.S. 823 (2004); *Vanscoter v. Thompson*, 920 F.2d 1441, 1446, 1448 (9th Cir. 1990); *Citizens for Pa.'s Future v. Wheeler*, 469 F. Supp. 3d 920, 927 (N.D. Cal. 2020) (stating the importance of context); *Animal Legal Def. Fund v. Kelly*, 434 F. Supp. 3d 974, 989-90 (D. Kan. 2020); *United States v. Trs. of Bos. Coll.*, 831 F. Supp. 2d 435, 446 (D. Mass. 2011) (stating the importance of context); *FCC v. IFC Credit Corp.*, 543 F. Supp. 2d 925, 934, 938 (N.D. Ill. 2008) (declaring the interpretation not mandatory).

38. *Arevalo v. U.S. Att'y Gen.*, 872 F.3d 1184, 1195-96 (11th Cir. 2017); *United States v. Cinergy Corp.*, 458 F.3d 705, 710-11 (7th Cir. 2006); *Voracek v. Nicholson*, 421 F.3d 1299, 1304 (Fed. Cir. 2005); *United States v. Balogun*, 146 F.3d 141, 145-47 (2d Cir. 1998); *Allen v. CSX Transp., Inc.*, 22 F.3d 1180, 1181-82 (D.C. Cir. 1994); *S & M Inv. Co. v. Tahoe Reg'l Plan. Agency*, 911 F.2d 324, 326, 328 (9th Cir. 1990); *Jackson Purchase Med. Ctr. v. U.S. Dep't of Health & Hum. Servs.*, 122 F. Supp. 3d 668, 673-74 (E.D. Ky. 2015).

39. *Off. Comm. ex rel. Cybergenics Corp. v. Chinery*, 330 F.3d 548, 559 (3d Cir. 2003), *cert. dismissed*, 540 U.S. 1001 (2003); *Taylor v. Dir., Off. of Workers Comp. Programs*, 201 F.3d 1234, 1240 (9th Cir. 2000).

40. *Sw. Power Admin. v. Fed. Energy Regul. Comm'n*, 763 F.3d 27, 35 (D.C. Cir. 2014); *Netcoalition v. SEC*, 715 F.3d 342, 350 (D.C. Cir. 2013); *U.S. Steel Corp. v. United States*, 637 F. Supp. 2d 1199, 1215 (Ct. Int'l Trade 2009), *aff'd*, 621 F.3d 1351 (Fed. Cir. 2010), *cert. denied*, 565 U.S. 821 (2011).

41. *Oppedisano v. Holder*, 769 F.3d 147, 150 (2d Cir. 2014), *cert. denied*, 577 U.S. 872 (2015); *Drescher v. Shatkin*, 280 F.3d 201, 206 (2d Cir. 2002).

42. *Butler v. Soc. Sec. Admin.*, 331 F.3d 1368, 1372 (Fed. Cir. 2003).

43. *See* CARLSON ET AL., *supra* note 23, at 14-15.

44. *See* 1 EDWARD J. IMWINKELRIED, *THE NEW WIGMORE: EVIDENTIARY PRIVILEGES* § 4.2.2 (4th ed. 2021).

of the three provisions are closely related in a policy sense.⁴⁵ All three Rules purport to be and are intended to be regulations of expert testimony.⁴⁶ It stands to reason that the drafters would have wanted the Rules to work together in a rational fashion. Finally, the Rules are proximate; Rules 702 and 703 are immediately adjacent, and they are separated from Rule 705 by only one provision, Rule 704.⁴⁷ The more proximate statutory provisions are, the more overpowering is the inference that the drafters intended the same language to have the identical meaning in all of the provisions.⁴⁸ Again, Article VII contains five provisions concerning expert testimony. Since the language, “facts and data,” appears verbatim in the majority of those provisions, common sense dictates that the interpretation of that language is an important clue to the essential design of Article VII’s scheme for regulating expert testimony.⁴⁹ In that light, we turn to the history of Rules 702, 703, and 705.

A. *Federal Rule 702*

The original version of Rule 702, which took effect in 1975, was relatively short:

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.⁵⁰

The original version did not contain any reference to “facts or data.”

On three occasions during the 1990s, the Supreme Court layered important judicial gloss onto the Rule. Initially, the Court rendered

45. See *Eley v. District of Columbia*, 47 F. Supp. 3d 1, 9-10 (D.D.C. 2014).

46. See *FED. R. EVID.* 702, 703, 705.

47. See *id.*

48. See *State Farm Mut. Auto. Ins. Co. v. Comm’r of Internal Revenue*, 698 F.3d 357, 370-71 (7th Cir. 2012) (consecutive provisions); *United States v. LaFaive*, 618 F.3d 613, 617 (7th Cir. 2010) (close together); *United States v. Kowal*, 527 F.3d 741, 746-47 (8th Cir. 2008) (close proximity), *cert. denied*, 555 U.S. 1038 (2008); *Chi. Area I.B. of T. Health & Welfare Tr. Fund v. Zaccone*, 874 F. Supp. 188, 191 (N.D. Ill. 1995).

49. See *FED. R. EVID.* 702, 703, 705.

50. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 588 (1993) (quoting *FED. R. EVID.* 702).

its 1993 decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*⁵¹ In that case, the plaintiff alleged that her use of the defendant's anti-nausea drug, Bendectin, caused her child to be born with limb deformities.⁵² The *Daubert* Court assigned trial judges a new "gate-keeping"⁵³ responsibility to screen out unreliable testimony.⁵⁴ To define that responsibility, the Court addressed the interpretation of the expression, "scientific ... knowledge," in Rule 702.⁵⁵ The Court held that to serve as a basis for admissible expert testimony, a purported scientific methodology must be reliable.⁵⁶ The Court reached that holding in two interpretive steps. First, the Court considered the noun, "knowledge."⁵⁷ The Court asserted that "the word 'knowledge' connotes more than subjective belief or unsupported speculation."⁵⁸ Second, the Court took up the meaning of the adjective, "scientific."⁵⁹ The Court gave the term a methodological definition.⁶⁰ Rather than equating the adjective with a set of substantive propositions,⁶¹ the Court viewed science as "a *process* for proposing and refining theoretical explanations about the world that are subject to further testing and refinement"⁶²—in other words, the classic methodology of observing phenomena, formulating a hypothesis to explain the phenomena, subjecting the hypothesis to empirical testing to validate or falsify the hypothesis, and then critically evaluating the results of the test. The Court stated that to qualify as reliable scientific knowledge, a hypothesis "must be supported by appropriate validation."⁶³ After announcing the requirement for a showing of reliability, the Court provided lower courts with a non-exhaustive⁶⁴ list of factors that they should

51. *Id.* at 597.

52. *Id.* at 582.

53. *Id.* at 597.

54. *Id.* at 589, 596-97.

55. *Id.* at 589-90.

56. *Id.* at 597.

57. *Id.* at 590.

58. *Id.*

59. *Id.*

60. Edward J. Imwinkelried, *The Daubert Decision: Frye Is Dead, Long Live the Federal Rules of Evidence*, 29 TRIAL, Sept. 1993, at 60, 62.

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

62. *Id.*

63. *Id.*

64. *Id.* at 593 (not a "definitive checklist").

consider in assessing the sufficiency of the validation of the methodology: whether the theory or technique can be empirically tested; whether it has in fact been tested; whether the methodology has been subjected to peer review and publication; whether the methodology has a known or potential error rate; whether there are recognized standards for using the methodology; and whether the methodology enjoys general acceptance in the relevant scientific fields.⁶⁵ Although the primary focus of the opinion is on the reliability of the scientific expert's methodology,⁶⁶ the Court also mentioned that the lower courts ought to inquire "whether that ... methodology properly can be applied to the facts in issue."⁶⁷ In addition to formulating a new substantive admissibility test, the Court clarified the procedure for administering the test; the Court specified that Federal Rule 104(a) governed the findings of fact required to apply the test.⁶⁸ When 104(a) applies, the trial judge acts as a true fact finder and may pass on the credibility of the foundational testimony.⁶⁹

The Court's second occasion to comment on Rule 702 came in 1997 in *General Electric Co. v. Joiner*.⁷⁰ In part, the Court accepted

65. *Id.* at 593-94.

66. *Id.* at 592-95.

67. *Id.* at 592-93.

68. *Id.* at 592.

69. See Edward J. Imwinkelried, *Determining Preliminary Facts Under Federal Rule 104*, 45 AM. JUR. TRIALS 1, 14 (1992). The current version of Rule 104(a) reads: "In General. The court must decide any preliminary question about whether a witness is qualified, a privilege exists, or evidence is admissible. In so deciding, the court is not bound by evidence rules, except those on privilege." FED. R. EVID. 104(a). Contrast Rule 104(b). When Rule 104(b) applies, the judge must accept the proponent's foundational testimony at face value and cannot assess its credibility. In pertinent part, Rule 104(b) reads: "Relevance That Depends on a Fact. When the relevance of evidence depends on whether a fact exists, proof must be introduced sufficient to support a finding that the fact does exist." FED. R. EVID. 104(b). The wording of Rules 602 (personal knowledge) and 901(a) (authentication) incorporates the 104(b) standard. FED. R. EVID. 602, 901(a). In these situations, the judge decides only the question of the legal sufficiency of the foundational testimony to support a permissive inference that the witness had firsthand knowledge or that the document is authentic. If so, the judge allows the proponent to submit the evidence to the jury; and the jury passes on credibility and decides whether in fact the witness has personal knowledge or whether the document is genuine. We trust the jury to make this determination; if the jurors decide that the witness "doesn't know what he's talking about" or that the exhibit "isn't worth the paper it's written on," common sense will naturally lead them to disregard the testimony during their deliberations. See CARLSON ET AL., *supra* note 23, at 95. Thus, the jurors' exposure to the foundational testimony on those issues will not distort their deliberations or create the risk of a wrongful verdict.

70. 522 U.S. 136 (1997).

the *Joiner* case because, after *Daubert*, the courts of appeals had split over the question of the scope of review of trial court *Daubert* rulings.⁷¹ Some courts had held that a broader scope was appropriate when the lower court ruling was outcome determinative in the sense that it excluded testimony that was essential to the plaintiff's prima facie case.⁷² The Court resolved that division of authority by announcing that across the board the appropriate scope of review is the deferential abuse of discretion standard.⁷³ However, in the course of the opinion the Court also harked back to *Daubert's* substantive teachings. As previously stated, the *Daubert* Court directed lower courts to inquire both whether the scientist had utilized a reliable methodology and whether the methodology could be properly applied to the instant fact situation.⁷⁴ The *Joiner* Court elaborated on the latter point:

Trained experts commonly extrapolate from existing data. But nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.⁷⁵

To use terminology popularized by a 2016 report of the President's Council of Advisors on Science and Technology,⁷⁶ the judge ought to ensure both that the methodology is foundationally reliable and that the application of the method to the present fact situation is valid—validity as applied.⁷⁷

At the very end of the 1990s—while the Judicial Conference was working on a proposed amendment to Rule 702—the Supreme Court

71. See Bernstein & Lasker, *supra* note 26, at 5-6.

72. *Joiner*, 522 U.S. at 141.

73. *Id.* at 142-43.

74. 509 U.S. 579, 592-93 (1993).

75. 522 U.S. at 146.

76. PRESIDENT'S COUNCIL OF ADVISORS ON SCI. & TECH., EXEC. OFF. OF THE PRESIDENT, FORENSIC SCIENCE IN CRIMINAL COURTS: ENSURING SCIENTIFIC VALIDITY OF FEATURE-COMPARISON METHODS 42-43 (2016), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf [<https://perma.cc/N82Z-MYKU>].

77. Imwinkelried, *supra* note 4, at 825-31 (discussing *United States v. Gissantaner*, 417 F. Supp. 3d 857 (W.D. Mich. 2019)).

decided *Kumho Tire Co. v. Carmichael*.⁷⁸ *Kumho* completes the so-called *Daubert* trilogy. As previously stated, to reach its decision, the *Daubert* Court had construed the adjective “scientific” preceding the noun “knowledge.”⁷⁹ However, there were four intervening words between “scientific” and “knowledge”: “technical, or other specialized.”⁸⁰ The question arose whether *Daubert* extends to non-scientific expert testimony. Just as the Court accepted the *Joiner* case to end the split of authority over the scope of review,⁸¹ the Court took *Kumho* to resolve the division of authority over the applicability of *Daubert* to nonscientific expertise.⁸² On the one hand, the Court held that *Daubert*’s general requirement of a showing of reliability applies.⁸³ All expert testimony must qualify as “knowledge” in the manner that *Daubert* had explicated that term.⁸⁴ On the other hand, the Court recognized that the specific factors listed in *Daubert* were largely derived from a traditional model of scientific methodology.⁸⁵ The Court stated that in a given case involving nonscientific expertise, one or more of those factors might be irrelevant.⁸⁶ In *Joiner*, the Court accorded trial judges discretion in applying the factors listed in *Daubert* when they undertake to assess the reliability of a purportedly scientific methodology.⁸⁷ In *Kumho*, the Court went further and granted trial judges a deeper type of discretion to select factors that would be “reasonable measures of [the] reliability” of a proffered nonscientific expert theory or technique.⁸⁸ The Court made the vague remark that “we can neither rule out, nor rule in, for all cases and for all time the applicability of the factors mentioned in *Daubert*, nor can we now do so for subsets of cases categorized by category of expert or by kind of evidence.”⁸⁹

78. 526 U.S. 137 (1999); Bernstein & Lasker, *supra* note 26, at 16.

79. 509 U.S. at 589-90.

80. *Id.* at 588.

81. See Bernstein & Lasker, *supra* note 26, at 5-6.

82. See *Kumho*, 526 U.S. at 141.

83. *Id.* at 149.

84. *Id.*

85. See *id.* at 147.

86. *Id.* at 149-50.

87. See *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) (holding that the applicable standard of review is abuse of discretion).

88. *Kumho*, 526 U.S. at 153.

89. *Id.* at 150.

In 2000, at the beginning of the next decade, Rule 702 was amended.⁹⁰ As we have seen, the 1993 *Daubert* decision spawned a number of splits of authority over Rule 702. In both *Joiner* and *Kumho*, the Court had felt compelled to intervene to resolve particularly troublesome splits.⁹¹ For its part, the Judicial Conference believed that it was advisable to amend Rule 702 to quell other splits of authority and to encourage the courts to adopt a more “structured” approach to admissibility analysis under *Daubert*.⁹² Given the vagueness of the *Kumho* Court’s remark about the applicability of the *Daubert* factors to nonscientific expertise,⁹³ many district court judges undoubtedly believed that more definite guidance was in order.

Consequently, in 2000 the following amended version of Rule 702 became law:

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, 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.⁹⁴

Some things remained the same. For example, like the original version of the Rule, the amended version referred to “scientific, technical, or other specialized knowledge”⁹⁵—the language from which the *Daubert* and *Kumho* Courts had derived the general reliability standard.⁹⁶ For that matter, amended 702(2) confirmed the teaching of *Daubert* and *Kumho* that the language necessitates a foundational showing that the expert is employing a general methodology,

90. See Bernstein & Lasker, *supra* note 26, at 6.

91. See *id.* at 5-6.

92. *Id.* at 6-7 (citing a 1999 Advisory Committee of Evidence report on the proposed amendment).

93. See *Kumho*, 526 U.S. at 150.

94. FEDERAL RULES OF EVIDENCE HANDBOOK: 2011-12 REVISED EDITION 42 (2011) [hereinafter RULES OF EVIDENCE HANDBOOK].

95. See Bernstein & Lasker, *supra* note 26, at 38.

96. See *id.*

“principles and methods,” that are reliable.⁹⁷ However, some provisions were new. Amended Rule 702(3) made explicit what was at least implicit in *Daubert* and *Joiner*: the proponent’s need to establish validity as applied as well as foundational validity.⁹⁸ Most importantly for our present inquiry, for the first time the Rule referred to “facts or data” in 702(1).⁹⁹

In 2011, the Federal Rules of Evidence were “restyled.”¹⁰⁰ The Advisory Committee rephrased the Rules to conform their wording to the format of the Federal Rules of Civil and Criminal Procedure.¹⁰¹ However, the Committee issued an accompanying Note for every restyled provision, including Rules 702, 703, and 705, to the effect that the resytlng was not intended to effect substantive alteration or change the result in any case.¹⁰² As restyled, Rule 702 now reads:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

(a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;

(b) the testimony is based on sufficient facts or data;

(c) the testimony is the product of reliable principles and methods; and

(d) the expert has reliably applied the principles and methods to the facts of the case.¹⁰³

The crucial reference to “facts or data” now appears in Rule 702(b).¹⁰⁴

97. *See id.* at 26.

98. *See id.* at 31.

99. *See id.*

100. FED. R. EVID. 101 advisory committee’s note to 2011 amendment.

101. *Id.*

102. FED. R. EVID. 702, 703, 705 advisory committee’s note to 2011 amendments.

103. CARLSON ET AL., *supra* note 23, at 921-22.

104. RULES OF EVIDENCE HANDBOOK, *supra* note 94, at 42.

B. Federal Rule 703

Unlike the original version of Rule 702, the original version of Rule 703 contained the expression “facts or data.”¹⁰⁵ In fact, the original version included the expression twice.¹⁰⁶ However, just as the original version of Rule 702 was briefer than the current version, the original version of Rule 703 was shorter than its current version. The original version consisted of only two sentences:

The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences ... the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted.¹⁰⁷

Just as the emergence of splits of authority led to the 2000 amendment of Rule 702, a similar development prompted a 2000 amendment of Rule 703. In the case of Rule 703, the primary split of authority related to the construction of the second sentence in the original version of the Rule.¹⁰⁸ Suppose that in forming his or her opinion, the expert relies on a third party’s report. For instance, assume that a psychiatrist rested an opinion about an accused’s insanity in part on a report by a third party who had observed bizarre conduct by the accused. If the report was an essential part of the expert’s reasoning but did not fall within any recognized exception to the hearsay rule, could the expert nevertheless disclose the contents of the report to the jury?¹⁰⁹ On its face, the second sentence authorized the disclosure of only “the opinion or inference;”¹¹⁰ but the counterargument was that the jury could not intelligently evaluate the opinion without knowing the underlying factual

105. FED. R. EVID. 703 (1978).

106. *Id.*

107. RULES OF EVIDENCE HANDBOOK, *supra* note 94, at 43.

108. See JoAnne A. Epps, *Clarifying the Meaning of Federal Rule of Evidence 703*, 36 B.C. L. REV. 53, 54-55 (1994).

109. See FED. R. EVID. 702 advisory committee’s note to 2000 amendment.

110. FED. R. EVID. 703 (2000).

report.¹¹¹ The Advisory Committee proposed a compromise that took effect in 2000. The compromise took the form of adding a third sentence to the text of the Rule; the new third sentence provided that:

Facts or data that are otherwise inadmissible shall not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting the jury to evaluate the expert's opinion substantially outweighs their prejudicial effect.¹¹²

In effect, the third sentence created a rebuttable presumption against disclosure of the inadmissible report to the jury.¹¹³ By virtue of the third sentence, the expert could reveal the report to the jury only in exceptional circumstances, such as when the report was an essential premise of the expert's reasoning but the report did not relate to a central, disputed historical event on the merits of the case.

There is a further parallel to Rule 702. Like Rule 702, Rule 703 was restyled in 2011. The current version of the Rule now reads:

An expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed. If experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject, they need not be admissible for the opinion to be admitted. But if the facts or data would otherwise be inadmissible, the proponent of the opinion may disclose them to the jury only if their probative value in helping the jury evaluate the opinion substantially outweighs their prejudicial effect.¹¹⁴

The style of the restyled version differs slightly from the 2000 version. For example, while the first sentence in both the original and 2000 versions of the Rule referred to "facts or data in the particular case,"¹¹⁵ the reference has been modified to "facts or data in

111. Epps, *supra* note 108, at 55.

112. RULES OF EVIDENCE HANDBOOK, *supra* note 94, at 43.

113. FED. R. EVID. 703 advisory committee's note to 2000 amendment.

114. CARLSON ET AL., *supra* note 23, at 922.

115. FED. R. EVID. 703 (2000).

the case.”¹¹⁶ In addition, the word “type” in the second sentence of the original and 2000 versions of the Rule¹¹⁷ was changed to “kinds” in the 2011 restyling.¹¹⁸ However, like the 2011 version of Rule 702, the 2011 version of Rule 703 is accompanied by an Advisory Committee Note stating that in revising the wording of the Rule, the drafters did not intend to change the substantive outcome in any case.¹¹⁹ Most importantly, though, like the 2000 version, the 2011 version contains three explicit references to “facts or data.”¹²⁰

C. Federal Rule 705

Unlike the original versions of Rule 702 and 703, the original version of Rule 705 was amended in 1993, not in 2000.¹²¹ The purpose of the 1993 amendment was to make it clear that the Rule does not apply in the pretrial setting governed by the Federal Rules of Civil and Criminal Procedure.¹²² By its terms, Rule 705 allows the proponent’s expert to withhold certain information on direct examination.¹²³ Prior to the amendment, some parties had contended that Rule 705 allowed them to refuse to disclose such information “in advance of trial” even if the discovery provisions of Civil Rule 26 or Criminal Rule 16 otherwise required the disclosure.¹²⁴ The amendment ended that “arguable conflict.”¹²⁵ Furthermore, like Rules 702 and 703, Rule 705 was restyled in 2011 and presently reads:

Unless the court orders otherwise, an expert may state an opinion—and give the reasons for it—without first testifying to the underlying facts or data. But the expert may be required to disclose those facts or data on cross-examination.¹²⁶

116. FED. R. EVID. 703 (2012).

117. FED. R. EVID. 703 (2000).

118. FED. R. EVID. 703 (2012).

119. FED. R. EVID. 703 advisory committee’s note to 2011 amendment.

120. *Id.*

121. FED. R. EVID. 705 advisory committee’s note to 1993 amendment.

122. *Id.*

123. *Id.*

124. *See id.*

125. *Id.*

126. CARLSON ET AL., *supra* note 23, at 922.

The most significant common denominator is that like Rules 702(b) and 703, Rule 705 uses the precise language, “facts or data.”¹²⁷ In short, the expression now appears once in Rule 702(b),¹²⁸ twice in Rule 705,¹²⁹ and three times in Rule 703.¹³⁰

II. A DESCRIPTION OF THE CURRENT CONFUSION OVER THE JUDICIAL REGULATION OF THE FACTUAL BASES FOR EXPERT TESTIMONY UNDER THE FEDERAL RULES OF EVIDENCE

There has been sharp criticism of the state of both the general expert testimony jurisprudence under the Federal Rules and the specific case law concerning the factual bases for expert opinions.

A. *The State of the Jurisprudence on General Expert Testimony*

The critics fault many courts for muddling the law governing the admissibility of expert testimony in federal court.¹³¹ The Evidence Rules Advisory Committee, in comments related to a proposed amendment to Rule 702, has stated:

[M]any courts have declared that the reliability requirements set forth in Rule 702(b) and (d)—that the expert has relied on sufficient facts or data and has reliably applied a reliable methodology—are questions of weight and not admissibility, and more broadly that expert testimony is presumed to be admissible. These statements can be read to misstate Rule 702, because its admissibility requirements must be met by a preponderance of the evidence. The Committee has determined that in a fair number of cases, the courts have found expert testimony admissible even though the proponent has not satisfied the Rule 702(b) and (d) requirements by a preponderance of the evidence.¹³²

127. FED. R. EVID. 705.

128. FED. R. EVID. 702(b).

129. FED. R. EVID. 705.

130. FED. R. EVID. 703.

131. See Schroeder, *supra* note 25, at 2039.

132. Memorandum from Hon. Patrick J. Schiltz, Chair, Advisory Comm. on Evidence Rules to Hon. John D. Bates, Chair, Comm. on Rules of Prac. & Proc. 6 (May 15, 2021).

The critics have characterized the courts' attitude as at best "lackadaisical,"¹³³ and at worst "recalcitrant."¹³⁴ Many courts have seemingly willfully¹³⁵ ignored the new requirements prescribed by the 2000 amendment to Rule 702.¹³⁶ In the critics' view, many courts have resisted enforcing the amendment's provisions.¹³⁷ Rather than fulfilling their gatekeeping responsibility¹³⁸ by applying the provisions in amended Rules 702 and 703,¹³⁹ these courts rely on "outdated case law"¹⁴⁰—often on decisions antedating the 2000 amendments¹⁴¹ and, on occasion, even cases predating *Daubert*.¹⁴²

One of the critics' targets has been the courts' "uneven administration"¹⁴³ of the new requirement in Rule 702(d) that the expert establish that he or she has "reliably applied" the methodology "to the facts of the case."¹⁴⁴ Admittedly, at common law the courts are divided over the question of whether the foundation for expert testimony had to include a showing that the expert had properly applied the general methodology that he or she proposed relying on.¹⁴⁵ However, the 2000 amendment to Rule 702 definitively settled that question in federal practice; Rule 702(d) now explicitly mandates such a showing.¹⁴⁶ Yet, as the critics note, in cases such as *City of Pomona v. SQM North America Corp.*,¹⁴⁷ many courts have misapplied the provision¹⁴⁸ and indicated that the issue of reliable

133. DAVID L. FAIGMAN, EDWARD K. CHENG, JENNIFER L. MNOOKIN, ERIN E. MURPHY, JOSEPH SANDERS & CHRISTOPHER SLOBOGIN, *MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY* § 1:30 (2020); Bernstein & Lasker, *supra* note 26, at 10.

134. Bernstein & Lasker, *supra* note 26, at 8.

135. *Id.* at 22.

136. *Id.* at 8, 11, 19, 20, 23; Schroeder, *supra* note 25, at 2046-47, 2059.

137. See Bernstein & Lasker, *supra* note 26, at 25.

138. See Schroeder, *supra* note 25, at 2043.

139. Bernstein & Lasker, *supra* note 26, at 18, 46.

140. *Id.* at 11; Schroeder, *supra* note 25, at 2060.

141. Schroeder, *supra* note 25, at 2045, 2058 (collecting cases); Bernstein & Lasker, *supra* note 26, at 8, 21 (collecting cases).

142. See Bernstein & Lasker, *supra* note 26, at 8, 21 (collecting cases).

143. *Id.* at 9.

144. FED. R. EVID. 702(d).

145. See Edward J. Imwinkelried, *The Debate in the DNA Cases over the Foundation for the Admission of Scientific Evidence: The Importance of Human Error as a Cause of Forensic Misanalysis*, 69 WASH. U. L.Q. 19, 23 (1991).

146. FED. R. EVID. 702(d).

147. 750 F.3d 1036 (9th Cir. 2014).

148. See Schroeder, *supra* note 25, at 2050-52; Bernstein & Lasker, *supra* note 26, at 7, 22, 28-30 (collecting cases).

application is a weight question¹⁴⁹ for the jury¹⁵⁰ rather than an admissibility question the judge must decide as part of his or her gatekeeping responsibility.¹⁵¹

B. The State of the Jurisprudence on the Specific Topic of the Factual Bases for Expert Testimony

As the Introduction stated, while this Article necessarily touches on the general state of expert testimony jurisprudence in federal court, the primary focus of this Article is much narrower: the regulation of the “factual” bases for such testimony. Confusion is especially manifest here. There is confusion in two important respects.

First, there is confusion with respect to the allocation of responsibility for evaluating various aspects of the factual bases for expert testimony. Two of the Rules seem to expressly assign some decisions to the judge. Rule 702(b), added by the 2000 amendment, requires the judge to find that there has been a foundational showing that “the testimony is based on sufficient facts or data.”¹⁵² Moreover, when the expert contemplates relying on factual information that is not independently admissible under the hearsay rule, Rule 703 tasks the judge with deciding whether the information in question is the “kind[]” that “experts in the particular field would reasonably rely on ... in forming an opinion on the subject.”¹⁵³ Yet, in the face of such mandatory language, the cases are replete with courts’ blanket statements¹⁵⁴ to the effect that questions concerning the credibility,¹⁵⁵ soundness,¹⁵⁶ weakness,¹⁵⁷ or weight¹⁵⁸ of the factual

149. Schroeder, *supra* note 25, at 2058 (collecting cases).

150. Bernstein & Lasker, *supra* note 26, at 7.

151. *See id.* at 36.

152. FED. R. EVID. 702(b).

153. FED. R. EVID. 703.

154. Schroeder, *supra* note 25, at 2051.

155. *Id.* at 2045 (collecting cases).

156. Bernstein & Lasker, *supra* note 26, at 33 (collecting cases).

157. *Id.* at 23 (collecting cases); Schroeder, *supra* note 25, at 2055, 2057 (collecting cases); *Innovation Ventures v. Custom Nutrition Lab’ys L.L.C.*, 520 F. Supp. 3d 872, 885 (E.D. Mich. 2021).

158. Bernstein & Lasker, *supra* note 26, at 23 (collecting cases); Schroeder, *supra* note 25, at 2039, 2043, 2054 (collecting cases).

“underpinnings” of expert testimony are matters for the jury.¹⁵⁹ At the very least these statements are overbroad. Worse still, they are flatly at odds with the express requirements of the governing Rules.¹⁶⁰

Second—and, as we shall see in Part III, even more importantly—there is confusion in the cases as to what is a “factual” foundation for an expert opinion.¹⁶¹ Many cases consider two very different types of information—apples and oranges—under the umbrella of “factual” foundation. Consider a toxic tort case in which the plaintiff must establish both general and specific causation. To prove general causation, the plaintiff might call an epidemiologist.¹⁶² To investigate the question of whether exposure to a particular pesticide can cause a certain type of cancer, the epidemiologist might conduct a cohort study.¹⁶³ The epidemiologist would collect facts about the incidence of the disease in both a group exposed to the pesticide and a group that had not been exposed—facts in the nature of empirical research data.¹⁶⁴ After comparing the facts about the incidence of the disease in the two groups, the epidemiologist would reach a conclusion on the general causation question, namely, whether that exposure is capable of causing that type of cancer.¹⁶⁵ That conclusion and the underlying factual information (the empirical research data) would be relevant in any suit in which a plaintiff alleged that exposure to that pesticide caused him or her to develop that type of cancer.¹⁶⁶

159. Bernstein & Lasker, *supra* note 26, at 33 (citing *Milward v. Acuity Specialty Prods. Grp., Inc.*, 639 F.3d 11, 22 (1st Cir. 2011)); Schroeder, *supra* note 25, at 2045 (citing *Milward*, 639 F.3d at 22).

160. *See, e.g.*, FED. R. EVID. 703.

161. *See, e.g., id.*

162. *See* 1 PAUL C. GIANNELLI, EDWARD J. IMWINKELRIED, ANDREA L. ROTH, JANE CAMPBELL MORIARTY & VALENA E. BEETY, *SCIENTIFIC EVIDENCE*, § 2.05[5][b] (6th ed. 2020).

163. *See id.* § 2.05[5][a], at 2-67.

164. *See id.*

165. *Id.* (explaining that the epidemiologist could express the comparison arithmetically in terms of relative risk (RR), odds ratio (OR), or attributable risk (AR)).

166. In *Daubert*, the plaintiff alleged that her use of the anti-nausea drug Bendectin during her pregnancy caused her baby to develop limb deformities. 509 U.S. 579, 582 (1993). There were more than two thousand lawsuits in which other plaintiffs made the same claim about Bendectin. Peter W. Huber, *Science on Trial*, *CHEMISTRY & INDUS.*, Aug. 2, 1993, at 604. The plaintiff relied on epidemiological data to prove general causation in *Daubert*. That factual information would have been equally relevant in any of the two thousand lawsuits.

Of course, to complete his or her case for tort liability, the plaintiff must also establish specific causation, that is, whether the exposure caused this plaintiff's cancer.¹⁶⁷ To do so, the plaintiff could call a physician trained in toxicology. This expert might testify to a differential etiology analysis, intended to determine the cause of this plaintiff's cancer.¹⁶⁸ Like the epidemiologist, the toxicologist would collect factual information to form his or her opinion. More specifically, the toxicologist might gather reports from nurses, family members, and other third parties about the symptoms the plaintiff exhibited. They would provide reports containing factual information on such questions as whether the plaintiff had bouts of nausea or dizziness. Both the research data used to prove general causation and the reports used to establish specific causation are "factual" in a broad sense; but unlike the research data, these reports would be relevant only in the lawsuit filed by this plaintiff.

Some courts have treated both types of information as "facts or data" within the intendment of that expression.¹⁶⁹ For instance, in a leading, pre-*Daubert* Bendectin case, *Richardson v. Richardson-Merrell, Inc.*, the court applied 703, which references "facts or data," to general research data, including animal and in vitro studies.¹⁷⁰ More recently, in *Milward v. Acuity Specialty Products Group, Inc.*, the plaintiff alleged that exposure to benzene can cause acute promyelocytic leukemia.¹⁷¹ In assessing the sufficiency of the "factual underpinnings" of the expert's opinion under Rule 702, the court considered an epidemiological analysis of the famous Bradford Hill factors¹⁷²—once again information including general research data that transcended the plaintiff's lawsuit and would have been relevant in any lawsuit in which the plaintiff pressed a similar claim.¹⁷³

167. See RESTATEMENT (THIRD) OF TORTS § 4 (AM. L. INST. 2000).

168. See 2 GIANNELLI ET AL., *supra* note 162, § 21.50.

169. Edward J. Imwinkelried, *The Meaning of "Facts or Data" in Federal Rule of Evidence 703: The Significance of the Supreme Court's Decision to Rely on Federal Rule 702 in Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 54 MD. L. REV. 352, 360 (1995) (collecting cases).

170. 857 F.2d 823, 826 (D.C. Cir. 1988), *cert. denied*, 493 U.S. 882 (1989).

171. 639 F.3d 11, 13 (1st Cir. 2011), *cert. denied*, 565 U.S. 1111 (2012).

172. Schroeder, *supra* note 25, at 2044-46. The factors are: "the strength, frequency, consistency, and specificity of the association; the temporal relationship; the dose-response curve; biological plausibility; coherence of the explanation with generally known factors of the disease; experimental data; and analogous causal relationships." *See id.*

173. *See* Bernstein & Lasker, *supra* note 26, at 34 (discussing the courts' consideration of

Although some courts have interpreted “facts or data” broadly, other courts construe the language narrowly as being limited to case-specific information.¹⁷⁴ These courts stress that the two types of facts are fundamentally different.¹⁷⁵ It is not only that the factual information in empirical scientific studies can apply in multiple cases while, by definition, case-specific information is limited to a particular lawsuit. More importantly, as Parts III and IV elaborate, the distinction between the two types of facts relates to the basic division of labor among judge, jury, and expert under Article VII.¹⁷⁶ In designing a division of labor or authority among several parties, any rational decisionmaker takes into account the relative competencies of the parties. If the question is the significance of the factual information in a cohort study, an expert epidemiologist is much more competent to answer that question than a lay juror or judge. A layperson would find the information at the very least perplexing. However, if the question is the credibility of information about a particular patient’s symptoms such as nausea or dizziness, the question falls squarely within the province of the lay trier of fact.¹⁷⁷ That is the sort of question that laypersons in jury trials and lay judges at bench trials routinely resolve.¹⁷⁸

That insight becomes central in Parts III and IV. Part III explains why the sounder interpretation of “facts or data” in Article VII is that the expression means only case-specific information. Concededly, “data” is an expansive term; and scientists often refer to their “data.” However, on reflection, considering the text, context, and legislative history of Rule 703 in particular, the narrow interpretation emerges as the better view.¹⁷⁹ And since Rules 702(b) and 705 use identical language, the interpretation of that language in Rule 703 informs the construction of Rules 702 and 705.¹⁸⁰ Part

general empirical studies in assessing the sufficiency of the opinion’s factual support under Rule 702); see also Michael D. Green, *Expert Witnesses and Sufficiency of Evidence in Toxic Substances Litigation: The Legacy of Agent Orange and Bendectin Litigation*, 86 NW. U. L. REV. 643, 668 (1992).

174. See Imwinkelried, *supra* note 169, at 360.

175. *Id.* at 361.

176. See FED. R. EVID. 701-06, 801.

177. See Bernstein & Lasker, *supra* note 26, at 45-46.

178. See *id.*

179. See FED. R. EVID. 703.

180. FED. R. EVID. 703, 702(b), 705.

IV then explains why, positing that narrow interpretation, Rules 702, 703, and 705 can function as a coherent, sensible scheme for regulating the “factual” bases of expert testimony.

III. DRILLING DOWN TO THE KEY INTERPRETIVE ISSUE: THE MEANING OF “FACTS OR DATA” IN FEDERAL RULES 702(B), 703, AND 705

To appreciate the nature and importance of the language, “facts or data,” in Rules 702, 703, and 705, we need to drill down through three levels of the law of expert testimony: the permissible uses of a witness who happens to be an expert, the essential components of the reasoning of an expert who offers an opinion about the facts in the case, and finally the provisions that govern the component specifying the case-specific facts that the opinion is premised on.

A. The First Level: The Four Permissible Uses of a Witness Who Happens to Be an Expert

Courts and commentators frequently refer to the “use” of expert witnesses as if there is only one way to press such witnesses into service at trial. In truth, there are four different ways in which such witnesses can be used.¹⁸¹ Consider a witness who is a toxicologist.

Assume that the witness is driving to work one morning and observes a traffic accident at an intersection. More specifically, she sees a blue car run through a red light and collide with a yellow car which had a green light. The witness has firsthand, personal knowledge that the blue car went through the red light and smashed into the yellow car. Under Federal Rule of Evidence 602, she can testify to those observed facts.¹⁸² The witness may be a distinguished, eminently qualified toxicologist; but that does not disqualify her from testifying to observed facts. Like a layperson with no background in toxicology, she is competent to give that testimony under Rule 602.¹⁸³

181. 1 KENNETH S. BROUN, GEORGE E. DIX, EDWARD J. IMWINKELRIED, DAVID H. KAYE & ELEANOR SWIFT, MCCORMICK ON EVIDENCE 98-100 (Robert P. Mosteller ed., 8th ed. 2020) [hereinafter MCCORMICK ON EVIDENCE].

182. See FED. R. EVID. 602.

183. See *id.*

Now assume further that immediately after the collision, she exits her car, approaches the badly damaged blue car, and talks to the driver who has just exited the blue car. She observes that he is stumbling, his speech is incoherent, and he reeks of alcohol. At common law, based on such observations, a layperson could not only describe those observations; the lay witness could also opine that the person was intoxicated.¹⁸⁴ As at common law, the opinion is admissible under Federal Rule of Evidence 701.¹⁸⁵ A layperson with no background in toxicology could offer that lay opinion, and it is equally permissible for the toxicologist to do so.

Take a further step. After the collision, the driver of the yellow car sues the driver of the blue car for compensation for personal injury and property damage. At the trial of the lawsuit, the police officer who investigated the accident has already taken the stand. The officer testifies to administering an infrared breath test¹⁸⁶ to the driver of the blue car. The officer adds that when the driver blew into the device, the output gave a digital display of 0.13 percent alcohol, a reading that under state law supports an inference of intoxication.¹⁸⁷ The next witness is the toxicologist. The plaintiff's attorney elicits the toxicologist's testimony about the general reliability of infrared breath testing devices. The attorney is content with that testimony; the attorney does not ask the witness to apply their expertise to testify to an expert opinion as to whether, given the 0.13 percent reading, the driver of the blue car was intoxicated. The wording of Rule 702 is pertinent here; the Rule allows experts to "testify in the form of an opinion or otherwise."¹⁸⁸ Initially, the wording, "or otherwise," might appear strange; but the Advisory Committee Note accompanying Rule 702 explains:

Most of the literature assumes that experts testify only in the form of opinions. The assumption is logically unfounded. The rule accordingly recognizes that an expert on the stand may give a dissertation or exposition of scientific or other principles

184. MCCORMICK ON EVIDENCE, *supra* note 181, § 11, at 23.

185. *See* FED. R. EVID. 701.

186. *See* 2 GIANNELLI ET AL., *supra* note 162, § 22.03[3][b], at 22-50.

187. *Id.* § 22.08[3].

188. FED. R. EVID. 702.

relevant to the case, leaving the trier of fact to apply them to the facts.¹⁸⁹

In this variation of the hypothetical, the expert has done precisely that. The witness has testified in an expert capacity but limited her testimony to a general “principle[,]” that is, the reliability of infrared breath testing devices.¹⁹⁰ The expert may confine her testimony to a general discussion of an expert methodology. That testimony is admissible even if the witness does not utter a word about the specific facts of the case or venture an expert opinion as to the sobriety of the driver of the blue car.

Although an expert may give the sort of limited testimony described in the preceding paragraph, “[i]n the overwhelming majority of cases” the proponent invites the expert to go further.¹⁹¹ The proponent wants the expert to take the next step; the proponent asks the expert to apply that methodology to the facts of the case and thereby form an opinion about the significance of one or more of the facts of the case. That is why the quoted phrase in Rule 702 begins with the wording, “in the form of an opinion.”¹⁹² As we see in Section B, when the expert testifies in this manner, the expert’s reasoning has several distinct components.

B. The Second Level: The Essential Components of the Reasoning of an Expert Who Testifies About the Significance of the Facts in the Case

Of course, to give any expert testimony, in the words of Rule 702, the witness must be “qualified as an expert by knowledge, skill, experience, training, or education.”¹⁹³ Suppose that at the beginning of her direct examination, the witness testifies to the credentials qualifying her as an expert. Now assume that in the instant case, the proponent wants the expert to testify in the typical manner, namely, deriving an opinion by applying a general methodology to one or more of the specific facts of the case. In that event, the

189. FED. R. EVID. 702 advisory committee’s notes on proposed rules.

190. *See id.*

191. MCCORMICK ON EVIDENCE, *supra* note 181, § 12, at 99.

192. FED. R. EVID. 702.

193. *Id.*

structure of the witness's testimony will be somewhat similar to that of a syllogism.¹⁹⁴ A classic syllogism consists of a major premise, a minor premise, and a conclusion.¹⁹⁵ The content of the typical expert's testimony is analogous.¹⁹⁶ If we dissect the expert's reasoning process, the expert testifies on four distinct topics: (1) the reliability of the general methodology that they propose to rely on;¹⁹⁷ (2) the case-specific facts they contemplate applying the methodology to;¹⁹⁸ (3) the application of the methodology to those facts;¹⁹⁹ and (4) the final conclusion or opinion derived by applying the methodology to the facts.²⁰⁰ By way of example, a psychiatrist could derive an opinion about a testator's mental competence by applying some general diagnostic criteria to the testator's case history.²⁰¹ Or a DNA expert might form an opinion about a perpetrator's genetic profile by applying the Short Tandem Repeat (STR) typing technique to a blood stain discovered at the crime scene.²⁰²

Consider the various components. The first component functions much like a major premise. This component consists of what Rule 702(c) describes as the "reliable principles and methods" that the expert employs.²⁰³ *Daubert* speaks to this component.²⁰⁴ In that case, the Court reviewed the adequacy of the empirical validation for the general proposition that a pregnant woman's ingestion of Bendectin in her first trimester can cause certain sorts of limb defects in her baby.²⁰⁵

The second component serves a purpose similar to that of a minor premise in a classic syllogism.²⁰⁶ To derive an opinion about the

194. See Edward J. Imwinkelried, *The Educational Significance of the Syllogistic Structure of Expert Testimony*, 87 NW. U. L. REV. 1148, 1149-50 (1993); Edward J. Imwinkelried, *The "Bases" of Expert Testimony: The Syllogistic Structure of Scientific Testimony*, 67 N.C. L. REV. 1, 2-3 (1989) [hereinafter Imwinkelried, "Bases" of Expert Testimony].

195. Imwinkelried, "Bases" of Expert Testimony, *supra* note 194, at 2-3.

196. *Id.*

197. MCCORMICK ON EVIDENCE, *supra* note 181, § 13.

198. *Id.* § 14.

199. *Id.* § 15.

200. *Id.* § 16.

201. See *id.* §§ 12, 14.

202. 2 GIANNELLI ET AL., *supra* note 162, § 18.03[5][a], at 18-41.

203. FED. R. EVID. 702(c).

204. See generally *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993).

205. *Id.* at 582-85.

206. See Imwinkelried, "Bases" of Expert Testimony, *supra* note 194, at 2-3.

significance of certain facts in the case, the expert must make certain assumptions about the case-specific facts. Modernly, it is permissible for the expert to do so if: the expert has personal knowledge of the facts; the facts are posed to the expert in a proper hypothetical question; or the expert has received a certain type of out-of-court report about the fact.²⁰⁷

The next step in the expert's reasoning process is component (3). As previously stated, at common law there was a division of authority whether the foundation for expert testimony required a showing of proper test procedure.²⁰⁸ Today, Federal Rule 702(d) is dispositive.²⁰⁹ By its terms, that provision requires that the proponent show that "the expert has reliably applied the principles and methods to the facts of the case."²¹⁰ Thus, in the above DNA example, the expert would not only have to testify that he or she utilized the generally reliable STR typing methodology; the expert would also have to vouch that they had followed the accepted procedure for employing STR.²¹¹

The last component of the expert's reasoning is the statement of the opinion itself. Both at common law and under the Federal Rules, there are restrictions on the opinion's wording. For instance, at common law, at one time many courts forbade experts from opining on "ultimate" issues in the case.²¹² Although Federal Rule 704(a) overturns the ultimate issue prohibition, Rule 704(b) states:

In a criminal case, an expert witness must not state an opinion about whether the defendant did or did not have a mental state or condition that constitutes an element of the crime charged or of a defense. Those matters are for the trier of fact alone.²¹³

With this structure in mind, we can revisit the question that the Introduction identified as the primary focus of this Article: What Federal Rules provisions govern judicial regulation of the "factual" bases of expert testimony? If by that expression we mean the

207. See MCCORMICK ON EVIDENCE, *supra* note 181, § 14.

208. Imwinkelried, *supra* note 145, at 21-22.

209. FED. R. EVID. 702(d).

210. *Id.*

211. 2 GIANNELLI ET AL., *supra* note 162, § 18.05[3][a], at 18-119.

212. MCCORMICK ON EVIDENCE, *supra* note 181, § 16.

213. FED. R. EVID. 704(b).

case-specific facts serving as the expert's minor premise, which provisions control? To answer that question, we must drill down to the third level.

C. The Third Level: The Federal Rules Provisions Controlling Which Types of Information the Expert May Include in His or Her Minor Premise Assumptions About the Facts of the Case

Assume that at the first level, the proponent is using the expert in the typical fashion, asking the expert to derive an opinion by applying a general expert methodology to certain case-specific facts. Assume further that at the second level, the opponent makes the expert's minor premise (the expert's assumption about the case-specific facts) the point of attack. As Part II demonstrated, there is considerable confusion in the cases over the regulation of the factual bases of expert opinions. The critical, third question then becomes which Federal Rule provisions the judge should apply in order to determine what information the expert may include in his or her minor premise. Of course, the words "facts or data" immediately come to mind—the language that currently appears once in Rule 702, twice in Rule 705, and thrice in Rule 703.²¹⁴

1. The Meaning of "Facts or Data" in Rule 703

As previously stated, under the original version of the Federal Rules, the courts divided over the question of whether they should look to Rule 703 or elsewhere to decide which information the expert may consider about the facts that the expert is applying the general methodology to.²¹⁵ Some courts suggested that that was at least not the sole function of Rule 703 and that "facts or data" in Rule 703 included empirical research data supporting the validity of the expert's general methodology.²¹⁶ As the Introduction stated, though, the better view is that the reference to "facts or data" in 703 means only case-specific factual information.²¹⁷ The text of the Rule, its context, and its legislative history all point to that conclusion.

214. FED. R. EVID. 702, 705, 703.

215. Imwinkelried, *supra* note 29, at 451-57; Imwinkelried, *supra* note 169, at 355-56.

216. Imwinkelried, *supra* note 169, at 360; Imwinkelried, *supra* note 29, at 452-54.

217. *See* FED. R. EVID. 703.

Initially, consider the text of Rule 703. As Part I noted, the original and 2000 versions of Rule 703 alluded to “[t]he facts or data in the particular case.”²¹⁸ When the Rule was restyled in 2011, that language was changed to “facts or data in the case”; but the accompanying Advisory Committee Note stated that the linguistic change was not intended to effect any substantive change.²¹⁹ The popular, dictionary meaning of “particular” is “relating to a single person or thing.”²²⁰ In studies designed to validate general expert methodologies, scientists collect factual empirical information; but that information would be relevant in any case in which an expert employs the same methodology.²²¹ As previously stated, there were over two thousand Bendectin lawsuits.²²² The epidemiological data that the plaintiffs proffered in *Daubert* was factual in a broad sense, but it was not “particular” or peculiar to that lawsuit by any stretch of the imagination.²²³

Like the text of Rule 703, its context lends support to the narrow construction of “facts or data” in 703. Rule 703 must be interpreted in light of and harmonized with the other provisions in Article VII, such as Rules 702 and 705. As Part I noted, the original version of Rule 702 did not contain the current Rule 702(b) requiring foundational proof that “the testimony is based on sufficient facts or data.”²²⁴ The contrast between the original version of the two Rules was stark. Rule 702 contained no language explicitly or impliedly limiting the “scientific ... knowledge” to information specific to the particular case.²²⁵ Again, in *Daubert* the question was the validity of the general proposition that a pregnant woman’s ingestion of Bendectin during the first trimester could cause certain types of limb defects in her baby.²²⁶ When the question was the validity of that proposition, the *Daubert* Court looked to Rule 702, not 703; when the Court described the trial judge’s gatekeeping responsibility to

218. See *supra* notes 115-16 and accompanying text.

219. FED. R. EVID. 703 advisory committee’s note to 2011 amendment.

220. Imwinkelried, *supra* note 29, at 454.

221. See, e.g., *id.* at 451.

222. Huber, *supra* note 166, at 604.

223. See Imwinkelried, *supra* note 29, at 451.

224. FED. R. EVID. 702(b).

225. *Id.*

226. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 582 (1993).

screen out unreliable theories and techniques, the Court declared that “[t]he primary locus of this obligation is Rule 702.”²²⁷

The context of Rule 705 sheds even more light on the proper interpretation of “facts or data” in Rule 703. As Part I pointed out, throughout its history Rule 705 has allowed an expert on direct to state an “opinion” and the “reasons” for the opinion “without first testifying to the underlying facts or data.”²²⁸ Initially, posit the broad view that “facts or data” includes even empirical research data validating general scientific hypotheses and methodologies. Again, in *Daubert*, the battleground was over the validity of the hypothesis of a causal nexus between maternal Bendectin use and limb defects in babies.²²⁹ The Court reviewed the empirical data (in vitro test tube experiments, in vivo live animal studies, and epidemiological data) that the plaintiffs proffered to validate that hypothesis.²³⁰ If “facts or data” in Rule 705 included all the research data and Rule 705 allowed the expert to withhold all that data, what could the expert’s proponent do on direct? The expert’s proponent could be content to elicit this testimony: “I’m an epidemiologist, I conducted an epidemiological study, and my opinion is that a mother’s use of Bendectin in the first trimester can cause limb defects in their babies.”²³¹ By unduly expanding the scope of the expression “facts or data,” the broad view drains “reasons” of virtually all its content.²³² The result would be a direct examination that is conclusory in the extreme.²³³ Tellingly, in both *Kumho* and *Joiner* the Court cautioned lower courts that an expert’s “*ipse dixit*” pronouncements do not satisfy *Daubert*.²³⁴

Contrast what the expert’s direct would look like if the judge enforced the narrow interpretation of “facts or data.” To be sure, the expert could still withhold the case-specific facts about the frequency of Mrs. *Daubert*’s use of the drug and her symptoms. However, the expert would have to elaborate on the empirical

227. *Id.* at 589.

228. FED. R. EVID. 705.

229. *Daubert*, 509 U.S. at 582.

230. *Id.* at 582-83.

231. See Imwinkelried, *supra* note 29, at 455.

232. *See id.*

233. *See id.*

234. *See Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 157 (1999); *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997).

research data that the expert claims validated the hypothesis of a causal connection.²³⁵ The upshot is that the jury would be in a much better position to make an intelligent decision whether to accept the expert's opinion.²³⁶ Rule 702(a) imposes the requirement that expert testimony must "help the trier of fact to understand the evidence or to determine a fact in issue."²³⁷ On several occasions, Professor Ronald Allen has made the salient point that in order to satisfy that requirement, the courts should construe Article VII in a way that forces the expert to educate the jury about substantive merit of the proffered testimony.²³⁸ The narrow interpretation of "facts or data" provides much better assurance that the expert testimony submitted to it will actually educate the jury and enable them to make an intelligent, independent decision.²³⁹

Finally, the extrinsic legislative history of Rule 703 also provides powerful support for the narrow interpretation. Two passages in the Advisory Committee Note are pertinent. In one passage, the Note furnishes examples of the appropriate scope of "facts or data" under the Rule—a patient's statement that he experienced pain, a report by a relative that the patient complained of pain, a hospital record quoting the patient's complaint about pain, or an X-ray showing the possible cause of the pain.²⁴⁰ All of the Committee's examples are case-specific facts, not the sort of empirical research data employed to validate proposed general methodologies.²⁴¹

In another passage, the Note makes it clear that the Rule's real innovation is its grant of permission to experts to rely on secondhand, out-of-court reports in addition to personally observed facts and the facts stated in hypothetical questions.²⁴² At common law, most jurisdictions restricted experts to reliance on firsthand knowledge and hypothetical questions.²⁴³ In crafting Rule 703, the drafters

235. See Imwinkelried, *supra* note 29, at 448-49.

236. See *id.* at 455.

237. FED. R. EVID. 702(a).

238. Ronald J. Allen, *Fiddling While Rome Burns: The Story of the Federal Rules and Experts*, 86 *FORDHAM L. REV.* 1551, 1552-53, 1556 (2018). See generally Ronald J. Allen & Joseph S. Miller, *The Common Law Theory of Experts: Deference or Education?*, 87 *NW. U. L. REV.* 1131 (1993).

239. See Imwinkelried, *supra* note 29, at 455.

240. FED. R. EVID. 703 advisory committee's note on proposed rules.

241. See *id.*

242. *Id.*

243. MCCORMICK ON EVIDENCE, *supra* note 181, § 14.

intended to create a new, more workable alternative to the often-criticized hypothetical question.²⁴⁴

First, assume the narrow view of the scope of “facts or data.” Positing that assumption and further assuming that secondhand reports and hypothetical questions apply to the same types of facts, in *Daubert* the plaintiff’s attorney might pose the following hypothetical question to an epidemiologist:

Professor, I want you to assume the following facts. (1) Mrs. Daubert regularly ingested an anti-nausea drug during her first trimester. (2) That drug was Bendectin. (3) Jason Daubert was born as a result of that pregnancy. And (4) at the time of birth, Jason’s limbs were deformed. Based on those facts, do you have an opinion as to the cause of Jason’s limb defects?²⁴⁵

Each element of the hypothesis relates to a case-specific fact. Just as those facts would be appropriate subjects for secondhand, out-of-court reports, they are suitable for inclusion in a hypothetical question.

Alternatively, assume the broad reading of “facts or data,” the interpretation that expands its scope to include empirical research data. Positing that interpretation, the plaintiff’s attorney might add another element to the hypothesis posed to the expert: “Epidemiological studies show that there is a statistically significant relationship between maternal use of Bendectin and birth defects.”²⁴⁶ Under the broad view, this phrasing is unobjectionable because, like the specific facts stated in (1)-(4), this research data falls into the category of “facts or data.” It is submitted, though, that “[a]ny judge in her right mind would sustain an objection to that phrasing.”²⁴⁷ It is the epidemiologist’s province to tell the court, including the attorney calling the expert, what the empirical epidemiological data shows; it is not the attorney’s role to tell the epidemiologist what the epidemiological data shows.²⁴⁸ By adding element (5) to the hypothesis, the attorney has attempted to reverse

244. FED. R. EVID. 703 advisory committee’s note on proposed rule.

245. Imwinkelried, *supra* note 29, at 456.

246. *Id.*

247. *Id.*

248. *Id.*; see Imwinkelried, *supra* note 169, at 372.

the roles of expert and attorney—an absurd outcome.²⁴⁹ If the attorney wants to make that assertion in open court in the jury’s hearing, the attorney should withdraw from the case, take the stand, qualify as an expert, and then attempt to defend the assertion.

2. *The Meaning of “Facts or Data” in Rules 702 and 705*

The narrow interpretation of “facts or data” in Rule 703, limiting the expression to case-specific data, is clearly the preferable reading of that Rule. As we have repeatedly noted, the identical language appears in Rules 702(b) and 705.²⁵⁰ Given the above analysis of the construction of Rule 703, it is a small step to conclude that the courts ought to ascribe the same, limited meaning to the language in those Rules. Part I cited the hoary interpretive maxim that when the drafters use the same language in different statutes in the same legislative scheme, the courts ought to presume that they intended the language to be construed identically in all the statutes.²⁵¹ Part I pointed out that that maxim is not only generally sensible but also that the maxim has special force here.²⁵² The drafters carefully scrutinized the wording of the Federal Rules; that wording was a product of seven years of deliberation by Judicial Conference bodies and two years of congressional study.²⁵³ Further, Rules 702, 703, and 705 took effect at the same time.²⁵⁴ In addition, they all relate to the same core policy objective of ensuring the reliability of expert testimony.²⁵⁵ Finally, they are proximate provisions not only in the same Article of the Federal Rules but, in the case of Rules 702 and 703, immediately adjacent provisions.²⁵⁶ It defies reason to think that the drafters did not want the language construed the same way in the three Rules.

249. See Imwinkelried, *supra* note 169, at 372.

250. FED. R. EVID. 702, 703, 705.

251. See *supra* notes 32-41 and accompanying text.

252. See *supra* notes 43-48 and accompanying text.

253. See *supra* notes 43-48 and accompanying text.

254. See FED. R. EVID. 702, 703, 705.

255. See *id.*

256. See *id.*

IV. USING THIS INTERPRETATION TO CLARIFY THE JUDICIAL REGULATION OF THE FACTUAL BASES FOR EXPERT TESTIMONY

The objective of this Article is to contribute to ending the current confusion over regulation of the “factual” bases or underpinnings of expert testimony. Once we commit to a narrow interpretation of the expression “facts or data” in Article VII, we can use that key interpretation to largely banish that confusion. Part II.B pointed out that numerous opinions state the broad generalization that it is the jury’s province to assess the factual bases or underpinnings of expert testimony.²⁵⁷ As we shall now see, that generalization is only partially true. The broad topic of regulation of factual bases of expert opinions raises three more specific issues about the division of authority or labor among judge, jury, and expert: Can the judge pass on the credibility of the “facts or data” underlying the expert’s opinion? Qualitatively, does the judge or the expert determine which “kinds” of “facts or data” the expert may factor into their minor premise?²⁵⁸ And, quantitatively, does the judge or jury decide the sufficiency of the “facts or data” to support the expert’s opinion?²⁵⁹ Despite the confusion in the cases,²⁶⁰ if we embrace the narrow interpretation of “facts or data,” the answer to each question is relatively straightforward.

A. Who Has Final Authority to Decide the Credibility of the “Facts or Data” Underlying the Expert’s Opinion—the Jury or the Judge?

As the preceding paragraph observed, adopting the narrow interpretation of “facts or data” is central to resolving the three questions about the factual bases of the expert’s opinion. That observation certainly holds true for the question of who has final authority to decide the credibility of the testimony comprising the expert’s minor premise about the “facts or data” in the case.

257. See *supra* Part II.B.

258. Bernstein & Lasker, *supra* note 26, at 18, 46.

259. *Id.* at 18, 31, 33, 46.

260. *Id.* at 31, 33; Schroeder, *supra* note 25, at 2041.

Suppose that the courts adopted the broad view that “facts or data” extends to empirical scientific data relevant to the validation of the expert’s methodology or hypothesis. As previously stated, in *Daubert* the plaintiffs proffered such evidence to validate the hypothesis of a causal nexus between maternal Bendectin use and the birth of babies with limb deformities.²⁶¹ The Court expressly declared that when the judge is deciding whether the proponent’s foundational testimony has validated the relevant hypothesis, Federal Rule of Evidence 104(a) governs.²⁶² The Advisory Committee Note to 104(a) states that when the judge rules on 104(a), “the judge acts as a trier of fact.... [T]he judge will of necessity receive evidence pro and con.”²⁶³ In this setting, the judge may consider the credibility of the testimony.²⁶⁴

However, Part III demonstrated that the narrower interpretation of “facts or data” is preferable. On that assumption, the jury—not the judge—is the final arbiter of the credibility of the testimony. The jury’s final authority becomes evident once we consider the three forms that the information about the case-specific facts can take under Rule 703: the expert’s personal observation, third parties’ testimony to facts specified in a hypothetical question posed to the expert, or the expert’s reliance on third parties’ secondhand reports in some circumstances.²⁶⁵ Consider the sources one by one.

If the witness purports to have observed the fact, such as when a physician testifies that she saw the patient’s lesion, Rule 602 governs the admissibility of her testimony to the observation.²⁶⁶ Rule 602 incorporates the 104(b) standard.²⁶⁷ Under 104(b), the judge makes a limited legal sufficiency determination; the judge decides only whether the proponent’s foundational testimony is “sufficient to support a finding that” the witness observed the fact or event.²⁶⁸ The judge asks this question: If the jury decides to believe the testimony, is its facial probative value sufficient to

261. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 583 (1993).

262. *Id.* at 592.

263. FED. R. EVID. 104(a) advisory committee’s note on proposed rules.

264. *See generally* Imwinkelried, *supra* note 69.

265. *See* MCCORMICK ON EVIDENCE, *supra* note 181, § 14.

266. *See* FED. R. EVID. 602.

267. FED. R. EVID. 104(b).

268. FED. R. EVID. 104(b), 602.

support a rational finding that the witness observed the event?²⁶⁹ It is not just that the jury is competent to make the final decision on such questions. Moreover, submitting that question to the jury does not imperil the integrity of the eventual jury deliberation. If during deliberation the juror finds that the witness lacked personal knowledge and “doesn’t know what he’s talking about,”²⁷⁰ common sense will naturally lead the juror to disregard the testimony in the balance of the deliberations.

The same analysis obtains when the proponent uses the device of a hypothetical question to provide the expert with the assumptions about the case-specific facts. Typically, before permitting the hypothetical question, the judge demands that the proponent call other witnesses to testify that they have personal knowledge of the fact or event later mentioned in the hypothesis.²⁷¹ When those prior witnesses attempt to testify to the facts or events they observed, again Rule 602 controls. The judge makes a limited legal sufficiency determination. The jury ultimately assesses the credibility of the testimony and decides whether to believe the testimony about the hypothesized fact.

Finally, consider secondhand reports. As previously stated, the innovative aspect of Rule 703 is that unlike the common law, Rule 703 allows experts to rely on secondhand, out-of-court reports when “experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject.”²⁷² The original Advisory Committee Note to Rule 703 explained the drafters’ intent:

[T]o bring the judicial practice into line with the practice of the experts themselves when not in court. Thus a physician in his own practice bases his diagnosis on information from numerous sources and of considerable variety, including statements by patients and relatives, reports and opinions from nurses, technicians and other doctors.²⁷³

269. See generally Imwinkelried, *supra* note 69.

270. See CARLSON ET AL., *supra* note 23, at 95.

271. See MCCORMICK ON EVIDENCE, *supra* note 181, § 14.

272. FED. R. EVID. 703.

273. FED. R. EVID. 703 advisory committee’s note to 1972 amendment.

It is true that under the third sentence of Rule 703, “the proponent of the opinion” ordinarily may not disclose the content of the secondhand report to the jury if the report does not independently qualify under the hearsay rule.²⁷⁴ However, if the opponent believes that the report possesses minimal credibility, the opponent can expose the report during cross-examination. As the Advisory Committee Note to the 2000 amendment states, “Nothing in this Rule restricts the presentation of underlying facts or data when offered by an adverse party” as on cross-examination.²⁷⁵ The opponent may use both cross-examination and extrinsic testimony to attack the report’s believability. Then, during closing argument, the opponent can ask the jury to disbelieve and discount the report. And if it is obvious or the expert conceded that the truth of the report is an essential premise of the expert’s opinion, the opponent can urge the jury to reject the opinion itself.

In his concurrence in one of the leading pre-*Daubert* expert testimony cases, *Christophersen v. Allied-Signal Corp.*, Chief Judge Clark presented a persuasive statutory construction argument for denying the judge the power to pass on the credibility of secondhand reports.²⁷⁶ In that case, one of the questions was whether the decedent had been exposed to a lethal level of cadmium and nickel fumes.²⁷⁷ The plaintiff’s expert relied on a coemployee’s affidavit describing the level and duration of the decedent’s exposure. The majority dismissed the affidavit as stating “grossly inaccurate dosage or duration data.”²⁷⁸ Chief Judge Clark criticized the majority’s assessment of the credibility of the testimony, stressing that Rule 703 authorized the judge to decide only whether the general “type” of information is the type that experts in his or her field reasonably rely on.²⁷⁹ In the Chief Judge’s mind, that statutory language sent a clear signal that the judge may not go further and assess the credibility of the specific secondhand report the expert is relying

274. FED. R. EVID. 703.

275. FED. R. EVID. 703 advisory committee’s note to 2000 amendment.

276. See 939 F.2d 1106, 1116-23 (5th Cir. 1991) (Clark, C.J., concurring), *cert. denied*, 503 U.S. 912 (1992).

277. *Id.* at 1108 (majority opinion).

278. *Id.* at 1114.

279. *Id.* at 1118 (Clark, C.J., concurring). The restyled Rule 703 changes the term from “type” to “kinds.” FED. R. EVID. 703.

on.²⁸⁰ Because under 703 secondhand reports are simply an alternative to testimony about personally observed facts and hypothetical questions and Rule 602 governs the latter alternatives, Chief Judge Clark is right; and all three types of information are treated consistently.

The denouement is that on this aspect of the opinion's "factual" basis, the generalization holds true; the jury has the authority to make the final decision on credibility. However, as previously stated, there are two other related questions. The opponent has occasion to mount a credibility attack in the jury's hearing only if the judge rules that the expert's opinion is admissible. If the judge excludes the opinion, the issue is moot; the jury will not hear either the expert's opinion or the supporting testimony about the expert's minor premise. The remaining two issues relate directly to the preceding admissibility determination.

B. Who Has the Final Authority to Decide Whether the Secondhand Report That Serves as the Expert's Minor Premise Is "the Kind" That "Experts in the Particular Field Would Reasonably Rely on ... in Forming an Opinion on the Subject"—the Judge or the Expert?

The admissibility ruling has a qualitative dimension.²⁸¹ Suppose that the expert is relying on a secondhand, out-of-court report that does not qualify for admission as substantive evidence under the hearsay rule. Nevertheless, the second sentence of Rule 703 allows the expert to premise an opinion on the report "[i]f experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject."²⁸² When we reach this issue, the generalization that the jury decides the factual underpinnings of the opinion breaks down badly. As we shall see, the choice for final arbiter on this question is either the judge or the expert.

Once again assume that the courts embraced the broad interpretation of "facts or data" in Rule 703. Given that assumption, there would be a strong case that the final authority ought to be assigned

280. *Christophersen*, 939 F.2d at 1118 (Clark, C.J., concurring).

281. Bernstein & Lasker, *supra* note 26, at 18, 46.

282. FED. R. EVID. 703.

to the expert. The judge would arguably have to defer to the expert's choice and could not override the expert's selection of a particular type of data as the basis for the expert's opinion. Prior to *Daubert*, most jurisdictions adhered to the *Frye* standard for determining the admissibility of scientific testimony.²⁸³ According to *Frye*, a scientific methodology could serve as a basis for courtroom testimony only if it had "gained general acceptance in the particular field in which it belongs."²⁸⁴ The prevailing sentiment in the pertinent expert fields was not only relevant; it was dispositive. The *Frye* line of authority gave experts the "determinative" because the courts argued that experts were more "qualified [than judges or jurors] to assess the general validity of a scientific method."²⁸⁵ If "facts or data" subsumed empirical research data, a similar argument could be made here.

However, as Part III explained, the better view is that "facts or data" is strictly limited to case-specific factual information and does not encompass the sort of empirical research data that the *Daubert* Court reviewed. Nevertheless, the cases are divided over the question of the final authority to decide the qualitative question; early on, some courts took the so-called liberal position that the expert's choice was dispositive.²⁸⁶ In effect, these courts equated "reasonably" in 703's second sentence with "customarily."²⁸⁷ The courts routinely applied Rule 104(a) to this determination; if the expert vouched that it was the customary practice in his or her field to consider a certain type of information and the judge found that testimony credible, the judge's hands were tied. The judge had to allow the expert to factor

283. *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923); see 1 GIANNELLI ET AL., *supra* note 162, § 1.08.

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

285. *United States v. Addison*, 498 F.2d 741, 743-44 (D.C. Cir. 1974); see also *People v. Barbara*, 255 N.W.2d 171, 194 (Mich. 1977) ("[E]xperts know most about a procedure to experiment and to study it. In effect, they form a kind of technical jury."). Although *Daubert* held as a matter of statutory construction that *Frye* was no longer good law in federal practice, even the *Daubert* Court listed general acceptance as a relevant factor in the judge's admissibility analysis. 509 U.S. 579, 594 (1993). General acceptance can be relevant circumstantial evidence of the methodology's empirical validity. If a methodology has been in circulation for years and managed to garner widespread acceptance, a number of experts in the field have presumably reviewed the underlying empirical data and found it to be satisfactory support.

286. Imwinkelried, *supra* note 29, at 466-67 (collecting cases).

287. *Id.* at 466.

that type of information into the expert's minor premise even if the judge had grave doubts about the trustworthiness of information from that type of source.

However, there is a competing restrictive view that is both sensible and superior as a matter of statutory interpretation. In a sense, this question is analogous to the problem of customary practice in negligence law in torts.²⁸⁸ Suppose that the question is whether a particular industrial or manufacturing practice is negligent. On the one hand, to decide that question, the judge will admit testimony that the practice is customary in that industry. The widespread acceptance of the practice by the persons most familiar with the field is some relevant evidence that the practice is prudent.²⁸⁹ On the other hand, the courts do not give the custom dispositive weight. When the terms of the rule of law refer to "reasonable"—not "customary"—there is a connotation that the courts are to apply an objective standard and not automatically approve the industry's practice. Similarly, as some courts have held, in deciding whether it is reasonable for an expert to rely on a particular "kind" or "type" of secondhand report, it is relevant that in the expert's field it is a customary practice to do so. These courts give the experts' customary practice "due regard."²⁹⁰ If the expert's testimony is convincing, the court may treat the testimony as "strong evidence" of reasonableness.²⁹¹ Some courts have even gone to the length of holding that proof of the existence of the custom raises a rebuttable presumption of objective reasonableness under Rule 703.²⁹² However, in the final analysis, since the term of the evidentiary rule is "reasonable"—not "customary"—the judge retains a residual discretion to second-guess the experts' practice.²⁹³

The restrictive view is not only sounder as a matter of policy; it is also superior as a matter of statutory construction. As in Part III.B, the contextual argument carries the day.²⁹⁴ The context includes Rules 406 and 803(17). Rule 406 deals with evidence of "a person's

288. *Id.* at 467-68.

289. *See* FED. R. EVID. 401.

290. Epps, *supra* note 108, at 61.

291. *Id.* at 78, 81.

292. *See, e.g.,* Ryan v. KDI Sylvan Pools, Inc., 579 A.2d 1241, 1247 (N.J. 1990).

293. Epps, *supra* note 108, at 78.

294. *See* Imwinkelried, *supra* note 29, at 467-68.

habit or an organization's routine practice."²⁹⁵ For its part, Rule 803(17) carves out a hearsay exception for "[m]arket quotations, lists, directories, or other compilations that are generally relied on ... by persons in particular occupations."²⁹⁶ When the drafters wanted to make a customary or routine practice controlling, they knew how to find apt language to manifest that precise intent. Given the careful examination of the wording of the Federal Rules—seven years of study in the Judicial Conference followed by two years of congressional deliberation—the inclusion of the adverb “reasonably” in Rule 703 is persuasive.

C. Who Has Final Authority to Decide Whether the Case-Specific Information Contained in the Expert's Minor Premise Includes "Sufficient Facts or Data" to Support the Expert's Opinion—the Judge or the Jury?

There is a quantitative aspect to the admissibility decision.²⁹⁷ Here, too, the generalization that questions relating to the expert opinion's factual bases are matters for the jury breaks down. It is justifiable for Federal Rule 702(b) to task the judge with ruling whether the expert's opinion “is based on sufficient facts or data.”²⁹⁸ Although the jury passes on the credibility of the underlying case-specific testimony when the judge rules the opinion admissible, as a general proposition the judge has an overarching responsibility to protect against irrational determinations by a jury. Concededly, to an extent in criminal cases, we tolerate irrational jury factfinding during the final deliberation by permitting the jury to return a general verdict; occasionally, a general verdict serves to shield jury nullification from public scrutiny.

However, until we reach that stage in criminal cases the judge enjoys considerable power to keep the jury's decision-making within the range of rationality. Rules 104(b), 602, and 901 are illustrative: Rule 104(b) sets out a lax general standard that the later Rules apply to determinations of a witness's personal knowledge (Rule

295. FED. R. EVID. 406.

296. FED. R. EVID. 803(17).

297. Bernstein & Lasker, *supra* note 26, at 18, 31, 33, 46.

298. FED. R. EVID. 702(b).

602) and an exhibit's authenticity (Rule 901).²⁹⁹ Although the Rule 104(b) standard is a low bar, a lay witness's testimony about an alleged perceived fact or event is submissible to the jury only if the judge finds that the facial probative value of the foundational testimony is "sufficient to support a finding that" the witness saw and recalls the fact or event.³⁰⁰ Likewise, the proponent may submit a purported author's letter to the jury only if, on its face, the foundational testimony is "sufficient to support a finding that" the purported author wrote the letter.³⁰¹ If the foundational testimony falls short of even Rule 104(b)'s minimal standard, it would be irrational for the jury to conclude that the witness saw the accident or that the purported author wrote the letter.

The judge's power to prevent irrational jury behavior is not only manifest in the microcosm of the treatment of individual items of evidence; it is also evident in the macrocosm of the decision whether to allow the case to go to the jury. With respect to every element of the plaintiff's or prosecutor's prima facie case, the judge assigns the proponent an initial burden of production going forward.³⁰² To satisfy that burden, a civil litigant must present enough testimony to support a permissive inference that the alleged fact existed or that the alleged event occurred.³⁰³ Just as the judge passes on the legal sufficiency of the foundational testimony under Rule 104(b), the judge makes a legal sufficiency determination when, at the end of the plaintiff's or prosecutor's case-in-chief, the defense moves for a directed verdict or judgment of acquittal as a matter of law. The thrust of the motion is a contention that, even if the jurors choose to believe all the testimony presented in the case-in-chief, it would be irrational for them to make a finding in favor of the burdened party.³⁰⁴ If the judge believes that contention is correct, the judge

299. FED. R. EVID. 104(b), 602, 901.

300. FED. R. EVID. 104(b), 602.

301. FED. R. EVID. 104(b), 901.

302. 2 EDWARD J. IMWINKELRIED, PAUL C. GIANNELLI, FRANCIS A. GILLIGAN, FREDRIC I. LEDERER & LIESA RICHTER, *COURTROOM CRIMINAL EVIDENCE* § 2903 (6th ed. 2016).

303. *Id.* § 2904. In criminal cases, to protect the preeminent value of liberty, *Jackson v. Virginia* prescribes a higher standard. 443 U.S. 307, 319, 324 (1979). The judge must conclude that the prosecution's evidence is sufficient to permit a rational, hypothetical juror to find beyond a reasonable doubt that the fact existed or the event occurred. IMWINKELRIED ET AL., *supra* note 302, § 2919.

304. *See* IMWINKELRIED ET AL., *supra* note 302, § 2905.

precludes an irrational jury finding by making a peremptory ruling in favor of the defendant.³⁰⁵ For that matter, even in a criminal case, if the defense fails to present sufficient evidence to support a defense, the judge may refuse to instruct on the defense in the final jury charge.³⁰⁶

Rule 702(b)'s mandate that the judge find that "sufficient" facts support the expert's opinion is not an anomaly; rather, it is simply another facet of the judge's power to guard against irrational jury decision-making.³⁰⁷ Suppose that in a trial relating to a traffic accident, the plaintiff calls an accident reconstruction expert to opine about the speed at which the defendant was driving. As his major premise, the expert relies on one of the recognized formulae for estimating speed from physical evidence such as the length of skidmarks.³⁰⁸ Assume further that the expert proposes relying on a particular formula with a variable for drag factor.³⁰⁹ The drag factor depends on considerations such as the type of road surface, the dry or wet condition of the surface, and the vehicle's braking system.³¹⁰ In *voir dire* by the defense counsel, the plaintiff's expert concedes that he did not bother to learn anything about the type of surface at the site of the accident, the weather conditions, or the defendant's vehicle's braking system. He admits that rather than going to that trouble, he "ballparked" the drag factor value to insert as the variable in the formula. If the expert's source for the case-specific information is nothing more than a guess, the flimsiness of the opinion's factual basis should render it inadmissible;³¹¹ it would be irrational for the jury to make a factual finding based on nothing more than the expert's speculation.³¹²

305. *Id.*; see also MCCORMICK ON EVIDENCE, *supra* note 181, § 338.

306. IMWINKELRIED ET AL., *supra* note 302, § 2905.

307. FED. R. EVID. 702.

308. 3 GIANNELLI ET AL., *supra* note 162, § 29.06[2][c], at 29-22.

309. *See id.* § 29.06[2][b][ii], at 29-18.

310. *Id.*

311. *Id.* § 29.10[4][c], at 29-70.

312. *See id.* In this example, the proper outcome is clear-cut. The expert is using a formula that requires input for a certain variable, and the expert lacks any reliable basis for estimating the variable. In other cases, though, the ruling will be more debatable. Suppose that the expert is a psychiatrist rather than a physicist or accident reconstruction expert. While the physicist relied on an arithmetic formula as his major premise, the psychiatrist might derive her major premise, the diagnostic criteria for a certain mental illness, from the American Psychiatric Association's Diagnostic and Statistical Manual (5th ed. 2013). Assume

D. The Legal Sufficiency of the Case-Specific Factual Information to Support the Expert's Opinion vs. the Adequacy of the Empirical Factual Information to Validate the Expert's Methodology

To understand the limited nature of the judge's power under Rule 702(b) to determine the legal sufficiency of the case-specific information to support the expert's opinion, before closing, we should distinguish that power from the judge's authority under *Daubert* and Rule 702(c) to determine the adequacy of the validation of the "principles and methods" that serve as the expert's major premise. To an extent, the two powers are parallel. In the former setting, the judge passes on the sufficiency of the case-specific data to justify the expert's opinion.³¹³ In the latter setting, the judge must decide the adequacy of the empirical data that supposedly validates the expert's methodology; that is, the judge must determine whether the expert has marshaled enough empirical data and reasoning to prove by a preponderance of the evidence that by using the general methodology, the expert can accurately draw the type of inference that he or she proposes testifying to.³¹⁴

However, in another respect, the parallel breaks down; the judge's Rule 702(b) authority is much more limited than the latter power. Part IV.A explained that the judge cannot pass on the credibility of the case-specific information underlying the opinion; the credibility

that the manual describes one of the criteria listed for the disorder in question in rather ambiguous terms. For example, the criterion might be that the patient experienced "frequent" or "numerous" bouts of anxiety. In the instant case, the expert's minor premise information includes secondhand, out-of-court reports about three such incidents over a two-year period. The expert testifies that, in her judgment, proof of three incidents satisfies the frequency or numerosity criterion. The same judge who has no difficulty ruling the physicist's opinion inadmissible may struggle in deciding whether to admit the psychiatrist's opinion. If the ultimate objective is to prevent the jury from making a truly irrational decision, the judge may be reluctant to exercise his or her power under Rule 702(b) to exclude the psychiatrist's opinion. The judge may be inclined to defer to the expert's experience in deciding whether to characterize three incidents in a two-year period as frequent or numerous. Part IV.B pointed out that, in applying the second sentence of Rule 703, it is legitimate to consider the customary practices in the expert's field.

313. See Edward J. Imwinkelried, *The Daubert Line of Authority: Perspective and Synthesis*, 56 CRIM. L. BULL. 978, 988-1002 (2020).

314. Edward J. Imwinkelried, *The Best Insurance Against Miscarriages of Justice Caused by Junk Science: An Admissibility Test that Is Scientifically and Legally Sound*, 81 ALBANY L. REV. 851, 857 (2018); see Imwinkelried, *supra* note 313, at 988-1002.

decision belongs to the jury. Yet, as previously stated, the *Daubert* Court explicitly stated that when the judge determines the adequacy of the validation, the judge applies the Rule 104(a) procedure³¹⁵ that empowers the judge to assess the credibility of the information.³¹⁶ One might ask: If the drafters had enough faith in lay jurors' decision-making to restrict the judge's role in determining whether a lay witness possesses personal knowledge (Rule 602)³¹⁷ or a letter is authentic (Rule 901),³¹⁸ why give the judge a much larger role in determining whether the expert's general methodology is valid?

The answer is that we can afford to place much greater faith in the jury on issues such as whether a lay witness has personal knowledge of the fact or event they allegedly observed or whether a letter was written by the purported author. We are confident that lay jurors are competent to decide such straightforward questions. More significantly, we can be reasonably confident that if they conclude during deliberations that the witness did not see the fight or that the letter is a forgery, their exposure to the evidence and the related foundational testimony will not distort the remainder of their deliberations. To use the vernacular, the jury has decided that the witness "doesn't know what he's talking about" or that the exhibit "isn't worth the paper it's written on."³¹⁹ Even without the benefit of any legal training, once the jurors reach that conclusion, common sense will naturally lead them to put the evidence and the related foundational testimony out of mind. They will disregard it. There is thus little risk that their exposure to the evidence will distort the balance of their deliberations.

In sharp contrast, that risk is acute when the issue is the validation of an expert methodology.³²⁰ Several factors drastically increase the magnitude of the risk.

315. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 592-93 (1993).

316. See FED. R. EVID. 104 advisory committee's note to 1987 amendment; Imwinkelried, *supra* note 69, at 12.

317. See FED. R. EVID. 602.

318. See FED. R. EVID. 901.

319. See CARLSON ET AL., *supra* note 23, at 95-96.

320. See Edward J. Imwinkelried, *Judge Versus Jury: Who Should Decide Questions of Preliminary Facts Conditioning the Admissibility of Scientific Evidence?*, 25 WM. & MARY L. REV. 577, 581 (1984).

While the foundational testimony for facts governed by Rule 104(b) usually tends to be short, the validation testimony for expert methodologies is ordinarily quite lengthy. It may take all of a minute to lay a perfectly proper Rule 602 foundation to show that a witness observed the event that she proposes testifying about.³²¹ In a famous Florida case involving a challenge to moving radar speedometers, the record of the hearing consumed over two thousand pages.³²² It is one thing to put aside the memory of testimony that consumed less than a handful of minutes at trial. It is quite another matter to disregard testimony that you sat through for hours or even days.

In the jurors' minds, issues such as firsthand knowledge and authenticity are binary: either the witness saw the accident, or she did not.³²³ Either the purported author wrote the letter, or he did not.³²⁴ In contrast, validation testimony is often probabilistic in nature.³²⁵ As the *Daubert* Court recognized, expert techniques and theories have an error rate.³²⁶ What if the technique in question has such a high error rate that, at a conscious level, the juror decides that the technique is invalid, but the accuracy rate hovers around random chance, and the expert on the stand had either dazzling credentials or a charismatic personality? There is an obvious risk that, at least at a subconscious level, the exposure to the witness's testimony will influence the jurors' deliberation.³²⁷

While testimony about everyday facts and events is usually readily comprehensible, validation testimony can be dense material, which requires the jurors to expend substantial mental energy to understand.³²⁸ When a juror has invested considerable effort into thinking about the testimony, it may make it all the more difficult for the juror to put the testimony out of mind even if, at a conscious

321. See EDWARD J. IMWINKELRIED, EVIDENTIARY FOUNDATIONS § 3.03[3], at 30-31 (11th ed. 2020).

322. See *Florida Trial Court Finds Radar Evidence Unreliable*, 25 CRIM. L. REP. 2189, 2189 (1979) (discussing *State v. Aquilera*, a case from the County Court for Dade County, Florida).

323. See Imwinkelried, *supra* note 320, at 600-01.

324. See *id.*

325. See *id.* at 604.

326. See *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 594 (1993).

327. *Id.* at 602-04.

328. See *id.* at 604-05.

level, they have decided that the testimony is technically inadmissible.³²⁹

In short, if our objective is a rational division of authority between the judge and the jury, it makes eminently good sense to give the judge much more extensive power over the testimony validating the expert's major premise than over the testimony identifying the case-specific information constituting the expert's minor premise.

CONCLUSION

As the Introduction pointed out, this Article has a very limited objective. The Article does not address many of the major current controversies about expert testimony. For example, as previously stated, the Article does not advance any proposals for improving the analysis of the reliability of nonscientific expert methodologies. That has proven to be a vexing epistemological problem for the courts.³³⁰ Likewise, the Article does not discuss the question of whether the courts should expand the notion of validating a methodology to include a showing of validity as applied as well as foundational validity.³³¹ Nor does the Article offer any proposals for the problem that the Federal Rules Advisory Committee is now studying, namely, overstated expert testimony, such as testimony by experts who make the ludicrous claim that their methodology has “a zero error rate.”³³²

This Article has a much more modest goal: eliminating some of the confusion about the analysis of the “factual” bases for expert opinions admitted under the Federal Rules. Provisions such as Federal Rules 702(b) and 703 purport to assign the judge certain

329. *See id.* (citing psychological authorities I. HUNTER, *MEMORY* 24-25 (1966); R. KLATZKY, *HUMAN MEMORY: STRUCTURES AND PROCESSING* 21-26 (2d ed. 1980); and E. ZECHMEISTER & S. NYBERG, *HUMAN MEMORY: AN INTRODUCTION TO RESEARCH AND THEORY* (1982) as supporting the propositions that a memory is likely to be durable and more indelible if a person must study the information more intently to understand it and that psychology recognizes the notion of depth of processing).

330. *See generally* Imwinkelried, *Evaluating the Reliability of Nonscientific Expert Testimony*, *supra* note 28; Edward J. Imwinkelried, *Admissibility of Nonscientific Expert Testimony*, *supra* note 28; Imwinkelried, *Next Step After Daubert*, *supra* note 28.

331. *See* Imwinkelried, *supra* note 4, at 817.

332. *See* Susan Steinman, *Expert Witness Amendments in the Works*, 57 *TRIAL*, Feb. 2021, at 60.

responsibilities in conducting that analysis.³³³ Yet, many judicial opinions contain the sweeping generalization that under the Federal Rules, all questions about the credibility, soundness, weakness, or weight of the opinion's factual bases are matters for the jury.

To eliminate that confusion, the Article begins at the most logical starting point, the Federal Rule provisions that contain the expression "facts or data": Rules 702(b), 703, and 705. Because those words were the product of careful parsing by both the Judicial Conference and Congress, it is reasonable to assume that the drafters intended the expression to have the same meaning in each Rule.³³⁴ The problem is that considered in isolation, the words are problematic. "Facts" could easily mean case-specific facts related to the minor premise in the expert's reasoning. However, "data" has the connotation of empirical research data related to validating the expert's major premise, the general methodology, technique, or theory that the expert proposes to rely on. Determining the meaning of "facts or data" presents a classic problem in statutory construction. Although this problem has divided the courts in the past, the trend and the better view is that the expression denotes only case-specific facts.³³⁵ The text, context, and legislative history of Rule 703 all point toward that narrow view; and if that is the proper interpretation of the expression in Rule 703, it should also dictate the meaning of the identical words in Rules 702(b) and 705.³³⁶

Once we accept that construction of "facts or data," it becomes evident that the generalization that all questions about the factual bases of expert opinions are matters for the jury is badly overstated. The generalization holds true only in the sense that the jury has the ultimate authority to decide the credibility of any case-specific information that the expert premises his or her opinion upon.³³⁷ Whether the expert purports to have personal knowledge of the fact under Rule 602, a third party supplies testimony under Rule 602 to provide an element of a hypothetical question posed to the expert,

333. See FED. R. EVID. 702, 703.

334. Imwinkelried, *supra* note 169, at 369; see *In Pari Materia*, BLACK'S LAW DICTIONARY (11th ed. 2019) (defining the canon of statutory construction which states that statutory language of the same subject matter should be construed together).

335. See Imwinkelried, *supra* note 169, at 361, 365.

336. *Id.* at 365.

337. See Imwinkelried, *supra* note 320, at 592.

or the judge allows the expert to rely on a secondhand, out-of-court report under 703, the judge cannot bar the testimony merely because he or she disbelieves the information; the judge plays a limited screening role, and the jury makes the final decision whether to believe the testimony.³³⁸

However, in two other significant respects, the generalization is plainly false. First, under Rule 703, the judge makes the qualitative determination of whether the expert is including in his or her minor premise a kind or type of information that experts in his or her field reasonably rely on.³³⁹ Since Rule 703 uses the expression “reasonably” rather than “customarily” or “routinely,” the ultimate authority rests with the judge.³⁴⁰ The judge may certainly consider the expert’s testimony about the customary practice in his or her discipline; and in many, if not most, cases the judge will likely defer to the expert’s choice.³⁴¹ However, the judge may not delegate that decision to either the expert or the jury.³⁴² Rule 703 casts the judge in the role of the final arbiter of the reliability of the type of information or source that the expert proposes factoring into their minor premise. Hence, the judge has a residual discretion to override the specialty’s customary practice.³⁴³

Likewise, the generalization breaks down with respect to the quantitative determination of whether the expert has cited “sufficient” facts to support the opinion. Rule 702(b) requires the judge to make that determination. As Part IV.C explained, assigning that task to the judge is perfectly consistent with the allocation of the credibility determination to the jury. At trial, the jury ordinarily determines the credibility of the testimony. However, the judge has an overarching responsibility to police the rationality of the jury’s fact-finding.³⁴⁴ At the microcosm level, even when Rule 104(b) assigns to the jury the final decisions on such issues as a lay witness’s personal knowledge or an exhibit’s authenticity, the judge can prevent the jury from ever hearing the witness’s testimony about

338. *Id.*

339. *See* Imwinkelried, *supra* note 29, at 467-68.

340. *See id.*

341. *See id.*

342. *See id.*

343. *See id.* at 467.

344. *See* Imwinkelried, *supra* note 320, at 579.

the event or the letter if the judge concludes that the foundational testimony is “insufficient” to support a rational jury finding of personal knowledge or authenticity.³⁴⁵ At the macrocosm level, even when the party with the burden of going forward succeeds in introducing every item of evidence he or she offers during the case-in-chief, the judge can make a peremptory ruling, precluding the case from even reaching the jury, if the judge concludes that, at face value, the party’s testimony lacks sufficient probative value to justify a rational jury finding on the disputed element of the cause of action or crime.³⁴⁶ In that light, Rule 702(b)’s allocation of authority to the judge is not an outlier; rather, it is simply another manifestation of the judge’s broader power and responsibility to ensure that the jury’s fact-finding remains within a rational range.

As the Introduction noted, the primary source of confusion about the evaluation of the factual bases for expert opinions has been a failure to take into account the narrow scope of “facts or data” in Rules 702(b), 703, and 705. Once the courts appreciate the narrow meaning of that expression, the courts will also realize the misleading nature of the facile generalization that all questions about the factual bases are matters for the jury. They will see that the drafters have devised a sensible division of labor and authority among the judge, jury, and expert. Although the jury has the plenary power to decide the credibility of the case-specific information the expert has included in his or her minor premise, as part of the earlier admissibility analysis, the judge makes the qualitative decision necessitated by Rule 703 and the quantitative decision that Rule 702(b) calls for. It may be true that “clarity is the hardest thing.”³⁴⁷ However, if the question is the assessment of the factual bases for expert opinions, and the courts embrace the correct, narrow construction of “facts or data,” clarity is attainable here.

345. See FED. R. EVID. 104(b).

346. MCCORMICK ON EVIDENCE, *supra* note 181, § 338.

347. BARNES, *supra* note 1, at 102.