

## Soft Science and Non-Science: Controlling Expertise in the Courtroom

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*Daubert* established a regime for judging scientific expertise in which the district court judge was to be a “gatekeeper” and to require that before such expertise would be admissible that the theory and general application be shown to be scientifically valid, which meant evidentiary reliability. The test was not limited to “novel” scientific expertise. *Kumho Tire* applied this same general analysis – gatekeeping and insistence on validity – to all expert evidence, specifically in that case technical expertise. *Kumho* also stated that it is not possible to specify which of the various validity tests applied to which types of expertise and that the trial judge had discretion in picking the tests, which like the determination of whether validity/reliability had been shown (*General Electric v. Joiner*) was reviewable only for abuse of discretion.

Expert evidence deserves special examination because of its potential to be over-valued by the jury, the special license the rules gives experts to testify, such as the use in otherwise inadmissible evidence, and the fact that such evidence always gives over the practical decision on evidence evaluation to the expert rather than the jury, which is unable fully to understand its specialized reasoning or process.

I worry about the *Daubert* test applied generally, not because it is conceptually incorrect, but because it is unrealistically exacting. *Daubert* can be an excuse for exclusion of evidence that is case determinative. I find the way courts apply the ten or more tests that have been stated in *Daubert* and the Advisory Committee note to the 2000 amendment to Federal Rule 702 to be inconsistent and sometimes arbitrary. In *Howerton v. Arai Helment, Ltd.*, 597 S.E.2d 674 (N.C. 2004), the North Carolina Supreme Court rejected *Daubert* for the state because of what it saw as excessive rigidity in the federal system that challenged plaintiffs’ jury trial rights. North Carolina had earlier rejected *Frye*, and it clarified that its reliability approach, which had cited *Daubert*, was a “kinder and simpler” system. Another concern I have is that is that *Daubert* makes the admissibility showing more expensive and prohibitively so for parties with limited resources including indigent criminal defendants and/or expertise that might be potentially helpful, but not essential, expertise.

### The Validity Examined as to the Particular Use Made of the Evidence or it “Fit”

What do I think is most clearly valuable in *Daubert* and the 2000 amendment to Rule 702? The emphasis on “fit.” Another way to say this is that the test may work best when the emphasis on application rather than grand theory.

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\*For amplification of my presentation, see *Finding the Golden Mean with Daubert: An Elusive, Perhaps Impossible, Goal*, 72 VILL. L. REV. 723 (2007); *Syndromes and Politics in Criminal Trials and Evidence Law*, 46 DUKE L.J. 461 (1996); *Legal Doctrines Governing the Admissibility of Expert Testimony Concerning Social Framework Evidence*, 52 LAW & CONTEMP. PROBS., Autumn 1989, at 85.

*Daubert* discusses fit in two ways. First is a 401/402 issue of whether the expertise has application to the facts of the case. That is an obvious inquiry, which is most helpful in focusing on a second more sophisticated use of “fit”: the validation expertise for its particular use in that case. One of the best examples of validation changing depending on the used made of the evidence is *People v. Bledsoe*, 681 P.2d 291 (Cal. 1984). *Bledsoe* was decided long before *Daubert* in a *Frye* state, but it draws a distinction that illustrates “fit” analysis applied to soft science.

### **Rape Trauma Syndrome and Evidence Invalid for One Purpose and Valid for Another**

Rape Trauma Syndrome, which describes a set of behavioral features observed by therapist in women who had reported that they had been raped. It might be offered to show that another woman who exhibited some or all of those features was the victim of rape – to determine cause of the behavior or to diagnose. *Bledsoe* correctly held that the evidence was invalid for this purpose. It was developed by therapists, who did not test whether it was exclusive for rape. In fact, many of the features are common to post-traumatic stress disorder caused by other traumas rather than rape. Another way to describe this result is that the test is not diagnostic. Alternatively, it is over-inclusive; it has too many false positives or rather an undetermined number of potential false positives because the validation studies had not been done. Rape Trauma Syndrome should be ruled invalid under *Daubert/Kumho Tire* for this “diagnostic” purpose.

The fact Rape Trauma Syndrome is invalid for one relevant purpose in the case does not mean, however, that it is invalid for another purpose that is less demanding in its validation. The defense may challenge the victim’s credibility by the argument that a failure to report the rape for a period of time after it happened is inconsistent with expected human behavior. One of the characteristics that marked many of the women seen by the therapists was that they did not report the rape for extended periods. This was not an invariant characteristic, but it was frequent. That it was frequently observed in these women, many of whom were definitely rape victims, is sufficient to rebut the defendant’s claim that ordinarily women who are raped report and therefore this woman must not have been raped because she behaved extraordinarily. The validation is sufficient here.

This distinction in use is easy to illustrate to students. Sobriety “walk the line tests,” for example, are good at eliminating false negatives – if one is drunk, he or she fails. However, they are not diagnostic. People with poor balance for other reasons will fail. Similarly, diagnostic tests are often picked for their quickness and exclusion of false negatives – Strep Throat for children – quick, accurate for false negative, but sometimes inaccurate for false positives. The benefits still outweigh the costs – early treatment that has very few side effects. Then a slower and more accurate test is ordered for those who test positive. Red Cross test for HIV in blood similarly picks up the early markers of HIV and is excellent in excluding false negatives, but it also picks up erroneous positives. Blood is discarded for safety reasons sometimes erroneously but the HIV is not spread, and quite frightened donors without the disease quickly schedule further tests.

**United States v. Hines: Validity of Evidence to Teach Handwriting Identification Principles but not to Identify the Writer and the Continuing Importance of Non-Daubert Considerations to Admission of Expertise, Such as the Degree of Helpfulness of Expertise**

*United States v. Hines*, 55 F. Supp. 2d 62 (D. Mass. 1999) is an excellent case to indicate other aspects of the different levels of validation need for different types of expertise and other concerns regarding the need for the evidence. It examines two types of expert evidence offered for distinctly different purposes in the case. The first is handwriting analysis offered by the government, which it finds lacking adequate support under *Daubert* when used to reach a conclusion of authorship. The court does not conclude that the expertise worthless and indeed finds it sufficiently reliable to be admitted for the less exacting application of the expert instructing the jury – noting similarities and dissimilarities between the known exemplars and the written robbery demand.

Second, *Hines* examines eyewitness identification expert testimony offered by the defense. In contrast to handwriting, the court finds the scientific underpinnings of this expertise to be solid under *Daubert*. The question here is a different aspect of application – whether those experimental findings can be usefully applied in real life settings. The court ruled that they could be, and in doing so focused on the need for the evidence to correct jurors sense of confidence in their perceptive abilities that may be misplaced in specific areas, such as cross-racial identifications. Although the defense counsel can make similar points to the expert in closing argument, the court also found that without the supporting authority of expert testimony those points would likely carry little weight.

A point of emphasis that I believe is important is that admissibility of eyewitness experts may appropriately turn upon whether the expert’s testimony runs counter to or consistent with generally held views of jurors and whether it is an intuitively obvious point or one that is counterintuitive. For me, the most significant testimony that such an expert can give is not cross-racial identification problems, but the well-recognized and frequently replicated result that the confidence of the witness is not highly correlated with accuracy. Witnesses who are highly confident that they picked the perpetrator of the crime are only barely more likely to be correct than those who make no such claim. In a case where the witness has made such a claim – where the expertise on this point thus “fits” – the court should be far more willing to admit the testimony than when the testimony deals with the fact that a brief or poorly lit encounter is less likely to result in an accurate identification. This is because the first conclusion should run counter to most jurors’ intuition or personal experience. Most people believe that they would not claim certainty unless they were sure, and I believe most of us “know” we would not say we were sure unless we were correct. The expert testimony is needed to correct the misperception, much as Rape Trauma Syndrome is needed to correct presumed misunderstandings about how typical rape victims behave. On the other hand, a brief and/or poorly lit encounter would seem obviously to be less likely to produce an accurate identification. Thus, expertise on that point is less needed to correct misperceptions and more likely to be counted for too much in reducing witness credibility.

*Hines* does not give the definitive answer to admissibility that the *Daubert* Trilogy appears to promise on its surface. It provides few categorical answers, but answers questions only in specific contexts. This is how I think the intersection of law and expertise should generally appear. Such an approach is correct as to approach, but it can hardly be said to be uniquely correct in that other nuanced results that were quite different would be reasonable as well. This type of analysis tends to appear imprecise and conditional and therefore somewhat inadequate and unsatisfactory.

Also, I believe that one of the unfortunate side effects of our proper focus on the intricacies of *Daubert* is that students, lawyers, and courts often ignore other issues within the rules controlling expert testimony, such as that reflected in the eyewitness identification area. *Hines* assumes that the *Daubert* issue has been solved in favor of admissibility for many aspects of such expertise, which I believe is clearly correct, but nevertheless goes on to examine other issues.

### **A Taxonomy of Expertise and Admissibility Demands or Inquiries**

Professor Michael Risinger has argued for an approach to admissibility of expert witnesses based on a taxonomy grounded in the function of their testimony in the case. See D. Michel Risinger, *Preliminary Thoughts on a Functional Taxonomy of Expertise for the Post-Kumho World*, 31 SETON HALL L. REV. 508 (2000). I find great value in his approach. Beyond his approach, I find quite insightful his observation that the notion of expertise as currently approached is in much the same position as judicial notice before Kenneth Culp Davis. The core of the Advisory Committee note for Rule 201 of the Federal Rules of Evidence on judicial notice of adjudicative facts is grounded in terminology and distinctions developed by Professor Davis. When I read that commentary, I disagree with some of Davis' points, but I leave with a relatively clear sense of what the rule is meant to cover because of the clarity and authoritativeness of his system of classification.

Risinger divides experts who are educators or summarizational experts from those who translate data through their expertise to opinions ("translational" experts). He divides summarizational experts into those who base their educational testimony on personal experience versus those who derive their knowledge from secondary sources, particularly scholarly sources. He divides "translational" experts between those who employ subjective systems of discrimination (clinical or black box experts) and those who rest their opinions on objective indicators. Another dividing line in his system are those who developed their expertise separate from and before litigation and those who develop it for litigation purposes.

Each of these distinctions are the basis for differing levels or types of justification, which he argues is supported by the Court's mandate to judges in *Kumho Tire*. In general, little validation is required for summarizational experts who base their testimony on their own personal experience. For those basing their testimony on technical training or scientific study (eyewitness identification experts), validation approaches but is less demanding than for

traditional translational experts. Translational experts based on objective data require validation by satisfactory empirical results. For those who base their opinions on subjective systems of discrimination (handwriting, fingerprints, tire defects), who are also called clinical or black box experts, usually only indirect validation is possible, if any is possible. Risinger argues that a good indirect method of validation is achieved when the field has a high demonstrated rate of accuracy and individual examiners follow a common taxonomy that uniformly identifies relevant observations and the taxonomy produces definitive results.

I agree with Professor Risinger that a taxonomy of expertise as it relates to validation would be helpful, and I agree that we are in a situation that lacks both such a taxonomy and a commentary that points toward a choice of an organizing language or set of values like Davis provided to judicial notice. Unfortunately, I do not find such a taxonomy emerging from the caselaw.

**A Non-Science “Handedness Expert”: Expertise that Was Easily Admissible Pre-*Daubert* and Now Is Likely Another Matter**

Before entering law teaching, I worked with the D.C. Public Defender Service (PDS), which over the years has had a strong group of lawyers and more funds than most public defenders office, including separate funds for expert witness. Even though PDS has its own funds to hire expert witness, it nevertheless has limited funds and therefore internal constraints on expert expenditures.

As a defense attorney, I had a general bias against easy admission of evidence since the prosecution has the burden of proof, but both my personal and the general conclusion of PDS was that presenting something of an affirmative case and in many situations evidence of at least possible innocence was preferable. This sometime included expert testimony and occasionally a somewhat off-beat expert. The particular expert I want to consider in a post-*Daubert*, post-*Kumho Tire* world is an expert on “handedness,” whom I had test my client and render an opinion that his dominant hand was his was right rather than his left.

The case involved a charge that my client, Sam Byrd, assaulted a police officer by trying to shoot him. The officer, with his partner, was dressed in plain clothes and traveling in an unmarked car. They testified that as they approached a suspicious individual, my client, he fled. One officer left the car and gave chase on foot, following my client into an alley. He testified that as the suspect exited from the alley and ran between nearby buildings, the man (Byrd) fired at that officer as he ran, holding the gun in his left hand. The officer testified that Byrd’s shot missed him; the officer returned fire; and Byrd dropped his weapon and was apprehended. The officer’s partner testified to a consistent version seen as he drove to a position to cut off flight. One critical point was that the subsequent investigation failed to back up the officers’ story of Byrd firing with physical evidence. It failed to locate the apparent point of impact of the bullet Byrd allegedly fired, and no bullet was recovered to match with the gun the officers testified they found where Byrd threw it after the officer returned fire. No gunpowder residue test was conducted of my client’s hands, presumably because the authorities believed it unnecessary.

Byrd's testimony at trial was that he thought the two men were going to rob him and he did flee, but he neither had a gun nor fired it. The claim that he had not fired the gun but instead the officers had acted in a trigger-happy fashion had particular plausibility for me. D.C. officers rarely fire their weapons, but one of this two-member team had fired at a juvenile client some years earlier. There too the officers testified that they thought he had a weapon in his hand as he fled apprehension, which they said turned out to be only a syringe.

Byrd contended in conversations with me, as he subsequently testified at trial, that he was clearly right handed. This was consistent with my experience with him observing him write with excellent handwriting with his right hand and with his mother's statements to me.

From all I could see about the location, it made little sense from my client's perspective to have fired with his "off" hand if he had indeed attempted to fire at the police. I posited a number of hypotheses, including some that would have made the officers' story plausible, such the happenstance that he was carrying the gun in his left pocket and had to get to it quickly as he ran. At trial, I wanted to argue (and ultimately did) that the officers got the hand wrong because my client never had a gun in either hand for them to see. Moreover, I argued that they had a reason to pick his left hand to explain away the inconvenient lack of physical evidence corroboration. In the spatial arrangement where the shot was allegedly fired, failure to find the bullet or evidence of the bullet's impact was more likely if the gun had been in Byrd's left hand than his right. Since the officers, I argued, knew none of this evidence would be found from the beginning (because they knew no shot was fired at them), they included the left hand reference in their initial version of the facts to aid their explanation and stuck with it throughout.

Proof of right- or left-handedness for many people is easy through the testimony of family, friends, and co-workers. As I mentioned previously, this was possible with Sam Byrd through his mother, but not terribly effective given the heavy discount I believed was given to the testimony of family and friends, particularly when defendants have substantial criminal records, as did Byrd. Indeed, he had been confined in both juvenile and young adult facilities and had virtually no long-standing friends or employers who could persuasively testify to which was his dominant hand. His witnesses were family members and men with substantial criminal records.

Proof by expert was more difficult than I originally assumed. For example, it is not provable in most people by easily discerned differences in muscle development. However, after a number of telephone calls, I located a medical technician who had association with both a local university medical facility and Walter Reed VA Hospital. It was her job to determine handedness for brain-damaged veterans who sometimes could not remember which was their dominant hand and in other instances needed a determination after the brain damage which of their hands was currently more functional so that rehabilitation could be done with that now-dominant hand. She clearly had a methodology for her determinations, but she had done no blind testing and certainly had not tested her accuracy with undamaged subjects who might try to deceive her.

She tested my client's fine motor skills with a number of her tests – a series of drawing and tracing enterprises done with each hand – and found him to be clearly right handed and his “off” hand to be perfectly functional like most individuals but not close making him ambidextrous. I assume she had no methodology as well for determining whether the person was ambidextrous and was faking poor performance with one hand.

I gave her no prior information on my position regarding my client's handedness for two reasons. First, like many witnesses I ultimately called, I sensed she began with little desire to testify in a criminal case, and any indication she was being manipulated or helping to distort the truth on behalf of a potentially dangerous criminal would end her involvement. My modest witness fee would not have compensated for her sense of honor. Second, I felt no need to fudge the results; I had not the slightest personal doubt myself about my client's handedness.

I offered her as an expert witness. No extensive hearing was held, and no substantial challenge to her methodology was raised under *Frye*. The judge accepted her as an expert.

She educated the jury, and she provided opinions. She showed the results of the tests she administered – the drawings Byrd did – to the jury. She explained her simple methodology and showed the drawings produced by the client with each hand. She then expressed her opinion that he was right handed and also not ambidextrous or close to it. Some of the limits of her knowledge were probed on cross-examination. For example, she acknowledged that she was not skilled at judging those involved in purposeful deception, although she believed she would likely detect some efforts to deceive. For example, the client's performance with both his apparently dominant and his apparently “off” hand appeared typical of normal people. She believed she would detect at least poorly done efforts to deceive. I do not believe she was asked whether the rare person who was truly ambidextrous might be able to deceive her by performing normally with his supposedly dominant hand and reducing his skill slightly with the other. My guess is that she would have answered that she might not have been able to detect such action and certainly had never put her skill to any type of test in such a situation.

On cross-examination, she acknowledged that she was not saying Byrd was incapable of holding or firing a gun with his left hand, and she had no knowledge of whether he had fired the gun at the officer.

In my opinion, she was a very effective witness both as a person and in her message. I believe she did establish in the jury's mind that my client was clearly right handed, and I also believe it would have been difficult and perhaps impossible for me to have reached the same level of proof through available lay witnesses. The jury acquitted. I believe this testimony was valuable and should have been received.

The handedness expert is problematic under *Risinger's* system if she attempts to render an opinion. She is the an expert relying on subjective or black box determinations that has no overall track record individually or that can be ascribed to the field in general. What she does have, which may be considered quite impressive, is the reliance of the Veteran's Administration

upon her tests to make important decisions about health care, and likely some important feedback on the accuracy of the results. However, there is no indication data exists on these matters. Ineptitude and governmental unconcern might explain the failure to correct deficiencies in her methodology and results. Moreover, she had no clear basis to make some of the most significant distinctions if Byrd were largely ambidextrous and effective at faking.

Under Risinger's taxonomy, the admission of the handedness expert would be far easier under his system if the expert were to stop short of giving an opinion and instead educate the jury on how one would make the distinction supplemented by her specific test results. However, I believe that the handedness expert in the Byrd case added value when she gave her opinion on handedness and the degree of difference between use of right and left hands. Thus, to solve the problem by restricting her to educating the jury and prohibiting her from giving an opinion may reduce the problem. However, it does so by reducing the impact of the expert's testimony.

If I were allowed to develop a taxonomy of expertise for the court, it would also recognize a division of justification based on the accessibility of the expertise to the common understanding of the jury. The level of required validation would be reduced as the expertise approached matters the juror could readily comprehend from their experience. Thus, some soft-science or non-science technical experts would be allowed to testify with minimal validation if the results were sensible, subject to examination by cross-examination, and accessible to the jury. All experts are given special status and license regarding their testimony, but this grant is somewhat more mysterious and powerful in some cases than in others. I contend that the testimony that the handedness expert offered in the Byrd case should be received today rather than restricted because the jurors can meaningfully interpret and weigh its value.

Before I first described this case in any published form, I used this fact pattern with some modifications as an essay in my evidence exam and found it to work very effectively. Students saw many of the limitations on the validation of the witness' testimony. I personally came to the conclusion that it would be foolhardy to attempt this testimony without calling additional witnesses to develop the background on the establishment of the tests used and any validation studies that had been performed by the VA. The technician whom I called had no background in these areas.

This led me to another insight and that was in order to lay a proper foundation under *Daubert* would likely have been so costly that I would never have been permitted to offer the expertise. PDS had its own funds for experts, which it parceled out among lawyers as an administrative matter. I question whether I could have convinced those managing this process to pay for several experts to establish the admissibility of testimony that I believed was important but was hardly dispositive. In situations where these requests must be approved for indigent defendants by the courts, granting approval of multiple witnesses on such a matter would be even less likely.

Also, much like other evidence, I believe there is little justification for excluding relevant expertise even though potential flawed if it can be examined by the adversary process and it is

accessible to the jury. In general, exclusion is a very blunt instrument, and it is often poorly designed to improve accuracy of results involving somewhat flawed but relatively accessible expert evidence.