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THE ADVERSITY OF ADVERSARIALISM: HOW THE CONSENSUS
RULE REPRODUCES THE EXPERT PARADOX

MARTIN WEINEL*

INTRODUCTION

EDWARD Cheng makes a very eloquent and well-argued case for scrapping the so-called *Daubert* standard governing the admissibility of expert witness testimony.¹ Instead, he proposes a new rule—the Consensus Rule—that is supposed to create a better epistemic match between judges’ and juries’ tasks and their capabilities. This new Consensus Rule is supposed to resolve an expert paradox that sits at the heart of the *Daubert* standard. Under *Daubert*,² the judge is the designated gatekeeper tasked with admitting reliable expert witness testimony and keeping irrelevant and unreliable expert testimony out of court. The expert paradox afflicting the arrangement is this: given that judges are not experts in the domains that are covered by expert witnesses, they lack the domain-specific expertise to judge whether testimony is reliable.

The Consensus Rule proposal would scrap the separate, pre-trial admissibility stage created by *Daubert* and with it the gatekeeping powers of judges with regard to the admissibility of expert evidence. Instead, the Consensus Rule suggests that expert witnesses should be routinely admitted to trial, but instead of presenting a particular narrative about science, their task is merely to report the state of scientific consensus about particular scientific facts. If judges and juries believe that the “relevant scientific community” has reached a consensus concerning a particular scientific fact, they ought to defer to this reported consensus and regard the scientific fact in question as being proven and therefore “true.”³

* Research Associate, School of Social Sciences, Cardiff University. My thanks to Professor David Caudill for asking Villanova University Charles Widger School of Law to focus this year’s Norman J. Shachoy Symposium on Professor Cheng’s Consensus Rule suggestion, for subsequently inviting me to contribute to it, albeit remotely, and for helping to improve the present Article. Many thanks also to Madeline Holler and Brittany Mann for the editorial support, as well as to Brian Sirak for the technical support during the Symposium. Thanks also to all the members of the Knowledge, Expertise and Science (KES) group at Cardiff University who provided feedback to an earlier version of this paper. Special thanks to Nicky Priaux for advice on the correct use and spelling of legal terms. Without her, readers of a legal persuasion would have been tortured with capitalized “Judges” and the wrong kinds of “judgements.”

1. Edward K. Cheng, *The Consensus Rule: A New Approach to Scientific Evidence*, 75 VAND. L. REV. 407 (2022).

2. *Daubert v. Merrell Dow Pharms. Inc.*, 509 U.S. 579 (1993) (establishing the criteria for the admissibility of scientific evidence in federal courts).

3. See generally Cheng, *supra* note 1.

In this Article, I respond to Cheng's contribution to this Symposium issue of the *Villanova Law Review*,⁴ as well as on his oral explication of the argument at the annual *Villanova Law Review* Norman J. Shachoy Symposium that took place at the Villanova Charles Widger School of Law in March 2022. I focus exclusively on the epistemological underpinnings of Cheng's suggested move from the *Daubert* standard to the Consensus Rule.

As a non-legal expert with very limited insights into the rules and practicalities of trials that substantially rely on scientific input, in a country in which I do not reside, I am, at best, able to provide some additional arguments that do not seem to have been considered by Cheng. Whether the force of my argument reveals that Cheng's proposals are theoretically or practically unworkable is something best determined by someone with sufficient practical legal expertise.

While this Article casts doubt on the workability of Cheng's proposals, it is worth pointing out that I largely agree with many of Cheng's assumptions and claims: I fully agree with his critique of *Daubert* and his analysis that it is afflicted by an "expert paradox." Moreover, I also largely agree with the theoretical underpinnings of the Consensus Rule, in particular the assumption that the collective wisdom of the community of scientists is more likely to be correct than individual experts. In short, the Consensus Rule would certainly be a useful tool in court cases that heavily draw on science (i) if it were possible to always identify correctly the "relevant expert communities" that are most pertinent to the case in hand, and (ii) if it were also always possible to come to a clear view concerning the *level* of consensus with regard to particular scientific facts.

This reply focuses mainly on the second of those conditions—the possibility of identifying the level of consensus—and makes an argument that, if accepted, suggests that Cheng's proposals fail fundamentally to resolve the expert paradox. In essence, my contribution suggests that the Consensus Rule suffers structurally from the same expert paradox as the *Daubert* standard, that is, it still forces certain persons to make judgments about things for which they are epistemically speaking ill-equipped. The only difference between *Daubert* and the Consensus Rule is that judges and juries, instead of having to judge the reliability of expert testimony related to esoteric technical or scientific claims, are now asked to judge the reliability of expert testimony relating to claims about the nature of agreement and disagreement within esoteric communities. In both cases (agreement and disagreement), judges and juries lack the domain-specific expertise to make informed judgments.

This contribution will consist of three parts. I will first briefly outline my understanding of Cheng's move from the *Daubert* standard to his Consensus Rule, with a focus on its epistemological underpinnings. I will then demonstrate that the Consensus Rule doesn't resolve the expert paradox,

4. Edward Cheng, Elodie O. Currier & Payton B. Hampton, *Embracing Deference*, 67 VILL. L. REV. 855 (2022).

but instead re-creates the expert paradox at a different level. Lastly, I will outline the required features of potential solutions that can fundamentally resolve the expert paradox.

I. CHENG'S SOLUTION: JUDGING CONSENSUS INSTEAD OF SPECIFIC CLAIMS

The central problem Edward Cheng attempts to resolve is what he refers to as the expert paradox at the heart of current admissibility procedures governed by the *Daubert* standard.⁵ He sets out the problem as follows:

The plaintiff claims that a chemical caused his injury, so at a pre-trial *Daubert* hearing, the plaintiff proffers an expert who will (unsurprisingly) testify that the chemical can cause the injury. The defendant manufacturer of course denies that its product can cause such an injury. The defendant thus proffers an expert who will (again unsurprisingly) testify that the product does *not* cause such an injury. There is some back and forth, and then the judge, acting as gatekeeper, must take the presented information and decide whose testimony is sufficiently reliable to testify at trial. Further, assuming the case ultimately goes to trial, the jury, acting as factfinder, must determine which side the evidence favors.

This procedure, however, is paradoxical. Why has the legal system permitted the parties to offer experts in the first place? Well, for the simple reason that neither the judge nor the jury know anything about the specialized field at the core of the litigation. But if that is the case, how can the judge or the jury possibly make an intelligent decision?⁶

As the description indicates, the adversarial nature of legal procedures in U.S. courts makes expert disagreement on specific scientific issues inevitable. I'll return to the adversarial feature later. For the moment, the problem described here can be put into more general terms by stating that the expert paradox arises when someone without sufficient relevant (or domain-specific) expertise is trying to make "internal" judgments about disagreements that relate to a particular field or domain.⁷ In

5. See Cheng, *supra* note 1, at 414.

6. *Id.*

7. The term "internal" means that judgments are made from within a domain, i.e., judgments are based on a domain-specific understanding of the matters to be judged. See HARRY COLLINS & ROBERT EVANS, *RETHINKING EXPERTISE* 45 (2007). Only those with domain-specific or domain-relevant expertise can make internal judgments. In contrast, anyone—whether expert or lay-person—can make external judgments about the most esoteric scientific issues, but these judgments will not be based on any deep understanding of the subject matter but on other considerations. The classic example is someone who dismisses what some other person says on the basis "that their eyes are too close together."

other words, it takes an expert in a domain to make epistemologically sound judgments about competing expert claims related to the domain. In the usual trial process, judges are effectively asked to make decisions from a position of relative ignorance. As legal professionals who normally do not have any substantive expertise on scientific matters, they are asked to judge whether scientific evidence and expert testimony presented at the admissibility stage are sufficiently reliable to be admitted into court and subsequently to play a role in jury trials.

I find Cheng's excellent description of the problem entirely convincing. In the legal context, admissibility judgments can have profound consequences for justice, as such a judgment might lead to a dismissal of a case or a summary judgment without the matter ever coming before a jury.⁸ Solving the expert paradox in the context of admissibility hearings would greatly improve the pursuit of justice.

What is less convincing, however, is Cheng's proposed solution—which at first blush reads as quite plausible and persuasive. After pointing out that previous attempts to deal with the expert paradox have proved unworkable—for example, from levelling up (through educational programs) the expertise of judges to put them in a position from which to make epistemologically sound decisions, to creating limits on the judge's gatekeeping powers—Cheng proposes a different, and apparently more radical, solution that scraps admissibility hearings under *Daubert* altogether. Instead of having a separate admissibility stage, experts (called upon by the two sides in the case) appear routinely at the trial stage.

Compared to *Daubert*, this changes a lot of things for all actors involved. First, judges no longer have a gatekeeping function as the admissibility stage no longer exists. Second, instead of presenting competing narratives about science and scientific evidence to influence the outcome of the case, expert witnesses are tasked effectively to report whether “the relevant expert community” has a consensual view on particular scientific facts. Third, judges and juries no longer have to work out for themselves which facts they regard as proven and true on the basis of the competing scientific narratives presented by adversarial expert witnesses. Instead, if they believe that a “relevant scientific community” has a consensus view of a particular scientific fact, they simply defer to this view and thus accept the fact in question as being sufficiently proven. The Consensus Rule states that “[i]f the relevant scientific community believes a fact involving specialized knowledge, then that fact is established accordingly.”⁹

This move is seemingly ingenious because, on the face of it, it appears to shift the burden of judgments about substantive scientific matters away from the judiciary and juries onto the scientific community. The task for judges and juries is now seemingly much simpler: all they need to do is to

8. See generally CARL CRANOR, TOXIC TORTS: SCIENCE, LAW, AND THE POSSIBILITY OF JUSTICE (2006).

9. Cheng, *supra* note 1, at 436.

establish whether a consensus is in place or not. This is a decision, that according to Cheng, does not require any scientific expertise whatsoever:

The Consensus Rule gets judges and juries out of the business of making substantive scientific judgments. The strategy never asks laypersons to be dilettantes. Instead, nonexperts are asked to discern what the expert community thinks is the right answer. This question is not necessarily a simple one, but it is at least one that lay decisionmakers are competent to determine through testimony and other evidence.¹⁰

....

... But the absolute difficulty of the question is somewhat beside the point, because relative to the substantive scientific questions asked by the *Daubert* framework, Consensus Rule questions are far more manageable. At least answering the consensus question requires no special expertise.¹¹

While he concedes that these are neither simple nor easy decisions, the main point is that these judgments, in contrast to judgments related to substantive scientific matters, can in principle be performed by a lay person lacking the requisite scientific expertise.

In sum, the key move in Cheng's proposal to resolve the expert paradox is to change the tasks of judges and juries from making judgments (concerning the reliability of expert testimony) that require specialist scientific expertise to making judgments about the state of consensus within "the relevant expert community." According to Cheng, the latter judgment does not require any specialist scientific expertise and can be performed by lay persons. Thus, for Cheng, the expert paradox at the heart of *Daubert* has been resolved.

II. THE EXPERT PARADOX PERSISTS

The intentions behind Cheng's Consensus Rule are laudable: instead of asking non-experts to judge matters of which they know nothing, his Consensus Rule aims to create a better epistemic match between the issues being judged and the expertise of those asked to make the judgments. Cheng's argument suggests a qualitative difference between *Daubert* and the Consensus Rule: the former requires specialist epistemic insights as it pertains to specific scientific "facts" while the latter judgment does not appear to require similar levels of epistemic capability, because the judgment is apparently merely about a social configuration—in this case, whether a particular social group referred to as "the relevant scientific community" (more on this below) agrees on a scientific fact or issue.

10. *Id.* at 441

11. *Id.* at 456–57.

Perhaps the most popular method of proving general acceptance is through testimony. An expert simply reports on what her expert community believes. While straightforward, reliance on experts raises familiar problems, including the battle of experts.¹²

For Cheng, maintaining adversarial procedures is a complicating factor, but for him at least, it does not seem to inhibit the ability of the Consensus Rule to solve the expert paradox.¹³ The quote highlighted immediately above continues as follows:

Recall, however, that this battle of experts is far less problematic than the traditional battle of experts over substantive expert issues, as a lay decisionmaker is qualified to assess contradictory testimony on what a community believes. Indeed, one might even argue that testimony about what an expert community believes approaches lay testimony, as it hardly involves expert judgment at all.¹⁴

Cheng's Consensus Rule, as far as I understand it, would work like this in practice: having scrapped the admissibility stage introduced under *Daubert*, expert witnesses, called upon by both sides in the case, appear at the trial stage. Instead of presenting scientific evidence and arguments in various forms, expert witnesses for plaintiffs and defendants would present narratives that are concerned with the state of consensus within "the relevant scientific community" about specific scientific facts. Judges and jury members can then probe the respective narratives provided by the experts and make judgments about the state of consensus within the relevant scientific community concerning a scientific issue or fact. These judgments, so Cheng repeatedly claims, do not require any specialist or scientific knowledge as they concern a social configuration—are experts in agreement or not?—instead of esoteric scientific or technical knowledge.

However, I am far from convinced that Cheng's proposal does eradicate the expert paradox once and for all. As shown above, his proposal rests on the core belief, which I find unconvincing, that no specialist expertise is required to judge whether there is or isn't consensus within "the relevant scientific community."

For me, the fundamental problem, or central flaw, of the Consensus Rule is that it preserves the adversarial nature of legal proceedings as they have been common in the U.S. legal system. I fully appreciate and readily accept Cheng's pragmatic reasons for keeping adversarialism in place. The issue is not with his justification for doing so. The issue is that adver-

12. *Id.* at 458.

13. Cheng uses a mainly pragmatic justification for keeping adversarialism in place, as he suggests that all past attempts to shift the legal system towards a different approach have not succeeded, and there is still no discernible appetite for making the required changes now. I find this to be a convincing account.

14. *Id.* at 458.

sarialism necessarily and inevitably prevents Cheng's proposal from successfully resolving the expert paradox. This happens, in my view, for two interrelated reasons:

- (1) First, adversarialism necessitates judges and juries to decide between two competing narratives about consensus within a "relevant expert community" concerning specific scientific facts. It is difficult to imagine that two sets of experts, paid for by two opposing sides in a case, who under *Daubert* are likely to profoundly disagree about the substantive science, would somehow start to agree under the Consensus Rule because they have to report the state of consensus. If expert witness *A* would happily report that Drug *B* does cause disease *C*, while another expert witness *D* would happily claim the opposite, it does not seem plausible that they would come to the same conclusion when asked to report about consensus in the expert community. While expert witness *A* might claim that there is a consensus, expert *D* will necessarily disagree as they believe the opposite of what expert *A* believes, unless he or she does not see themselves as part of the expert community, in which case they should not count as expert witness in the first place. Cheng seems to be aware of this but does not see it as fundamentally problematic as the focus of expert testimony shifts from talking about substantive scientific issues to talking about consensus or disagreement within the relevant expert community. In his view, this "approaches lay testimony," as it hardly involves expert judgment at all—"answering the consensus question requires no special expertise."¹⁵
- (2) In my view, this assessment is very likely to be wrong because, second, the adversarial nature of the proceeding will inevitably bring the focus back to substantive scientific issues. While Cheng appears to believe that the views of the community about a scientific fact and the science behind a scientific fact are entirely separate and separable matters, I believe them to be two sides of the same coin. It is one thing for an expert witness under the Consensus Rule to state: "I believe community *A* is in agreement about fact *B*." It is, however, highly implausible to believe that the opposing side in the court case would not simply ask: "On what basis do you make this statement?" It is crucial to note that "consensus within the relevant expert community concerning particular facts" is not a *something* for which any evidence beyond the assessment of members of said expert community is likely to

15. *See id.* at 457, 459.

exist.¹⁶ What does exist and can be invoked when confronted with the question is the substantive science. In my view, social states of expert communities that can be described as “in agreement” or as “in disagreement” ought to reflect the state of the substantive science. If the available scientific evidence does not support the claim that a scientific fact has been established, the relevant expert community that has generated the evidence must also not be described as being “in agreement” and vice versa.

Given that the Consensus Rule is not implemented (yet), it is not possible to fully assess how this rule would play out in practice.¹⁷ The key question from a sociological perspective is: What arguments would expert witnesses, who testify on behalf of the opposing sides under the Consensus Rule, actually make to convince the factfinders, i.e., judges and juries, that their respective views of the state of agreement or disagreement within relevant expert communities are correct? Cheng’s paper, as well as his oral presentation at the Norman J. Shachoy Symposium, never elaborate on this point. Given that he believes that the Consensus Rule would not drag judges and juries into the territory of substantive science, he seems to believe that the justifications for expert witness claims about consensus or disagreement will not involve anything substantially scientific. If indeed this is Cheng’s assertion, it is one with which I profoundly disagree.

I’ll try to demonstrate this by thinking through the necessary elements that are required to show that an expert community does indeed agree on a scientific fact. This neatly draws out the different ways in which substantive scientific issues enter this process. One core assumption on which my reasoning hinges is that the adversarial nature of court proceedings means that expert witnesses will necessarily always disagree with each other about both the substantive science and the consensus within communities about facts. If there were always agreement between plaintiffs and defendants about the science and the consensus within the community, it is hard to see how legal cases that turn on scientific evidence would even come about.

As far as I can establish, there are at least three necessary elements involved in consensus judgments:

- (1) First, one needs to know who the relevant expert community comprises, that is, who counts as a relevant expert and who doesn’t count with regard to each scientific fact that one or the other party within a legal dispute deems to be relevant.

16. There might be the odd case of a scientific field or discipline where ethnographers or sociologists of science have established the state of consensus with regard to particular facts. These are, however, very rare exceptions.

17. It would be interesting to conduct experiments in this regard, which could be done by U.S. law students making use of mock courts.

- (2) Second, one needs to know what the vast majority, if not all (it depends on one's definition of a consensus¹⁸), relevant experts do indeed agree or disagree with any particular scientific fact that one or the other party in the legal case wants to introduce in a subsequent court case.
- (3) Third, one also needs to be in a position to judge whether a consensus or, indeed, disagreement is actually factually justified—in other words, does the substantive science actually support a consensus or disagreement or is the court potentially presented with “counterfeit” or “manufactured” consensus, or “counterfeit/manufactured controversies”?¹⁹

Considering these three steps in turn seems to suggest that the expert paradox identified by Cheng in the context of *Daubert* also afflicts the Consensus Rule. In my view, two out of the three steps, the first and the third, will necessarily involve substantive scientific expertise when justifying or, indeed, when judging claims that an expert community is either in agreement or disagreement about a scientific fact. If this is indeed the case, it would suggest that Cheng's claim that consensus judgments do not require any specialist expertise is fatally flawed.

With regard to the first element, Cheng appears to deflate the task of identifying relevant experts related to case-relevant scientific facts. The frequent use of the phrase “the relevant expert community” in his paper points to an underestimation of the potential enormity of defining what this actually means with regard to a myriad of purported “scientific facts” that one of the two sides in a court case might wish to introduce into proceedings.²⁰ To know whether someone ought to be part of “the rele-

18. See Robert Evans, *The Consensus Rule: Judges, Jurors, and Admissibility Hearings*, 67 VILL. L. REV. 883 (2022).

19. The term “counterfeit” or “manufactured” scientific controversies refers to scientific debates that, while practically settled within expert communities, are artificially kept alive for non-scientific purposes such as justifying actions that are not compatible with the settlement. In some cases, these efforts of manufacturing controversies involve credentialled scientists with an established track record of having done relevant research. See generally Leah Cecarelli, *Manufactured Scientific Controversy: Science, Rhetoric, and Public Debate*, 14 RHETORIC & PUB. AFFS. 195 (2011); DAVID MICHAELS, DOUBT IS THEIR PRODUCT: HOW INDUSTRY'S ASSAULT ON SCIENCE THREATENS YOUR HEALTH (2008); Naomi Oreskes, *The Scientific Consensus on Climate Change*, 306 SCI. 1686 (2004); NAOMI ORESKES & ERIK CONWAY, MERCHANTS OF DOUBT: HOW A HANDFUL OF SCIENTISTS OBSCURED THE TRUTH ON ISSUES FROM TOBACCO SMOKE TO GLOBAL WARMING (2010); Martin Weinel, *Technological Decision-Making Under Scientific Uncertainty: Preventing Mother-to-Child Transmission of HIV in South Africa* (2011) (Ph.D. thesis, Cardiff University), <https://orca.cardiff.ac.uk/55502> [<https://perma.cc/94L9-4VVH>] [hereinafter Weinel, Thesis]; Martin Weinel, *Recognizing Counterfeit Scientific Controversies: A Criteria-Based Approach*, in THE THIRD WAVE IN SCIENCE AND TECHNOLOGY STUDIES: FUTURE RESEARCH DIRECTIONS ON EXPERTISE AND EXPERIENCE 53–70 (David S. Caudill, Shannon N. Conley, Michael E. Gorman & Martin Weinel eds., 2019).

20. Even a cursory glance at legal literature around torts, for example, seems to show that purported scientific facts very rarely only involve a single scientific

vant expert community” one needs to be able to judge whether their work is relevant as well as of the required quality to warrant consideration and inclusion.²¹ While expert witnesses, to some extent at least, would have the required substantive scientific expertise to make judgments of this kind, the adversarial nature of proceedings would mean that their account will be disputed by the other side.²² They might argue that some, if not all, of the experts that the other side sees as part of the relevant expert community should not be seen in this way—perhaps because their work is a too far removed from the fact under consideration, or because their work is considered to be flawed in some way, or because their work is not of the required quality. The question of where the correct boundary of “the relevant expert community” lies, is thus inextricably intertwined with substantive scientific issues. Worse still, given that expert witnesses will disagree with each other, it is up to judges and juries to determine which

domain as well as an easily identifiable expert community. This means potentially great variety of domain-specific experts, say chemists, biochemists, epidemiologists, toxicologists, statisticians and so on and so forth might have something relevant to say about any particular purported fact. See, e.g., CRANOR, *supra* note 8. This likely makes it impossible to find anyone, be it an individual expert or a professional association, that will be able to authoritatively as well as consensually (in the sense that their verdict is accepted by anyone who might be part of “the relevant expert community” as well as by those who might have been excluded) draw the right boundary around a potentially very diverse set of “relevant experts.” To make such a judgment, the person or institution making it would require deep and substantive insights into a myriad of esoteric, dispersed, and internally diverse scientific domains that, crucially, also involve substantive scientific knowledge.

21. A particular problem here is the presence of so-called “fringe scientists” or “scientific mavericks,” who are actors that usually have genuine scientific qualifications but who hold scientific views that are so far removed from what is considered to be acceptable views by the vast majority of scientists. See Harry Collins, Andrew Bartlett & Luis Reyes Galindo, *Demarcating Fringe Science for Policy*, 25 PERSPS. ON SCI. 411 (2017) (providing a classification of fringe science). While fringe scientists, as long as they stay within the boundaries of “science” might be tolerated to some extent by peers, this category of actors becomes problematic when they try to influence wider society on the basis of their fringe views. For the consequences of basing public policy on HIV/AIDS in South Africa on fringe views, see NICOLI NATTRASS, MORTAL COMBAT: AIDS DENIALISM AND THE STRUGGLE FOR ANTIRETROVIRALS IN SOUTH AFRICA (2007); Nicoli Nattrass, *AIDS and the Scientific Governance of Medicine in Post-Apartheid South Africa*, 107 AFRICAN AFFAIRS 157 (2008); NATHAN GEFFEN, DEBUNKING DELUSIONS: THE INSIDE STORY OF THE TREATMENT ACTION CAMPAIGN (2010); Weinel, Thesis, *supra* note 19.

22. The contribution of Harry Collins to this issue indicates that a potential solution might be a “Committee of Owls.” See HARRY COLLINS & ROBERT EVANS, WHY DEMOCRACIES NEED SCIENCE (2017) (defining owls as a diverse set of distinguished experts on sciences who might have the required 360-degree vision to form a judgment as to which experts are relevant and which experts are not). The practical challenges of instituting such an arrangement would be formidable. Even if such a panel could make such judgments in the brief timespan required by courts, it would be open to challenge by counter-experts brought by the opposing side. Worse still, the adversarial nature of proceedings could mean that both sides might use a Committees of Owls which, given the purpose for which they are instituted—to support the case of their respective “clients”—is bound to lead to a protracted disagreement between the Committees.

expert witnesses to believe. It is very difficult to see how their decisions in this respect would not be drawn on the substantive science that underpins claims of expert consensus or expert disagreement.

The second element is, epistemologically speaking, the least problematic. In theory at least, once one knows the boundaries of “the relevant expert community,” one can imagine using some sort of social scientific method such as a survey or interviews to elicit everyone’s beliefs in respect to a range of factual statements that enable the court to measure beliefs within the expert community.²³ Theoretically at least, if one neglects the potential practical challenges, this element does not seem to require any substantive scientific expertise.²⁴ Unfortunately for Cheng’s proposals, as this element is just one of three in the process of proving consensus in an expert community, the epistemologically unproblematic nature of this part does not lend any support for the Consensus Rule.

The third aspect relates to the question whether the scientific knowledge to which a verdict of consensus or disagreement applies can actually support the chosen verdict. Just as with the issue of drawing the right boundary around “the relevant expert community,” this aspect is explicitly linked to the substantive science. It is hard to see how opposing expert witnesses would justify their respective and mutually exclusive verdicts about the state of agreement in a relevant expert community without drawing on the substantive science. One side is likely to suggest that the available scientific evidence supports the notion of expert community consensus, while the other side will dispute this. It seems fanciful that the disagreement would remain at this level of statements. Instead, the opposing sides will try and deconstruct each other’s claim by making specific

23. Cheng suggests that expert testimony is just one way of finding out whether an expert community agrees about a scientific fact or not. Having looked at the consensus reports he mentions in his paper, I am not convinced that they are of much use beyond being a dramatic prop to be used by one side of the disagreeing expert witnesses to make their case more persuasive. The facts to which they relate tend to be so high-level and abstract that it is hard to see what they can contribute to legal cases that tend to turn on particularities. For example, National Academies might have formed a consensual view that some kinds of DNA evidence, if obtained in the right way, can support certain inferences if a match has been found, but that says nothing about whether particular DNA evidence to be admitted to a court in a particular case is of sufficient quality or reliability.

24. In practice, this will not be a straightforward process. The problem with regard to this aspect is that Cheng’s notion of consensus remains undefined. In fact, he appears to utilize an overly simplistic binary concept that knows only two states: consensus or disagreement. As my colleague Rob Evans shows in his contribution to this Symposium, *see* Evans, *supra* note 18, the notion of consensus is far more complex than Cheng appears to acknowledge. At the very least, Cheng would require a detailed operationalization of what “consensus” actually means. Does everyone have to agree or, put differently, is a single dissenter enough to render the notion of a consensus invalid? Or is a two-thirds or simple majority sufficient, or is consensus maybe linked to the beliefs of just the most senior experts? Or maybe just the beliefs expressed by scientific bodies and professional associations should count?

arguments related to the substantive science. Expert witnesses are likely to challenge the interpretation of certain scientific evidence as supporting the opposing side's view. Judging whether this is a justified or a frivolous challenge of the other side's view—a task left to judges and juries—requires substantive scientific expertise. Likewise, opposing parties are likely to argue that the other side has either missed out crucial scientific research or wrongly included scientific evidence to support their respective claims. Again, judging whether such challenges are justified or not and whether they sufficiently undermine one party's assessment of the state of agreement within an expert community is ultimately a task for judges, and requires substantive scientific expertise.

In sum, the argument made here is that keeping the adversarial nature of proceedings fundamentally and, in my view fatally, undermines the ambition of the Consensus Rule, which is to resolve the expert paradox. Adversarialism means that judges and juries remain the final arbiters of inevitable disagreements between expert witnesses as to whether relevant expert communities agree on a particular scientific fact or not. Contrary to Cheng's belief that judging whether expert testimony about the state of agreement within expert communities does not require any substantive scientific expertise, I have tried to show that statements about agreement or disagreement within expert communities are intrinsically bound up with substantive scientific issues. Thus, judging which conflicting expert testimony (on the state of agreement or disagreement) can be considered to be acceptable necessarily turns on scientific expertise.

CONCLUSION: A POTENTIAL SOLUTION

The fundamental problem at the heart of the matter is that court cases that rely to some extent on scientific or technical expert knowledge inevitably bring two different expert domains together, where actors on both sides lack the relevant expertise of the other domain: judges are legal experts but are not scientific experts, while scientific experts are not legal experts. As long as decision-making in this kind of situation involves representatives of one side having to make judgments about the things that belong to the other side, it will necessarily suffer from the expert paradox identified by Cheng. Cheng's Consensus Rule tries to transcend this chasm of different expert domains by prescribing deference to expert consensus with regard to particular scientific facts. The problem with Cheng's proposal is that to reach the point at which judges and juries can potentially defer to a fact, they have to make a decision as to whether claims of consensus within a relevant expert community are acceptable or not. Such decisions, as shown in the previous section, necessarily involve substantive scientific expertise if they are to be competently performed. As Cheng rightly observes, judges and juries lack this kind of expertise, and this leaves the structures that underpin the expert paradox firmly in place.

To truly resolve the expert paradox, therefore, requires a more radical version of Cheng's proposal that removes these structural features.

One potential way forward would involve two key moves: first, the adversarial nature of expert testimony needs to be abandoned. As long as court cases involve disagreeing experts, it will always require expert knowledge to make an epistemologically sound judgment, whether the expert's report on substantive science or on the state of agreement within an expert community. The spectrum of potential alternatives could extend from court-appointed, "neutral" individual experts to some sort of expert collectives that might take the form of the "Committee of Owls" or utilize some sort of already existing scientific institutions such as Academies, scientific societies, or guild-like entities. If we momentarily leave the realm of already very remote possibilities and go fully utopian, from a legal perspective it would be ideal if all scientists in the world were organized in global guilds where membership would involve certain accreditation standards; this would allow for a consistent and reliable identification of "relevant expert communities" from which to appoint "neutral experts" for legal cases.

Second, the task of judges and juries has to be curtailed even further to eliminate the epistemic mismatch at the heart of the expert paradox. As this response to the Consensus Rule has hopefully shown, judges and juries are as incompetent to judge states of agreement and disagreement in esoteric expert communities as they are when it comes to making substantive scientific judgments. Given that the first suggested change does away with the "battle of experts" and thus creates a single opinion either on substantive science or on the state of consensus within an expert community, it is just a small step from removing any choice from judges and effectively forcing them to accept whatever the verdict of the single-point expert judgment is. This is in line with Cheng's call for deference.

These suggestions for reform are purely aimed at removing the structural conditions that create the expert paradox. If reforming adversarialism is already practically impossible in the U.S. legal system, then there is little doubt that these suggestions are impracticable and that they will not be implemented. This means that the expert paradox will remain a core feature of court cases. In this case, the best that can be hoped for is mitigating the expert paradox as far as this is possible within the confines of an adversarial legal system.

