Expert Testimony and the Epistemology of Disagreement

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Before I begin, I would like to thank Michael Risinger and the *Seton Hall Law Review* for the opportunity to present my Comment at this wonderful symposium. Under the taxonomy used in my favorite sport—soccer—this opportunity is a hat-trick: it makes me feel blessed, honored, and lucky. I feel blessed because this symposium is a rare occasion that pays tribute to a truly remarkable evidence scholar, Michael Risinger, whose writings have advanced the understanding of the discipline as a socially important subset of applied epistemology.[1] I feel honored because I am about to comment on the work of another distinguished and exceptionally prolific scholar of evidence, Ed Imwinkelried.[2] I feel lucky because the work I am going to comment on intersects with my current interest in the epistemology of disagreement.[3]

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Professor Imwinkelried ties post-conviction relief to discreditation of a forensic expert's testimony that helped the prosecution prove the defendant's guilt. Specifically, he argues that "an accused ought to be entitled to a new trial when: (1) the accused presents testimony about a new analytic technique developed in subsequent scientific research; (2) that technique yields a different outcome than the expert technique used at the prior trial; and (3) the validation of the new technique is so extensive that it *either* discredits the

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[1]   For contributions that influenced my thinking about evidence law and epistemology, *see* D. Michael Risinger, *The Irrelevance, and Central Relevance, of the Boundary Between Science and Non-Science in the Evaluation of Expert Witness Reliability*, 52 VILL. L. REV. 679 (2007); D. Michael Risinger, *et al.*, *The Daubert/Kumho Implications of Observer Effects in Forensic Science: Hidden Problems of Expectation and Suggestion*, 90 CAL. L. REV. 1 (2002) (explaining how subjective human judgment enters into forensic findings and how to block this influence).

[2]   Edward J. Imwinkelried, *Debunked, Discredited, but Still Defended Revising State Post-Conviction Relief Statutes to Cover Convictions Resting on Subsequently Invalidated Expert Testimony*, 48 SETON HALL L. REV. 1095 (2018).

[3]   *See generally* Alex Stein, *Law and the Epistemology of Disagreement*, 96 WASH. U. L. REV. (forthcoming 2018), http://dx.doi.org/10.2139/ssrn.3070697.

prior expert testimony *or* seriously undermines confidence in its correctness."[4] From a normative standpoint, granting that "beyond a reasonable doubt" is a right standard for findings of guilt,[5] this argument is undeniably correct. Professor Imwinkelried also discusses more difficult cases in which "new scientific evidence creates grave doubts about the accuracy of the prior conviction but falls short of demonstrating the accused's undeniable innocence."[6] According to him, in these cases "the courts and legislatures have a far more difficult policy choice; they must weigh the competing interests in accuracy and finality."[7] These cases are hard because the new science does not "shake our confidence in the conviction"[8] and whether it should "trump the substantial public interest in finality of judgment"[9] is unclear.

In this Article, I will try to shed some light on these hard cases.

I

The paradigmatic hard-case scenario involves two forensic experts: Expert G, whose testimony suggests that the defendant is guilty beyond a reasonable doubt, and Expert I, who testifies that the defendant might be innocent. Expert G testifies as a prosecution witness at the defendant's trial to secure the defendant's conviction. Expert I testifies at the defendant's post-conviction hearing (or submits an affidavit in support of the defendant's petition for post-conviction relief). Such cases are considered hard for the "floodgate" type of reason. Allowing Expert I to reopen the defendant's conviction and force out a retrial would make post-conviction relief available to all similarly situated defendants. Many defendants would be able to find Expert I whose testimony would cast doubt on the forensic analysis of Expert G and obtain post-conviction relief. This will undercut the social interest in the finality of guilty verdicts.

This argument is facially appealing, but I believe that it is fundamentally flawed. Similarly to many other allusions to a floodgate, it

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[4]   Imwinkelried, *supra* note 2, at 1136.

[5]   For criticism of this conventional standard, *see* LARRY LAUDAN, TRUTH, ERROR, AND CRIMINAL LAW: AN ESSAY IN LEGAL EPISTEMOLOGY 29, 63 (2006) (arguing that the "beyond a reasonable doubt" standard allows for too many erroneous acquittals that may lead to socially devastating consequences); Larry Laudan, *Is Reasonable Doubt Reasonable?*, 9 LEGAL THEORY 295 (2003) (arguing that the proof beyond a reasonable doubt requirement is dysfunctional); Larry Laudan, *Is it Finally Time to Put 'Proof Beyond a Reasonable Doubt' Out to Pasture?* (Pub. Law & Legal Theory Research Series No. 194, 2011), http://ssrn.com/abstract=1815321 (criticizing the wrongful conviction versus wrongful acquittal tradeoff contemplated by the "proof beyond a reasonable doubt" standard).

[6]   Imwinkelried, *supra* note 2, at 1136.

[7]   Imwinkelried, *supra* note 2, at 1137.

[8]   Imwinkelried, *supra* note 2, at 1137.

[9]   Imwinkelried, *supra* note 2, at 1137.

does not only make the floodgate prediction, but also identifies the gate that needs to be locked to prevent the floodgate. Additionally, the argument makes a convoluted assumption that the floodgate problem cannot be prevented by closing a different gate ahead of time.[10] As I will show, this tacit and consequently unexamined assumption turns out to be false. Cases identified by Professor Imwinkelried as hard are the consequence of the *Daubert* rule that allows factfinders to base a defendant's conviction on defeasible forensic testimony.[11] Most of those cases could be eliminated if our system were to follow the rigid *Frye* standard that renders inadmissible expert testimony not fully supported by scientific consensus.[12] By the "rigid *Frye* standard," I mean the requirement that a forensic expert's methodology and its application to the facts of the individual case follow scientific procedures that received an enduring and widespread recognition in the expert's professional community.[13]

My prior work supported this standard on moral grounds: I argued that *Frye* is the only rule that aligns with what I called the "equal best"

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[10]   This logical flaw is present in many, of not all, theories that allude to "floodgates" and "slippery slopes." *See* Eugene Volokh, *The Mechanisms of the Slippery Slope*, 116 HARV. L. REV. 1026, 1030–31 (2003) (demonstrating that the validity of "slippery slope" claims critically depends on the comparison between *all* available ways of preventing the feared bad consequence). *Cf.* David Enoch, *Once You Start Using Slippery Slope Arguments, You're on a Very Slippery Slope*, 21 OXFORD J. LEGAL STUD. 629 (2001) (arguing that "slippery slope" arguments are self-defeating because decision-makers who fear that *Decision A*, otherwise preferable to alternatives, will increase their probability of making wrong distinctions down the road, should be equally skeptical about their current ability to distinguish between valid and invalid "slippery slope" claims; and so by failing to make *Decision A* and act upon it, they will put themselves on yet another, equally damaging, slippery slope).

[11]   *See* Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579 (1993).

[12]   *See* Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923); *see also* 1 Charles Tilford McCormick et al., MCCORMICK ON EVIDENCE 827, § 203 (Kenneth S. Broun ed., 6th ed. 2006) (explaining that the *Frye* standard requires the proponent of an expert's testimony to "show that the scientific community agrees that the principles or techniques on which the expert relies are capable of producing accurate information and conclusions."). Under this standard, expert testimony not aligning with conventional wisdom is not admissible. *See id.* at 828 (giving examples of novel scientific findings that "have fallen prey to [Frye's] influence").

[13]   For illustrations of the strict version of *Frye*, see Overton v. State, 976 So. 2d 536, 550 (Fla. 2007) ("In utilizing the Frye test, the burden is on the proponent of the evidence to prove the general acceptance of both the underlying scientific principle and the testing procedures used to apply that principle to the facts of the case at hand." (quoting Ramirez v. State, 651 So. 2d 1164, 1168 (Fla. 1995))); Parker v. Mobil Oil Corp., 857 N.E.2d 1114, 1119–20 (N.Y. 2006) ("[T]he *Frye* test asks 'whether the accepted techniques, when properly performed, generate results accepted as reliable within the scientific community generally.'" (citation omitted) (quoting People v. Wesley, 633 N.E.2d 451, 454 (N.Y. 1994))); State v. Gregory, 147 P.3d 1201, 1238 (Wash. 2006) ("Washington has adopted the *Frye* test for evaluating the admissibility of new scientific evidence. . . . Both the scientific theory underlying the evidence and the technique or methodology used to implement it must be generally accepted in the scientific community for evidence to be admissible under *Frye*." (citing State v. Gore, 21 P.3d 262, 271–72 (Wash. 2001))).

requirement for allocating the risk of wrongful conviction.[14] This requirement mandates that the state afford criminal defendants the best feasible protection against erroneous conviction while keeping that protection equal for all defendants.[15] In this Article, I take a different tack. Specifically, I rely on the epistemology of disagreement to support the claim that defendants should be granted a retrial in cases identified by Professor Imwinkelried as hard. As a corollary, I argue that all inculpatory forensic evidence should satisfy the rigid *Frye* standard to be admissible. This discussion introduces some refinements into Professor Imwinkelried's analysis of the Texas and California statutes that address the problem at hand.[16]

II

The epistemology of disagreement is a rapidly developing subset of normative epistemology.[17] It focuses on disagreement among peers and its rational effects on the underlying decision.[18] Specifically, it examines two

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[14]   ALEX STEIN, FOUNDATIONS OF EVIDENCE LAW 196–97 (2005).

[15]   *Id*. at 172–78. Professor Laudan, *supra* note 5, at 131, criticizes the "equal best" standard for being overbroad. Specifically, he argues that the best protection against erroneous conviction must completely eliminate an innocent defendant's risk of being found guilty. Under this level of protection, the legal system has no choice but to acquit each and every defendant—a consequence that also makes the "equal" element of my proposed standard conceptually redundant. *See also* Larry Laudan, *The Elementary Epistemic Arithmetic of the Law II: The Inadequate Resources of Moral Theory for Dealing with the Criminal Law* *6, n.3 (U. of Texas Law, Public Law Research Paper No. 193, Apr. 19, 2011), https://ssrn.com/abstract=1815311 ("This principle of Stein's seems to be redundant on its face. If its first clause is satisfied, namely, if the state genuinely did its best to protect a defendant from false conviction, the possibility would not arise that it gave better protection to some other defendant since the latter situation, if it occurred, would gainsay the claim that the state had done its best for the former defendant."). This criticism misrepresents the "equal best" standard. This standard does not call for a complete elimination of erroneous convictions. Rather, it requires that the state do its *practical best* at protecting defendants against erroneous conviction and that this level of protection be the same for all defendants. Under this standard, courts would not be authorized to convict a defendant in the presence of evidence pointing to his possible innocence until this evidence is discredited. Evidence identifying the defendant as a perpetrator of the alleged crime, on the other hand, will suffice for the defendant's conviction despite any theoretical doubt unsubstantiated by the evidence. *See* STEIN, *supra* note 14, at 173, 175. The equality requirement here serves an important goal: it requires the legal system to set up general rules of evidence and procedure in order to prevent unfairness to individual defendants whose protection against false convictions would otherwise be completely dependent on the judges' and the jurors' discretion.

[16]   *See* Imwinkelried, *supra* note 2, at 1131–34 (discussing West's Ann. Cal. Penal Code § 1473(e)(1) and Vernon's Ann. Texas C.C.P. Art. 11.073).

[17]   *See* Richard Feldman, *Reasonable Religious Disagreements*, in PHILOSOPHERS WITHOUT GODS: MEDITATIONS ON ATHEISM AND THE SECULAR LIFE 194 (Louise M. Antony, ed. 2007) (explaining epistemological significance of disagreements).

[18]   *See generally* David Christensen & Jennifer Lackey, *Introduction*, in THE EPISTEMOLOGY OF DISAGREEMENT: NEW ESSAYS 1, 1–3 (David Christensen & Jennifer

big questions. First, should a person revise her decision after learning that a similarly situated decision-maker—an "epistemic peer"— disagrees with it? Second, and relatedly, does the fact that an equally informed and competent decision-maker disagrees with the person's decision reduce the decision's reliability?[19]

Consider two friends, Georgina and Ian, who agree to have lunch together and split the check. At the end of the meal, the waiter brings the check to the table. Georgina and Ian examine the check that subsequently disappears from the table. Asking the waiter to bring a new check is against social etiquette. Based on what she saw on the check, Georgina calculates that she and Ian must pay $26 each for the meal. She tells Ian about it, but Ian informs her that, based on his recollection, each must pay $30. Can Georgina justifiably refuse to modify her decision?[20]

Arguably, Georgina cannot justifiably refuse to do so.[21] She and Ian were exposed to the same objective information about the cost of the meal. Presumably, Ian's memory and capacity to make simple algebraic calculations are not inferior to Georgina's. All this makes Ian Georgina's epistemic peer.[22] Ian's disagreement with Georgina consequently constitutes evidence that requires Georgina to revise her belief. Since she and Ian were equally likely to miscalculate the amount to be paid, each of them should leave $28 on the table.[23] At a minimum, Ian's disagreement with Georgina should make her less confident about her original belief.[24]

The fact that a person's epistemic peer disagrees with her decision is best conceptualized as second-order evidence.[25] Second-order evidence is a broad category: it includes any information pertaining to the reliability of the primary, first-order, evidence that supports the person's factual findings. From this perspective, Ian's disagreement with Georgina constitutes second-

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Lackey, eds., 2013) (outlining issues focused upon by epistemologists of disagreement). For excellent surveys of the literature, see Jonathan Matheson, *Disagreement and Epistemic Peers*, *in* OXFORD HANDBOOKS ONLINE: SCHOLARLY RESEARCH REVIEWS (2015), http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199935314.001.0001/oxfor dhb-9780199935314-e-13?rskey=yxQfUL&result=1; David Christensen, *Disagreement as Evidence: The Epistemology of Controversy*, 4 PHIL. COMPASS 756 (2009).

   19   *See supra* notes 17–25 and sources cited therein.
   20   This example draws on David Christensen, *Epistemology of Disagreement: The Good News*, 116 PHIL. REV. 187, 193–94 (2007).
   21   *See* Christensen & Lackey, *supra* note 18, at 2.
   22   *See* Matheson, *supra* note 18, at 2–3.
   23   This adjustment follows the "equal weight" principle for resolving peer disagreements. *See* Adam Elga, *Reflection and Disagreement*, 41 NOÛS 478, 484–90 (2007).
   24   *See* Christensen, *supra* note 20, at 193.
   25   *See* Richard Feldman, *Evidentialism, Higher-Order Evidence, and Disagreement*, 6 EPISTEME 294, 295 (2009) ("[E]vidence of peer disagreement is False higher-order evidence—evidence about the significance of one's first-order evidence."); Matheson, *supra* note 18, at 5–6.

order evidence that reduces the reliability of Georgina's factual finding about the requisite payment. It indicates that Georgina may have miscalculated the payment or, alternatively, missed something when she looked at the check. Hence, if Georgina is interested in making an epistemically justified decision, she ought to account for these possibilities and update her initial view accordingly. From an epistemological standpoint, not doing so would be unjustified, if not altogether irrational. If Georgina could justifiably ignore Ian's calculation, then Ian, too, could justifiably stick to his guns after hearing from Georgina that each side should pay the restaurant $26, as opposed to $30. Consequently, both Ian's and Georgina's decisions would be deemed justified, which is patently absurd. One of those decisions, if not both of them, must be wrong.

There is no consensus among epistemologists as to how a peer's disagreement with a person's decision should affect that decision. Some epistemologists take a non-conciliatory, or steadfast, approach to peer disagreements.[26] Under this approach, a peer's disagreement with a person's rational belief does not require the person to revise that belief.[27] Other epistemologists adopt a conciliatory approach to peer disagreements,[28] under which a peer's disagreement ought to be accounted for as second-order evidence that reduces the person's level of confidence in her own belief.[29] Facing a peer's dissent, the person must assume that her belief or decision may have some flaws that she failed to notice. This assumption makes the person's belief or decision less dependable than it would have been if it faced no dissenters.

The steadfast approach is particularly appropriate for cases in which a person can rationally claim to have an unshakable, or categorical, belief that comes close to what epistemologists identify as "knowledge."[30] Holders of such beliefs need no second-order evidence that could tell them how reliable those beliefs are. The reason is obvious: those beliefs *are* reliable. Second-order evidence that confirms a person's justified categorical belief gives the person no useful information; and so it is redundant. And when second-order

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[26] *See*, *e.g.*, Thomas Kelly, *The Epistemic Significance of Disagreement*, *in* OXFORD STUDIES IN EPISTEMOLOGY 167 (John Hawthorne & Tamar Gendler, eds., 2005) (arguing for the steadfast approach).

[27] *See*, *e.g.*, Ralph Wedgwood, *The Moral Evil Demons*, *in* DISAGREEMENT 216, 228 (Richard Feldman & Ted A. Warfield, eds., 2010).

[28] *See* Elga, *supra* note 23; Feldman, *supra* note 17; Feldman, *supra* note 25; Christensen, *supra* note 18; Christensen, *supra* note 20; Matheson, *supra* note 18.

[29] *See* Feldman, *supra* note 25, at 295; Matheson, *supra* note 18, at 5–6; Stein, *supra* note 3.

[30] *See generally* ALVIN I. GOLDMAN, EPISTEMOLOGY AND COGNITION 3 (1986) ("Epistemologists have traditionally been interested in whether beliefs about the world are justified or warranted; whether we are rationally entitled to these beliefs. Epistemologists seek to discover or invent proper methods of inquiry and investigation. . .").

evidence (say, an epistemic peer's disagreement) indicates that the person's justified categorical belief might be false, this indication is not credible and the person will consequently do well to ignore it.

To see why, consider again the restaurant example, but assume this time that Georgina is absolutely confident that the check amount and the customary gratuity total $52, which means that she and Ian should pay $26 each. Under this assumption, Georgina should disregard Ian's dissent because she knows that Ian is wrong. Before rejecting Ian's dissent, however, Georgina will do well to verify that her memorized observation and calculation could not somehow go wrong. For example, if some of her past memorized observations or simple mathematical calculations turned out to be false, she could not justifiably hold a categorical belief that she and Ian should pay the waiter $52. However, if her observations and memory never failed her in the past and her calculations were always accurate as well, Georgina would have enough rational grounds to assume that her current observation memory and calculation are accurate as well.[31] Georgina's view that she and Ian must pay the waiter $26 each would then come close to what epistemologists call a "justified true belief."[32]

Assume now that Georgina forms a defeasible belief that she and Ian must pay the waiter $52. That is, Georgina is fairly confident about the amount she and Ian should pay, but she is also aware of the possibility that she misperceived or forgot the check amount, or miscalculated the gratuity. Under this scenario, it would be epistemically unjustified, if not downright irrational, for Georgina to take the steadfast approach as it might lead her to a wrong decision.[33] Holders of defeasible beliefs, therefore, should account for second-order evidence indicating how reliable their beliefs are.[34]

III

These epistemological insights have profound implications for expert testimony. Forensic experts testifying in criminal trials are epistemic peers who base their testimony on roughly (if not completely) the same information. Consequently, one expert's testimony should generally count as second-order evidence for another expert.

When Expert G and Expert I disagree with each other, each expert must

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[31] *See* Stein, *supra* note 3.

[32] *See* Stein, *supra* note 3.

[33] *Cf.* David Enoch, *Not Just a Truthometer: Taking Oneself Seriously (but not Too Seriously) in Cases of Peer Disagreement*, 119 MIND 953, 994 (2010) (arguing that a person's rational choice between the steadfast and conciliatory approaches depends, inter alia, on "other things [the person justifiably] believe[s], on other evidence [she has] [and] on the epistemic methods [she is] justified in employing . . .").

[34] *See* Stein, *supra* note 3.

clarify to the court whether her findings are categorical or defeasible. If the expert claims her findings to be categorical, she must state the reasons for making that assessment. These reasons must be strong enough to make the expert's findings a justified true belief. Under these conditions, the expert's findings will need no validation by second-order evidence and the expert can justifiably disregard the testimony of her dissenter.

Consider an expert who calculates the chances of finding a random DNA match between blood recovered from a crime scene and the defendant's blood sample according to the protocols accepted by DNA experts worldwide. The expert's testimony is accurate for all practical purposes.[35] But it faces a dissenter who challenges the accepted DNA match calculation. Under such circumstances, the expert need not heed the view of the dissenter who runs afoul of the accepted wisdom. Contrariwise, it is the dissenter who should consider the accepted wisdom and the expert's testimony as second-order evidence undermining the reliability of his findings.

Think now of a forensic expert witness whose findings are defeasible. Those findings are about traces, fingerprints, bite marks or other matters over which experts may legitimately disagree.[36] The expert faces a dissenter who disagrees with those findings. In this case, the dissent should count as second-order evidence that must prompt the expert to reduce her level of confidence in her findings. The expert would be epistemically wrong not to heed the dissent. When an expert witness disregards the dissent, the court should tell the jury that there is a reason to discount the expert's credibility.

On similar grounds, a convicted defendant should become eligible for post-conviction relief when a previously unavailable expert witness identifies flaws in the defeasible forensic testimony that the prosecution used to secure his conviction.[37] Any such defendant should be entitled to a new trial, if not to an acquittal. Not granting relief will lead to wrongful convictions of innocent defendants.

Using experts' disagreement as a reason for granting post-conviction relief for defendants may seem extreme, but it is not. The root problem here is not the broad availability of the post-conviction relief, but the wide-open

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[35] *See* DAVID L. FAIGMAN ET AL., SCIENCE IN THE LAW: FORENSIC SCIENCE ISSUES 668 (2002) (noting the existence of scientific consensus about reliability of DNA evidence that satisfies conventional protocols).

[36] *See id.* at 69–78; 210–19; 271–72 (describing controversies surrounding trace, fingerprint and bite mark evidence).

[37] If the after-discovered expert evidence was discoverable at the time of the defendant's trial, the defendant will do well to attack his conviction by invoking "the well-settled doctrine of ineffective assistance of counsel and cite favorable, recent precedents such as *Hinton*". Imwinkelried, *supra* note 2, at 1104–05 (citing Hinton v. Alabama, 134 S. Ct. 1081 (2014)).

admissibility rule—the discretionary *Daubert* standard[38]—that allows the prosecution to rely on defeasible forensic findings. To fix this problem, the legal system must do away with *Daubert* and reinstate, for all criminal cases, the strict version of *Frye*[39]—a rue that requires inculpatory expert testimony to fully align with scientific consensus as a firm prerequisite for admissibility.[40]

With this in mind, I now offer some thoughts about Professor Imwinkelried's analysis of the California and Texas post-conviction statutes.[41]   Circumstances under which the California statute grants a convicted defendant post-conviction relief include a case in which "[f]alse evidence that is substantially material or probative on the issue of guilt or punishment was introduced against a person at a hearing or trial relating to his or her incarceration."[42] For purposes of this provision, "'false evidence' includes opinions of experts. . .that have been undermined by later scientific research or technological advances."[43] This provision squarely aligns with California's adoption of the *Frye* standard for admissibility of scientific evidence.[44]   When "later scientific research or technological advances" undermine forensic evidence that secured the defendant's conviction, this evidence no longer enjoys standing recognition by the scientific community and thus, no longer satisfies the *Frye* standard.   Instead, it becomes defeasible.   In tune with the epistemological principles outlined in this Article, another expert's disagreement with that evidence raises a reasonable doubt about the defendant's guilt.[45]   Under such circumstances, the defendant has a rightful demand for a retrial, as also suggested by Professor Imwinkelried for reasons unrelated to *Frye*.[46]

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[38]   *See supra* note 11.

[39]   *See supra* note 12.

[40]   Whether criminal defendants should be permitted to use exculpatory expert testimony that satisfies *Daubert* or an even lower standard in trying to raise a reasonable doubt about their guilt is a separate question. I believe defendants have this entitlement under the Sixth Amendment Compulsory Process Clause, U.S. CONST. amend. VI. *See* Alex Stein, *Inefficient Evidence*, 66 ALA. L. REV. 423, 460-69 (2015).

[41]   *See* Imwinkelried, *supra* note 2, at 1131–34 (discussing Cal. Penal Code § 1473(e)(1) and Texas Code of Criminal Procedure art. 11.073).

[42]   CAL. PENAL CODE § 1473(b)(1) (West 2017).

[43]   *Id*. § 1473(e)(1).

[44]   *See* People v. Kelly, 549 P.2d 1240, 1244 (Cal. 1976) (adopting Frye's general acceptance standard in California law); People v. Leahy, 882 P.2d 321, 324–31 (Cal. 1994) (reaffirming applicability of *Kelly-Frye* doctrine in California courts and declining to switch to *Daubert*).

[45]   *See supra* notes 24–29 and accompanying text.

[46]   Imwinkelried, *supra* note 2, at 1100. The California statute also provides that the prosecution expert's repudiation of her own testimony makes the defendant entitled to a new trial. CAL. PENAL CODE § 1473(e)(1). Professor Imwinkelried criticizes that provision for being "too liberal" because a witness's "recantation of prior testimony is not a ground for

Under the Texas statute, a convicted defendant can successfully apply for post-conviction relief when new expert research "contradicts scientific evidence relied on by the state at trial."[47] Unlike California courts, Texas courts follow the *Daubert* standard in admitting scientific evidence.[48] This standard makes defeasible forensic testimony admissible for both inculpatory and exculpatory purposes.[49] Under the epistemology of disagreement principles, when defeasible forensic testimony is contradicted by another expert equally informed of the relevant facts, its probative value is diminished.[50] This disagreement is sufficient in and of itself for raising a reasonable doubt about the defendant's guilt.

Professor Imwinkelried views the "contradiction" requirement as "too restrictive."[51] According to him, "'Contradict' would probably subsume situations in which the later research altogether discredits the earlier testimony."[52] In my opinion, this restrictive interpretation is unlikely to be adopted by Texas courts. These courts seem to prefer the ordinary meaning of "contradict" that refers to another witness's express or implicit denial of the "contradicted" testimony.[53] There is no requirement for full disproof.

Both California and Texas post-conviction statutes thus fully align with sound epistemological principles. I agree with Professor Imwinkelried's assessment of the California system of science-driven post-conviction relief as superior to the Texas system, but my reasons are different from his. The California system is better than Texas's not because it gives convicted defendants better post-trial opportunity to attack questionable forensics. This system is superior because it disqualifies questionable forensics at the trial itself pursuant to the *Frye-Kelly* doctrine.[54]

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postconviction relief" in most courts across the United States. Imwinkelried, *supra* note 2, at 1133.

[47] TEX. CODE CRIM. PROC. ANN. art. 11.073(a)(2) (West 2015).

[48] *See* E.I. du Pont De Nemours & Co. v. Robinson, 923 S.W.2d 549 (Tex. 1995) (adopting and expanding the *Daubert* standard); Jordan v. State, 928 S.W.2d 550, 553-54 (Tex. Crim. App. 1996) (noting that admissibility of scientific evidence in Texas criminal courts is governed by the *Kelly* standard similar to *Daubert* (citing Kelly v. State, 824 S.W.2d 568 (Tex. Crim. App. 1992)).

[49] *See Jordan*, 928 S.W.2d at 555 (noting that under the *Kelly-Daubert* multifactor test, expert testimony only needs to have a "basis in sound scientific methodology" to be admissible).

[50] *See supra* notes 24–29 and accompanying text.

[51] Imwinkelried, *supra* note 2, at 1132.

[52] Imwinkelried, *supra* note 2, at 1132.

[53] *See*, *e.g.*, Hudson v. State, 112 S.W.3d 794, 801 (Tex. App. 2003).

[54] *See supra* note 44 and cases cited therein.