

CONFRONTING THE TWENTY-FIRST-CENTURY MARIAN EXAMINATION

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“To be sure, the Clause’s ultimate goal is to ensure reliability of evidence, but it is a procedural rather than a substantive guarantee. It commands, not that evidence be reliable, but that reliability be assessed in a particular manner: by testing in the crucible of cross-examination.”

– Justice Scalia, *Crawford v. Washington*¹

INTRODUCTION

Today, in criminal courtrooms across our nation, the accused, at trial, are routinely denied what was long ago purposefully implemented by our Founders, the Framers of our Constitution and its Sixth Amendment Confrontation Clause: “[i]n all criminal prosecutions, the accused shall enjoy the right . . . to be confronted with the witnesses against him.”² Our Framers meant to create a clause that would forever test the reliability of evidence introduced against the criminally accused. Certainly, not many at that time claimed to know what the Twenty-First century would bring, much less the kinds of evidence that would be introduced at a criminal trial. Nevertheless, the clause’s purpose has withstood the test of time and remains the same, though now it is tasked with not only traditional witness statements, but also DNA, toxicology, alcohol breath test results (i.e., often multi-analyst forensic disciplines where several or

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¹ *Crawford v. Washington*, 541 U.S. 36, 61 (2004).

² U.S. CONST. amend. VI. The Sixth Amendment is made applicable to the states via the Fourteenth Amendment. *Pointer v. Texas*, 380 U.S. 400, 403 (1965).

more analysts are involved in the testing process) and other similar types of forensic evidence.³

Haunted by the execution of Sir Walter Raleigh and the misuse of the Marian examination, the Framers set out to eliminate arbitrary and untested out-of-court processes meant to substitute for in-court justice and truth seeking.⁴ The Marian examination, derived from the Marian Committal Statute of 1555, “arrang[ed] for the examining [justices of the peace] to gather evidence for trial and to bind witnesses to appear [at trial] to testify.”⁵ Although it was not intended to serve as an out-of-court replacement for live testimony, in practice (at times) the Marian examination allowed for the introduction of this evidence at trial without confrontation.⁶ The oft-cited 1603 trial of Sir Walter Raleigh, who was convicted of treason and sentenced to death, is the prime example.⁷ Raleigh begged the court to bring his accuser, Lord Cobham, before him so that the reliability of Cobham’s out-of-court statements could be tested.⁸ Raleigh was denied this opportunity; instead, apparently satisfied with the inherent reliability (i.e., presumed reliability) of the Marian examination process—where accusers and witnesses were examined by justices of the peace prior to the trial and such examinations were recorded and then used at trial in lieu of in-court testimony—the judicial officials in Raleigh’s trial thought his request preposterous.⁹ It was this practice, this acceptance of untested (and presumed reliable) evidence that the Framers sought to forbid.¹⁰

Our Supreme Court continued in the footsteps of our Framers in its modern-day jurisprudence for some time with Justice Scalia at the helm in *Crawford v. Washington*.¹¹ In *Crawford*, the Court looked to the Framers for guidance and decisively rejected out-of-court

³ See, e.g., *Williams v. Illinois*, 567 U.S. 50, 56–57 (2012); *Bullcoming v. New Mexico*, 564 U.S. 647, 651, 652 (2011); *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 308–09 (2009).

⁴ See *Crawford*, 541 U.S. at 50.

⁵ JOHN H. LANGBEIN ET AL., *HISTORY OF THE COMMON LAW: THE DEVELOPMENT OF ANGLO-AMERICAN LEGAL INSTITUTIONS* 561, 581 (2009). Named after then reigning Queen Mary (1553–1558). *Id.* at 561.

⁶ See JOHN H. LANGBEIN, *PROSECUTING CRIME IN THE RENAISSANCE* 24 (1974). There is support that the Marian examination was not intended to become “a system of written evidence” in lieu of live testimony. *Id.*; see also *Crawford*, 541 U.S. at 43–44 (noting that while it was unlikely that the original purpose of the Marian Committal Statute was to obtain evidence to be used during trial, in some cases it was so utilized).

⁷ See *Crawford*, 541 U.S. at 44; DAVID JARDINE, *THE LIBRARY OF ENTERTAINING KNOWLEDGE: CRIMINAL TRIALS* 400 (1832).

⁸ See JARDINE, *supra* note 7, at 417, 418.

⁹ See *id.* at 415, 417, 421, 427.

¹⁰ *Crawford*, 561 U.S. at 49.

¹¹ *Id.* at 37.

evidence that was presumed already tested, eliminating “amorphous notions of ‘reliability’”¹² that had been the law of the land since *Ohio v. Roberts*¹³ in 1980. Specifically, the *Crawford* court created a new approach to confrontation—what it termed a “core class of ‘testimonial’ statements” that must be met with confrontation—in the place of the *Roberts* rule where reliability of out-of-court evidence that met a “firmly rooted” hearsay exception was inherent.¹⁴

Since its 2004 decision in *Crawford*, the Court, especially within the forensic evidence context, has struggled to pinpoint what out-of-court evidence it must reject to stay true to the Framers’ course and purpose in adopting the Confrontation Clause.¹⁵ While this quest continues in cases involving “conventional witness” statements, i.e., those made by non-scientific witnesses, the Court’s strife is never more present and cognizable than in cases where present-day technology and forensic evidence are at issue.¹⁶ Indeed, in many respects, the Court’s trend with regard to forensic evidence appears to be headed back in time to 1980 where inherent reliability was the rule, monitored only by “firmly rooted” exceptions to the hearsay rule.¹⁷ That is, more and more, what appears to be condoned by our High Court and, significantly, our lower courts that deal with forensic evidence day in and day out, is that the scientific process and its human counterparts are inherently reliable.¹⁸ After all, it *is* science.

Forensic evidence in cases involving multi-analyst laboratory settings, or “assembly line” forensic analysis, such as DNA testing, toxicology, and alcohol breath testing, have become the modern-day Marian examination.¹⁹ It is routine practice across our country in both misdemeanor and felony cases to allow surrogate or conduit

¹² *Id.* at 49, 50–51, 61.

¹³ *Ohio v. Roberts*, 448 U.S. 56, 66 (1980).

¹⁴ *Crawford*, 541 U.S. at 51; *Roberts*, 448, U.S. at 66.

¹⁵ *See, e.g.*, *Williams v. Illinois*, 567 U.S. 50, 56 (2012); *Bullcoming v. New Mexico*, 564 U.S. 647, 652 (2011); *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 311 (2009).

¹⁶ *See, e.g.*, *Melendez-Diaz*, 557 U.S. at 308, 317–18. In his dissent in *Melendez-Diaz*, Justice Kennedy distinguishes a laboratory analyst from a “conventional witness,” i.e., “one who witnesses (that is, perceives) an event that gives him or her personal knowledge of some aspect of the defendant’s guilt.” *Id.* at 343–44 (Kennedy, J., dissenting). Throughout this article, the author uses the “conventional witness” phrase to distinguish traditional witnesses from analysts or scientific witnesses as well as to refer to rules that were created by the Court with regard to non-scientific witnesses. *See also* Jennifer Mnookin & David Kaye, *Confronting Science: Expert Evidence and the Confrontation Clause*, 2013 SUP. CT. REV. 99, 146–47 (2012) (providing counter-analysis to Justice Kennedy’s “conventional witness” label).

¹⁷ *See Roberts*, 448 U.S. at 66.

¹⁸ *See, e.g.*, *State v. Griep*, 2014 WI App. 25, ¶ 1, 353 Wis. 2d 252, 845 N.W.2d 25.

¹⁹ *But see Williams v. Illinois*, 567 U.S. 50, 86 (2012) (quoting *Michigan v. Bryant*, 562 U.S. 344, 379 (2011)).

experts (i.e., those witnesses who relay a non-testifying analyst's work or findings) who never laid a hand or an eye on the evidentiary sample nor operated the machine that analyzed it to testify in lieu of the actual "performing analyst."²⁰ This is the new, Twenty-First-Century Marian examination, where science and its process is presumed to be inherently reliable and, therefore, is insulated from, as Justice Scalia put it, "the crucible of cross-examination."²¹

This practice of insulation plays out in the courtroom in a variety of ways, particularly in forensic disciplines where laboratories have chosen to assign multiple analysts to the analysis of a single evidentiary sample.²² First, the "surrogate expert"²³ may not actually be an expert at all; specifically, where the expert lacks the requisite qualifications and knowledge under Evidence Rule 702 to testify about a specific area that is intimately bound up with the forensic evidence.²⁴ Second, the surrogate expert may not have seen, let alone actually tested or observed, the analysis of the evidentiary sample at issue; instead, testifying blissfully ignorant and presuming that the many steps in the cumulative scientific process before the final stage (or report) was performed competently.²⁵ Third, the surrogate may not have reviewed any of the "raw data" to assess the appropriateness of the performing analyst's ultimate conclusions.²⁶ Fourth, the surrogate may not be employed by or at the bare minimum, know and

²⁰ See, e.g., *State v. Young*, No. 1 CA-CR 17-0044, 2018 WL 828299, at *5–6 (Ariz. Ct. App. 2018); *Taylor v. State*, 811 S.E.2d 286, 291 (Ga. 2018). The author uses this phrase in the article to describe the analyst who performed testing on an evidentiary sample. From receipt of the sample on his or her benchtop for preparation through review, machine analysis, and human interpretation.

²¹ *Crawford v. Washington*, 541 U.S. 36, 61 (2004).

²² See, e.g., *Williams*, 567 U.S. at 86; *Griep*, 2014 WI App. 25, ¶ 17 (quoting *State v. Williams*, 2002 WI 58, ¶¶ 19–20, 253 Wis. 2d 99, 644 N.W.2d 919).

²³ As we shall see, many courts have used the term "surrogate" more positively in reasoning that the instant witness before them is not the same surrogate that the Court in *Bullcoming v. New Mexico* rejected. Specifically, in *Bullcoming*, the Court found that the testifying analyst, albeit knowledgeable of the laboratory's protocols and procedures, was not a proper surrogate to testify about the defendant's blood alcohol results because he "could not convey what [the performing analyst] knew or observed about the events his certification concerned, i.e., the particular test and testing process he employed." *Bullcoming v. New Mexico*, 564 U.S. 647, 661(2011). On the other hand, when viewing the witness as an improper surrogate, courts tend to refer to such witness as a mere "conduit." See *People v. John*, 52 N.E.3d 1114, 1128 (N.Y. 2016) (stating a conduit is someone who merely reports "the conclusions of others" and is not a proper surrogate witness). The author intends for both "surrogate" and "conduit" to have negative connotations, with the term "shepherd" to be viewed more positively and acceptable.

²⁴ See FED. R. EVID. 720; see also *infra* Part I, Section B (describing where the "surrogate" expert witness is not an expert themselves).

²⁵ See *Williams*, 567 U.S. at 60, 62.

²⁶ See *id.* at 62.

understand the protocols and practices of the testing laboratory.²⁷

It is undisputed that forensic evidence is fallible.²⁸ If that were not true, we would not have to regularly remind the courts of Josiah Sutton who was wrongfully convicted of rape and sentenced to twenty-five years in prison based on erroneous DNA expert testimony.²⁹ As in Sutton's case, many other innocent individuals have been wrongfully accused or, far worse, convicted and imprisoned for years of their lives due to bad science and dishonest or incompetent analysts.³⁰ Indeed, flawed forensics and the misapplication of forensic science is the second leading cause of wrongful convictions in approximately forty-four percent of the more than 365 DNA exonerations.³¹ Even if the end result is not a wrongful conviction, we must inquire: is this the kind of system our Framers envisioned, the kind of system we want? Where evidence, due to its scientific nature, is presumed reliable and, thus, accepted without confrontation?

Further, to say that science is powerful is a severe understatement; it convicts like no other witness or evidence. "As judges have long recognized, forensic evidence can play an important role in criminal trials. Juries may give special weight to testimony by forensic

²⁷ See *id.* at 59.

²⁸ See, e.g., *Josiah Sutton*, NAT'L REGISTRY EXONERATIONS, <http://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=3672%20> (last updated Nov. 26, 2016) ("Sutton's conviction was the result of . . . faulty scientific testing.").

²⁹ *Id.*; see Brief of Amicus Curiae the Innocence Network in Support of Petitioner, *Williams v. Illinois*, 567 U.S. 50 (2012) (No. 10-8505), 2011 WL 3973568, at *11 [hereinafter Brief of Amicus Curiae the Innocence Network, Williams].

³⁰ See Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at *7–11; Brief of Amicus Curiae the Innocence Network in Support of Petitioner, *Bullcoming v. New Mexico*, 564 U.S. 647 (2011) (No. 09-10876), 2010 WL 5043100, at *16–17 [hereinafter Brief of Amicus Curiae the Innocence Network, Bullcoming]; Brief of Amicus Curiae the National Innocence Network in Support of Petitioner, *Melendez-Diaz v. Massachusetts*, 557 U.S. 305 (2009) (No. 07-591), 2008 WL 2550614, at *8 [hereinafter Brief of Amicus Curiae the National Innocence Network, Melendez-Diaz]; see also BRANDON L. GARRETT, *CONVICTING THE INNOCENT: WHERE CRIMINAL PROSECUTIONS GO WRONG* 84–89 (2011) (describing the specific faults with the forensic analyst's testimony in the Gary Dotson trial, leading to his exoneration); Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions*, 95 VA. L. REV. 1, 4 (2009) (explaining that Gary Dotson spent ten years in prison before being exonerated due to faulty testimony by a forensic analyst); *Detail List*, NAT'L REGISTRY EXONERATIONS, <http://www.law.umich.edu/special/exoneration/Pages/detailist.aspx> (last visited Feb. 5, 2019) (displaying 554 exonerations where "False or Misleading Forensic Evidence" was an issue).

³¹ See *Misapplication of Forensic Science*, INNOCENCE PROJECT, <https://www.innocenceproject.org/causes/misapplication-forensic-science/> (last visited Apr. 19, 2019); see also *DNA Exonerations in the United States*, INNOCENCE PROJECT, <https://www.innocenceproject.org/dna-exonerations-in-the-united-states/> (last visited Apr. 19, 2019) (finding 44% of DNA Exonerations involved misapplication of forensics).

scientists.”³² Recently, Justice Gorsuch noted, “[m]ore and more, forensic evidence plays a decisive role in criminal trials today. But it is hardly ‘immune from the risk of manipulation.’”³³ As Chief Justice Bender for the Colorado Supreme Court acknowledged in his dissent in *Marshall v. People*,³⁴ “[r]eliance upon forensic evidence has increased in criminal cases and the need to retain the traditional right of cross-examination must nonetheless be preserved.”³⁵

There are, at minimum, four distinct ways cross-examination is critical to the testing of forensic science and, potentially, to the prevention of wrongful convictions based on flawed forensics. First, it is capable of unmasking mistake or mischief in forensic work or, at the very least, testing the competency of the responsible performing analyst.³⁶ Second, even when cross-examination has not been successful in preventing wrongful convictions, it has hastened exonerations years later.³⁷ Next, the opportunity to cross-examine the performing analyst incentivizes effective assistance of counsel.³⁸ Finally, as scholar Jennifer Mnookin has written, with former Attorney General Jeff Session’s decision, last year, to end the National Commission on Forensic Science (NCFS), “we now lack any locus for a broadly conceived, authoritative panel of experts and stakeholders to convene regularly and assess the state of forensic science and recommend reforms.”³⁹ Thus, there is little in the way of testing the reliability of the forensic disciplines these days. Confrontation remains the best and most instantly available

³² GARRETT, *supra* note 30, at 91.

³³ *Stuart v. Alabama*, 139 S. Ct. 36, 36 (2018) (quoting *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 318 (2009)); *see also* *People v. M.F.*, 25 N.Y.S.3d 816, 821 (Sup. Ct. 2016) (“An important factor distinguishing this case from *Williams* is . . . the sole evidence against the defendant is the DNA match produced as a result of laboratory analysis.”).

³⁴ *Marshall v. People*, 2013 CO 51.

³⁵ *Id.* ¶ 26 (Bender, C.J., dissenting in part).

³⁶ *See infra* notes 112–14 and accompanying text (where cross-examination of forensic analyst who has been disciplined for inattentive work would be relevant); *see also* *Williams v. Illinois*, 567 U.S. 50, 118–19 (2012) (Kagan, J., dissenting) (referencing the John Kocak matter where an analyst discovered her mistake during cross-examination); Brief of Amicus Curiae the National Innocence Network, *Melendez-Diaz*, *supra* note 30, at *28–29 (describing several cases where cross-examination revealed flawed work or testimony).

³⁷ *See* Brief of Amicus Curiae the National Innocence Network, *Melendez-Diaz*, *supra* note 30, at *29–30.

³⁸ *See id.* at *27.

³⁹ Jennifer Mnookin, *The Uncertain Future of Forensic Science*, 147 DAEDALUS 99, 100 (2018); *see* Spencer Hsu, *Sessions Orders Justice Dept. to end Forensic Science Commission, Suspend Review Policy*, WASH. POST (Apr. 10, 2017), https://www.washingtonpost.com/local/public-safety/sessions-orders-justice-dept-to-end-forensic-science-commission-suspend-review-policy/2017/04/10/2dada0ca-1c96-11e7-9887-1a5314b56a08_story.html?noredirect=on&utm_term=.7702fccadf13.

protection against the introduction of flawed forensic evidence in our criminal trials.⁴⁰ And, let us not forget, it is a constitutionally guaranteed protection without exception.⁴¹

Therefore, the fact that it is difficult to answer questions such as who is an “analyst”⁴² or who, in the “collective” that is the scientific process,⁴³ must testify for confrontation purposes is no excuse for the Supreme Court’s lack of guidance in this area. Recently, Justice Gorsuch (joined by Justice Sotomayor) wrote of the Court’s confrontation clause jurisprudence, “we owe lower courts struggling to abide our holdings more clarity than we have afforded them in this area.”⁴⁴ Since we have last heard from the Court in *Williams v. Illinois*, lower courts have struggled to apply the “conventional witness” rules borne out of *Crawford v. Washington*, *Davis v. Washington*,⁴⁵ and *Michigan v. Bryant*⁴⁶ to forensic evidence, or they have simply adjusted course completely by establishing new (frequently arbitrary) rules along the way. Critically, the *Crawford*, *Davis*, and *Bryant* cases each involved a declarant’s contact with and statements to police in what may be considered a traditional context where the declarant was a firsthand witness to the alleged crime.⁴⁷ From those cases, two rules began to take shape—the “objective witness” and “primary purpose” rules.

First, in *Crawford*, the Court tacked onto its list of “core testimonial” statements those statements that would lead an objective witness to reasonably believe such statements may be used at a later trial.⁴⁸ However, the creation of this list, while perhaps helpful at the time in determining what the Court may consider “testimonial” down the road, was not required.⁴⁹ Specifically, it was clear that the declarant’s statements, in that case, were made during

⁴⁰ See *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 319 (2009).

⁴¹ See *id.* at 309 (quoting *Crawford v. Washington*, 541 U.S. 36, 51 (2004)); U.S. CONST. amend. VI.

⁴² In his *Melendez-Diaz* dissent, Justice Kennedy notes, “[t]here is no accepted definition of analyst, and there is no established precedent to define that term,” and proceeds to list four different individuals involved in the toxicological drug analysis, arguing that it is not clear which of these four persons would be considered an analyst. *Melendez-Diaz*, 557 U.S. at 332 (Kennedy, J., dissenting).

⁴³ See Mnookin & Kaye, *supra* note 16, at 149 (“In thinking about why scientific evidence might warrant some limited special treatment, it seems to us that the most important feature of science is that *it is a collective, rather than an individual enterprise.*”) (emphasis in original).

⁴⁴ *Stuart v. Alabama*, 139 S. Ct. 36, 37 (2018) (Gorsuch, J., dissenting).

⁴⁵ *Davis v. Washington*, 547 U.S. 813 (2006).

⁴⁶ *Michigan v. Bryant*, 562 U.S. 344 (2011).

⁴⁷ See *id.* at 348–49; *Davis*, 547 U.S. at 817; *Crawford v. Washington*, 541 U.S. 36, 38 (2004).

⁴⁸ See *Crawford*, 541 U.S. at 51–52.

⁴⁹ See *id.* at 53.

a police interrogation, which was easily found to be akin to the Marian examination and to necessitate confrontation.⁵⁰ Second, in *Davis*, when the Court was faced with two different scenarios—a frantic 911 call and a more calculated police interview—it crafted the “primary purpose” rule, distinguishing between a declarant who was aiding police in an ongoing emergency from one who aided a police investigation with only the latter being considered “testimonial.”⁵¹ In *Bryant*, the “primary purpose” rule further evolved, requiring courts to review all the circumstances surrounding the statements made to police as well as the intent of all participants in the contact.⁵² This is also where the Court appeared to take a step back in time to *Roberts*, claiming that the hearsay rules “designed to identify some statements as reliable” were relevant to the confrontation analysis.⁵³ As a result, the Court began to divide on the application of the “conventional witness” rules with Justice Scalia writing a dissent that highlighted the Court’s disunity in applying the clause even in these traditional contexts.⁵⁴

The “conventional witness” rules were first applied to the forensic evidence context in *Melendez-Diaz v. Massachusetts* and *Bullcoming v. New Mexico*,⁵⁵ but barely so. Both of these cases involved forensic reports that were akin to affidavits,⁵⁶ which have been readily accepted as part of the “core class of ‘testimonial statements’” even before such a class began to take shape in *Crawford*.⁵⁷ Indeed, since at least 1992, Justice Thomas has included affidavits in his “formalized testimonial materials” list, describing them as statements that fall within the purview of the Confrontation Clause.⁵⁸ Thus, because *Melendez-Diaz* and *Bullcoming* were not tasked with applying the “conventional witness” rules to the forensic evidence context to any real extent, there was not an opportunity,

⁵⁰ See *id.* at 52–53.

⁵¹ See *Davis*, 547 U.S. at 817, 818, 822.

⁵² See *Bryant*, 562 U.S. at 370 (“[W]hen a court must determine whether the *Confrontation Clause* bars the admission of a statement at trial, it should determine the ‘primary purpose of the interrogation’ by objectively evaluating the statements and actions of the parties to the encounter, in light of the circumstances in which the interrogation occurs.”).

⁵³ See *id.* at 358–59.

⁵⁴ See *id.* at 380, 390–92 (Scalia, J. dissenting) (“[T]oday’s decision is not only a gross distortion of the facts. It is a gross distortion of the law—a revisionist narrative in which the reliability continues to guide our *Confrontation Clause* jurisprudence, at least where emergencies and faux emergencies are concerned.”).

⁵⁵ *Bullcoming v. New Mexico*, 564 U.S. 647, 661 (2011); *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 311 (2009).

⁵⁶ See *Bullcoming*, 564 U.S. at 651–52; *Melendez-Diaz*, 557 U.S. at 307.

⁵⁷ See *White v. Illinois*, 502 U.S. 346, 365 (1992) (Thomas, J., concurring in part).

⁵⁸ See *id.*

prior to *Williams*, to see how those rules might inform the confrontation clause analysis to the forensic setting.

In *Williams*, however, the opportunity finally presented itself when the Court applied the “conventional witness” rules to forensic evidence testimony.⁵⁹ In *Williams*, a critical piece of evidence against the defendant (i.e., a DNA profile from rape kit evidence) was generated by one laboratory.⁶⁰ No one from that laboratory was called to testify at trial.⁶¹ Instead, the prosecution presented another expert from the state crime laboratory who had not participated in or observed the underlying testing, nor was she familiar with the specific protocols that were followed by the performing analyst or that were required by the testing laboratory.⁶² Both the plurality⁶³ and the dissent applied the “conventional witness” rules (particularly the “primary purpose” rule), coming to two completely different conclusions.⁶⁴ What resulted was a mess of an opinion, fractured as can be with Justice Kagan aptly stating: “What comes out of four Justices’ desire to limit *Melendez-Diaz* and *Bullcoming* in whatever way possible, combined with one Justice’s one-justice view of those holdings, is—to be frank—who knows what.”⁶⁵

Significantly, in *Williams*, it was the first time the Court comprehensively applied the “conventional witness” rules to forensic evidence and the divided results demonstrated just how malleable and unwieldy the rules were, supporting Justice Thomas’s (who held the “one-justice view” referenced by Justice Kagan in *Williams*) long-held view that such rules were unworkable and would cause courts great difficulties in practice.⁶⁶ Even before the birth of the “conventional witness” rules, Justice Thomas warned of the impracticality of such rules in his 1992 concurrence in *White*, recognizing that “[a]ttempts to draw a line between statements made in contemplation of legal proceedings and those not so made would entangle the courts in a multitude of difficulties.”⁶⁷ This has been

⁵⁹ See *Williams v. Illinois*, 567 U.S. 50, 66–67 (2012).

⁶⁰ See *id.* at 59.

⁶¹ See *id.* at 60.

⁶² See *id.* at 60–61.

⁶³ The term “plurality” is used for ease; however, it should be noted, as was articulated by Justice Kagan in her dissenting opinion and by many lower courts since then, the fractured nature of the *Williams* opinion does not offer a true plurality. See *id.* at 120 (Kagan, J., dissenting).

⁶⁴ See *id.* at 83, 84–85 (plurality opinion); *id.* at 134–35 (Kagan, J., dissenting).

⁶⁵ *Id.* at 141 (Kagan, J., dissenting).

⁶⁶ See *id.* at 118 (Thomas, J., concurring); *White v. Illinois*, 502 U.S. 346, 364 (Thomas, J., concurring in part).

⁶⁷ *White*, 502 U.S. at 364 (Thomas, J., concurring in part).

Justice Thomas's position ever since, taking each opportunity to point out the unworkability of the "conventional witness" rules and to advocate for his "formality and solemnity" requirement, i.e., he advances that only "formalized testimonial materials, such as affidavits, depositions, prior testimony, or confessions" are captured by the Confrontation Clause.⁶⁸

It is abundantly clear that the Court's confrontation clause jurisprudence is in disarray, especially in the forensic evidence context. Critically, forensic evidence is no longer properly described as "the way of the future."⁶⁹ In our modern-day courtrooms, forensic evidence and testimony is our present and it will continue to be so for many years, decades, and centuries to come. With the advent of new and updated technologies as well as the increased use of forensic evidence to convict,⁷⁰ this question of what confrontation analysis should apply in the forensic evidence context is one that can no longer wait for an answer. This is so because, in many respects, one of the few routes available to test the reliability of forensic science and its processes is "the greatest legal engine ever invented for the discovery of truth," the crucible of cross-examination.⁷¹

This Article proposes an answer to the question. It recommends that the Supreme Court implement Justice Thomas's "formality and solemnity" approach⁷² as a rule of law the next time the Court is asked to interpret the Confrontation Clause in the context of multi-analyst forensic disciplines—specifically, in toxicology, DNA, and alcohol breath testing.⁷³ However, Justice Thomas's test must be

⁶⁸ *Id.* at 365; see *Williams*, 567 U.S. at 111 (Thomas, J., concurring); *Michigan v. Bryant*, 562 U.S. 344, 379 (2011) (Thomas, J., concurring); *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 329 (2009) (Thomas, J., concurring); *Davis v. Washington*, 547 U.S. 813, 836–37 (2006) (Thomas, J., concurring in part and dissenting in part).

⁶⁹ *But see* NAT'L RESEARCH COUNCIL, COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIS. CMTY., STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 4 (2009), <http://www.nap.edu/catalog/12589.html>.

⁷⁰ *See id.*

⁷¹ *White*, 502 U.S. at 356 (quoting *California v. Green*, 399 U.S. 149, 158 (1970)).

⁷² *Williams*, 567 U.S. at 103–04 (Thomas, J. concurring).

⁷³ It should be noted that the Article's suggested approach could very well be implemented in all forensic science contexts; however, here, the author has chosen to focus on that which seems to trouble the Court most, the involvement of a number of analysts in one process. The toxicology, DNA, and alcohol breath test disciplines offer the best examples of where we might see a vast number of individuals involved in the scientific process; they are also the areas that are most often before the appellate courts. Nevertheless, the author is troubled that "conventional witness" rules do not appear to work in all forensic science contexts and that other contexts not explored herein are far more subjective than those discussed in this article. See NAT'L RESEARCH COUNCIL, COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIS. CMTY., *supra* note 69, at 4; PRESIDENT'S COUNCIL OF ADVISORS ON SCI. & TECH., REPORT TO THE PRESIDENT FORENSIC SCIENCE IN CRIMINAL COURTS: ENSURING SCIENTIFIC VALIDITY OF

qualified, i.e., in determining whether forensic evidence is “formal” or “solemn,” process over form must be emphasized.⁷⁴ That is, it is not the mere documentary form or format that tells whether forensic evidence is “formal” or “solemn,” but it is how the forensic evidence was processed that shows its “formality and solemnity.”⁷⁵

Part I discusses the current state of these forensic disciplines in criminal courtrooms and highlights how lower courts across the country insulate them from reliability testing. Part II explores why the Framers found the Confrontation Clause to be indispensable and the principal evil from the Sixteenth and Seventeenth centuries that it was designed to eliminate, focusing on the insulated process that most concerned the Framers. It then argues forensic science is the Twenty-First-century version of the Marian examination, emphasizing the need to focus on the process that creates forensic evidence. Part III summarizes the “conventional witness” rules in confrontation clause jurisprudence and asserts that, based on *Williams*, it is clear these rules are not a proper fit for forensic evidence. Part IV describes the lower courts’ response to *Williams* and the variety of approaches that are the direct result of the Supreme Court’s lack of guidance. Part V offers the answer; a rule that classifies science, not the analysts, as the relevant witness to be confronted and argues that Justice Thomas’s “formality and solemnity” rule with qualification offers the best direction in the forensic evidence context. It asserts that science is formal and solemn, focusing on its processes over the form of its end products, i.e., reports. Part VI suggests that the performing analyst or an observer to the scientific process should be required to testify and confronted as the “shepherd” of the forensic evidence. Finally, the Article concludes with a call to the Supreme Court that it accept the next available multi-analyst forensic evidence case to apply Justice

FEATURE-COMPARISON METHODS 7 (2016), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf; see also *State v. Lebrick*, 178 A.3d 1064, 1079 (Conn. App. Ct. 2018) (court found no confrontation clause violation in case involving firearms analysis). PCAST was an advisory group consisting of the country’s leading scientists and engineers appointed by President Obama to advise the President on policies related to science, technology, and innovation. PRESIDENT’S COUNCIL OF ADVISORS ON SCI. & TECH., *supra*.

⁷⁴ See *Williams*, 567 U.S. at 111 (Thomas, J., concurring) (“[C]onclud[ing] that [the] report is not . . . within the meaning of the *Confrontation Clause* . . . [for the] report lacks the solemnity of an affidavit or deposition.”) (Thomas, J., concurring); *Derr v. State*, 73 A.3d 254, 272 (Md. 2013) (agreeing with Justice Thomas’s solemnity analysis in *Williams*).

⁷⁵ Cf. *Williams*, 567 U.S. at 111 (Thomas, J., concurring) (stating that the Cellmark report lacked solemnity as it was neither sworn nor certified and did not attest that it accurately reflected the DNA testing processes used or the results obtained).

Thomas's rule (again, with qualification) and adopt this Article's approach.

I. THE INSULATION OF SCIENCE NECESSITATING CONFRONTATION

A perfect example of what is meant by "insulated" science is found in *Williams* where the testifying surrogate expert had no personal knowledge of how the performing analyst or testing laboratory developed the critical piece of evidence used to convict Mr. Williams.⁷⁶ There, the testifying analyst was not a part of the testing laboratory, she had not participated in or observed the generation of the DNA profile from critical crime scene evidence, and she did not specifically know what protocols or procedures were applied during the testing.⁷⁷ Thus, the DNA profile taken from crime scene evidence was insulated from cross-examination and adversarial testing because there was no way to test its reliability through the surrogate witness called to the stand.⁷⁸ In particular, that witness had no idea how the DNA profile was specifically developed or what protocols or procedures were implemented and actually followed by the laboratory to ensure its proper generation.⁷⁹ Instead, the surrogate presumed the profile was reliable based on her superficial knowledge of the testing laboratory and her trust in its reputation.⁸⁰ Insulated from cross-examination was the performing analyst's "proficiency, the care [taken] in performing [the] work, and [his or her] veracity."⁸¹

Forensic evidence is the sum of a cumulative process made up of interrelated and interdependent steps that ensure the ultimate accuracy and reliability of the end results.⁸² Frightfully, in *Williams*, the Plurality condoned the surrogate expert's claim of inherent reliability and insulated from confrontation the critical (and cumulative) process.⁸³ This is just one instance that reached the Supreme Court, but, to be sure, this is routine practice in the lower courts.⁸⁴ This is a problem because authoritative and well-

⁷⁶ See *id.* at 62 (plurality opinion).

⁷⁷ See *id.*

⁷⁸ See *id.* at 124–25 (Kagan, J., dissenting).

⁷⁹ See *id.* at 62 (plurality opinion).

⁸⁰ See *id.*

⁸¹ *Bullcoming v. New Mexico*, 564 U.S. 647, 661 n.7 (2011); see *Williams*, 657 U.S. at 62.

⁸² See, e.g., PRESIDENT'S COUNCIL OF ADVISORS ON SCI. & TECH., *supra* note 73, at 7–8.

⁸³ See *Williams*, 657 U.S. at 85–86.

⁸⁴ See, e.g., *State v. Lui*, 315 P.3d 493, 507–08 (Wash. 2014). The author has practiced for ten years in the lower courts and tried numerous cases that involve forensic evidence in the toxicology, DNA, and alcohol breath testing contexts; occasionally, she will draw upon these experiences, but also couple them with examples from appellate decisions across the country to

researched reports and empirical evidence has demonstrated that science is not inherently reliable.⁸⁵

Significantly, misapplied or flawed forensic science is one of the leading causes of wrongful convictions (as shown in forty-four percent of the more than 365 DNA exonerations), second to unreliable eyewitness identifications.⁸⁶ The evidence that unreliable and bad science has led to wrongful convictions is, unfortunately, plentiful.⁸⁷ In the first study to analyze forensic testimony in the trials of innocent individuals, Brandon Garrett and Peter Neufeld found that in sixty percent of such trials, “forensic analysts called by the prosecution provided invalid testimony.”⁸⁸ Significantly, such testimony included invalid testimony “by [seventy-two] forensic analysts called by the prosecution and employed by [fifty-two] laboratories, practices, or hospitals from [twenty-five] states.”⁸⁹ Further, Garrett has noted that “[i]nvalid and unreliable forensics were so prominent in [his research] that they raise[d] more troubling questions about the use of forensics in criminal cases more generally. How can analysts testify in such a patently unscientific way without any consequences?”⁹⁰

In its 2009 report, the National Academy of Sciences (and National Research Council) warned that in light of flawed forensic science’s contributions to wrongful convictions, there is “the potential danger of giving undue weight to evidence and testimony derived from imperfect testing and analysis. Moreover, imprecise and exaggerated expert testimony has sometimes contributed to the admissions of erroneous or misleading evidence.”⁹¹ The report proposed two significant questions underlying the admission and reliance upon

illustrate the current problems in actual practice.

⁸⁵ See Jessica D. Gabel, *Realizing Reliability in Forensic Science from the Ground Up*, 104 J. CRIM. L. & CRIMINOLOGY 283, 284 (2014) (stating that forensic science is broken and has many shortcomings).

⁸⁶ *Misapplication of Forensic Science*, *supra* note 31; *DNA Exonerations in the United States*, *supra* note 31.

⁸⁷ See Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at *7–11; Brief of Amicus Curiae the Innocence Network, Bullcoming, *supra* note 30, at *15–30; Brief of Amicus Curiae the National Innocence Network, Melendez-Diaz, *supra* note 30, at *15–25; GARRETT, *supra* note 30, at 89–90; Garrett & Neufeld, *supra* note 30, at 9; *Our Mission*, NAT’L REGISTRY EXONERATIONS, <https://www.law.umich.edu/special/exoneration/Pages/about.aspx> (last visited Mar., 25, 2019).

⁸⁸ Garrett & Neufeld, *supra* note 30, at 9 (defining invalid testimony as conclusions misstating empirical data or wholly unsupported by empirical data).

⁸⁹ *Id.* at 24.

⁹⁰ GARRETT, *supra* note 30, at 90–91.

⁹¹ NAT’L RESEARCH COUNCIL, COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIS. CMTY., *supra* note 69, at 4.

forensic evidence at trial:

(1) the extent to which a particular forensic discipline is founded on a reliable scientific methodology that gives it the capacity to accurately analyze evidence and report findings and (2) the extent to which practitioners in a particular forensic discipline rely on human interpretation that could be tainted by error, the threat of bias, or the absence of sound operational procedures and robust performance standards.⁹²

The report labelled these questions as vital and noted that “it matters a great deal whether an expert is qualified to testify about forensic evidence and whether the evidence is sufficiently reliable to merit a fact finder’s reliance on the truth that it purports to support.”⁹³ Further, the National Academy of Sciences (NAS) report made a number of recommendations that encompassed the competency of forensic science and the scientific processes as well as the analysts’ part of the collective that is science.⁹⁴

Since 2009, there have been advancements in forensic science, such as expanded DNA amplification kits (where more locations, i.e., loci, containing DNA may be amplified and detected) and the creation of probabilistic genotyping (where complex DNA mixtures can be analyzed by software).⁹⁵ However, we are far from professing that science is inherently reliable and, therefore, need not be subjected to

⁹² *Id.* at 9.

⁹³ *Id.* There has been much ado about *Frye*, *Daubert*, and *Kumho Tire Co.*, but, in spite of these admissibility or gatekeeping analyses, there remains a supreme need for reliability testing during the trial itself through cross-examination. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999); *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993); *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923); see NAT’L RESEARCH COUNCIL, COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIS. CMTY., *supra* note 69, at 9–13.

⁹⁴ See NAT’L RESEARCH COUNCIL, COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIS. CMTY., *supra* note 69, at 14–33; Mnookin & Kaye, *supra* note 16, at 149 (describing science as a collective process).

⁹⁵ See Michael Coble, *Current Issues in Forensic DNA Testing*, NAT’L INST. STANDARDS & TECH., (June 2, 2017), https://www.americanbar.org/content/dam/aba/events/criminal_justice/2017/Current_Issues_Forensic_DNA_Testing.pdf. The Promega Fusion 6C amplification kit is capable of amplifying and detecting twenty-seven loci (i.e., fixed locations on a chromosome where DNA sequences may be found). See *Promega PowerPlex Fusion 6C System*, PROMEGA, <https://www.promega.com/products/genetic-identity/genetic-identity-workflow/str-amplification/powerplex-fusion-6c-system/?catNum=DC2705> (last visited Mar. 25, 2019). Probabilistic genotyping is software designed to interpret complex DNA mixtures and is being steadily approved for use by law enforcement agencies and other entities across the country. See Ray Weiss, *STRmix™ Approved for Use in LA, Washington State*, PRWEB, (July 26, 2018), https://www.prweb.com/releases/strmix_approved_for_use_in_la_washington_state/prweb15652987.htm.

confrontation. In 2013, the former National Commission on Forensic Science (NCFS) was created as an advisory body to the U.S. Department of Justice.⁹⁶ Until its dissolution by former Attorney General Jeff Sessions in 2017, NCFS was tasked with “enhanc[ing] the practice and improv[ing] the reliability of forensic science.”⁹⁷ Some recommendations or views by NCFS were shared with the Department of Justice over the course of its four-year life, including “foundational work products” (i.e., that sought to fulfill the objective of “strengthening the validity and reliability of forensic evidence”), “operational work products” (i.e., that meant to address the enhancement of “quality assurance and quality control in forensic science laboratories and units”), and “relational work products” (i.e., analysis of “the way forensic science is understood and communicated to the users of forensic science, including investigators, lawyers, judges, victims, defendants, and the general public”).⁹⁸ At the close of its work, NCFS outlined multiple other “foundational”, “operational”, and “relational” recommendations, tasks, and reform efforts that remained.⁹⁹ As NCFS concluded, “there is still work to be done.”¹⁰⁰

In its 2016 report, the President’s Council of Advisors on Science and Technology (PCAST) called for empirical studies in order to establish the validity of forensic feature-comparison methods, including, relevant to this discussion, complex DNA mixture interpretation.¹⁰¹ Although PCAST found single-source and simple-mixture DNA analysis less problematic in terms of its overall validity as a forensic feature-comparison method, it still noted that even this kind of DNA analysis is fallible.¹⁰² “Errors can and do occur. Although the probability that two samples from different sources have the same DNA profile is tiny, the chance of human error is much higher. Such errors stem from sample mix-ups, contamination, incorrect interpretation, and errors in reporting.”¹⁰³ Arguably, even the most advanced form of forensic science, i.e., DNA analysis, has its flaws; a number of exonerations have resulted in cases where DNA

⁹⁶ See NAT’L COMM’N ON FORENSIC SCI., REFLECTING BACK—LOOKING TOWARD THE FUTURE 1 (2017), <https://www.justice.gov/archives/ncfs/page/file/959356/download>.

⁹⁷ See *id.* at 3; Hsu, *supra* note 39.

⁹⁸ NAT’L COMM’N ON FORENSIC SCI., *supra* note 96, at 5–6; Mnookin, *supra* note 39, at 112.

⁹⁹ NAT’L COMM’N ON FORENSIC SCI., *supra* note 96, at 7–9.

¹⁰⁰ *Id.* at 10.

¹⁰¹ See PRESIDENT’S COUNCIL OF ADVISORS ON SCI. & TECH., *supra* note 73, at 7.

¹⁰² See *id.* at 8.

¹⁰³ See *id.* at 7.

testing was used to convict the innocent.¹⁰⁴

As scholar Jennifer Mnookin writes, “[t]his present reality—a host of meaningful but mostly superficial changes alongside a still-faltering trickle of serious research—permits two radically different stories to be told about the likely future of the forensic sciences over the next decade or two.”¹⁰⁵ Mnookin describes one story of “just barely” momentum where “we are on the cusp of an increasingly empirically based, science-driven approach to the validation and use of these influential kinds of evidence.”¹⁰⁶ She then goes on to describe another possible story that is more realistic in her view, one characterizing “the changes made thus far as genuine, but limited and sputtering efforts at reform, unlikely to operate as gateways toward necessary substantial transformations, at least on the near horizon.”¹⁰⁷ Mnookin concludes that:

[O]ur best chance for substantial ongoing improvements rests on the creation, or re-creation, of an entity akin to the NCFS. Simply put, we need some institutional structure, some body, separate from the courts, from adversarial advocates, and from practitioners themselves, a body that includes representatives from all these arenas along with accomplished research scientists.¹⁰⁸

In the meantime, however, there is one constitutionally guaranteed safeguard that remains available to poke and prod the reliability of scientific evidence: the Confrontation Clause.

A. Confrontation Safeguards Against Flawed Forensics

It is true that although cross-examination may be available as a means of testing forensic evidence, it does not necessarily follow that it will be utilized by defense counsel and, thereby, prevent wrongful convictions. At least one study focused on wrongful convictions illustrated that “[d]efense counsel rarely cross-examined analysts concerning invalid testimony” in such cases.¹⁰⁹ Of course, that

¹⁰⁴ Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at *2–3.

¹⁰⁵ Mnookin, *supra* note 39, at 100.

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.* at 114.

¹⁰⁹ Garrett & Neufeld, *supra* note 30, at 11–12. This sentence also goes on to expose another issue; that is, courts routinely denying defense expert funding requests in cases involving forensic science. *See id.* This is rather ironic given that one of Justice Kennedy’s proposed

counsel was either ineffective or, perhaps, strategic in such judgment call does not dictate that the Confrontation Clause is of no use in challenging scientific evidence and testimony. When confrontation has potentially been successful in doing so, it is difficult to empirically tell that story when those cases may have resulted in not guilty verdicts.¹¹⁰ Furthermore, as the Supreme Court opinions over the decades have noted, confrontation is still the best tool available to bring to light “the sorts of witness mistakes, overreaching, bias and outright fabrication exposed by the exonerations and their aftermath.”¹¹¹

Cross-examination has the power to reveal mistake or mischief on the part of the performing analyst.¹¹² For example, in Maryland, the cross-examination of an analyst at a pretrial proceeding in a murder case revealed that the analyst “‘did not understand the science behind many of the tests that she performed,’ and ‘she did not perform a number of standard tests on the blood samples in the case.’”¹¹³ As cross-examination ensued, the analyst went on to “‘agree[] that other tests she had completed were useless’ and ‘acknowledged that she had failed to record the results of some testing steps needed to ensure accuracy in blood typing.’”¹¹⁴ Ultimately, the analyst testified that her “entire analysis was absolutely worthless.”¹¹⁵ As a result, the prosecution did not call the analyst to testify at trial, indicating to media that the transcripts of her testimony were telling as to the decision not to have her testify.¹¹⁶

Similarly, in *Ragland v. Commonwealth*,¹¹⁷ an FBI analyst responsible for bullet lead composition testing “was caught in a lie by defense counsel on cross-examination, confronted with her earlier

solutions is that in lieu of confrontation the defense can simply hire its own experts to challenge the forensic evidence. See *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 338, 340 (Kennedy, J., dissenting).

¹¹⁰ See Brief of Amicus Curiae the National Innocence Network, *Melendez-Diaz*, *supra* note 30, at *44.

¹¹¹ *Id.* at *43; see also *Williams v. Illinois*, 567 U.S. 50, 119 (2012) (Kagan, J., dissenting) (recognizing that the Confrontation Clause is a mechanism for catching errors in forensic work); *Bullcoming v. New Mexico*, 564 U.S. 647, 661 n.7, 661–62 (2011) (“[The analysts] testimony under oath would have enabled [defense] counsel to raise before a jury questions concerning [the analyst’s] proficiency, the care he took in performing his work, and his veracity.”).

¹¹² See Brief of Amicus Curiae the National Innocence Network, *Melendez-Diaz*, *supra* note 30, at 42–43.

¹¹³ *Id.* at 45 n.53 (referencing another case where this chemist testified falsely in DNA-exoneree Bernard Webster’s case).

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ *Ragland v. Commonwealth*, 191 S.W.3d 569 (Ky. 2006).

statements, and eventually forced to admit that her prior statements were false[,] . . . [l]ater . . . admit[ing], ‘[i]t was *only after the cross-examination at trial* that I knew I had to address the consequences of my actions.’”¹¹⁸

Recently, in the state of Washington, it was uncovered through *Brady*¹¹⁹ disclosures and public disclosure requests by the defense that a forensic toxicologist with the Washington State Patrol Toxicology Laboratory Division (WSPTLD) had misplaced samples into the machine during the extraction stage for basic routine blood drug screening.¹²⁰ These mistakes required three separate “Corrective Action Reports” to be generated by the WSPTLD, and ultimately led WSPTLD to remove the analyst from case work until the laboratory’s review of the issue was completed.¹²¹ The root cause was the analyst’s lack of attention during his extraction work.¹²² These mistakes were caught after the evidentiary samples continued the course of further necessary testing by either the analyst himself or other analysts within the laboratory.¹²³ If this had happened to be later on in the analysis or if it was an evidentiary sample subjected to blood alcohol testing, the errors may not have been uncovered.¹²⁴ Cross-examination of this particular analyst would test both the competency and reliability of his work in addition to exposing his documented inattention to detail that the fact finder should be permitted to hear.

Next, even when cross-examination may not have unmasked

¹¹⁸ Brief of Amicus Curiae the National Innocence Network, Melendez-Diaz, *supra* note 30, at 46 (quoting *Ragland*, 191 S.W.3d at 581) (emphasis added).

¹¹⁹ *Brady v. Maryland*, 373 U.S. 83 (1963).

¹²⁰ See Corrective Action Report—Basic Drug Screen Sample Switching from Brittany Thomas, Wash. State Patrol Toxicology Laboratory Div., to Amanda Black, Wash. State Patrol Toxicology Laboratory Div. 2 (Mar. 27, 2017).

¹²¹ See *id.*; Washington State Patrol Corrective Action Report—EMIT Screen Sample Switching from Brian Capron, Wash. State Patrol Toxicology Laboratory Div., to Amanda Black, Wash. State Patrol Toxicology Laboratory Div. (Apr. 24, 2017); Corrective Action Report—Cocaine Confirmation Sample Switch from Brian Capron, Wash. State Patrol Toxicology Laboratory Div., to Amanda Black, Wash. State Patrol Toxicology Laboratory Div. (Apr. 12, 2018).

¹²² See Corrective Action Report—Basic Drug Screen Sample Switching, *supra* note 120; Corrective Action Report—EMIT Screen Sample Switching, *supra* note 121; Corrective Action Report—Cocaine Confirmation Switch, *supra* note 121. Readers can obtain this information via public disclosure request to the WSPTLD, requesting all corrective actions for forensic toxicologist David Nguyen from February 2017 through April 2018. See *Public Disclosure Requests*, WASH. ST. PATROL, <http://wsp-staging.fluidnrgclients.com/public-disclosure-requests/> (last visited Mar. 25, 2019).

¹²³ See Corrective Action Report—Basic Drug Screen Sample Switching, *supra* note 120.

¹²⁴ See Brief of Amicus Curiae the Innocence Network, Bullcoming, *supra* note 30, at *40 (“Unless the data are so false as to appear ridiculous on their face, any colleague who reviews the data may fail to recognize the possibility of error.”).

mistake or mischief and, thus, did not prevent wrongful conviction, it still hastened the later exoneration.¹²⁵ For instance, Hector Gonzalez was wrongfully convicted of murder in New York; at trial, the analyst testified “that blood stains found on a pair of Mr. Gonzalez’[s] jeans were ‘consistent with the victim’s blood type’ but failed to reveal what percentage of the population shared that blood type.”¹²⁶ During cross-examination, the analyst admitted “that the genetic markers she was relying on for her direct examination testimony were found in 54% of the New York [C]ity population.”¹²⁷ This powerful statistic was only uncovered via cross-examination of the analyst.¹²⁸

Third, by allowing for cross-examination of the performing analyst, effective assistance of counsel is promoted.¹²⁹ No longer would defense counsel be stuck with what a surrogate expert presumed about the performing analyst’s competency and work (and, therefore, trial counsel also left to presume herself); the performing analyst would be directly subject to confrontation and, to be effective, defense counsel would have to adequately investigate, prepare for, and execute cross-examination accounting for the entire analysis.¹³⁰

Affording such a right provides the defense with strong incentives to identify and correct simple mistakes in examiner conclusions, to push back against testimony that overstates the probative value of the results, and to probe and explore conclusions to ensure they have some grounding in validated procedures actually performed in connection with the case.¹³¹

Indeed, ineffective assistance of counsel is another leading cause of wrongful convictions.¹³² In addition, the NCFS, in recognizing the importance of attorneys and their role in ensuring the validity of

¹²⁵ See Brief of Amicus Curiae the National Innocence Network, Melendez-Diaz, *supra* note 30, at *46–47.

¹²⁶ *Id.* at *47; see Hector Gonzalez, NAT’L REGISTRY EXONERATIONS, <https://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=3246> (last updated June 5, 2016).

¹²⁷ Brief of Amicus Curiae the National Innocence Network, Melendez-Diaz, *supra* note 30, at *47; see also *id.* at 48 (describing a similar scenario in the case of Dwayne Allen Dail); see, e.g., Dwayne Allen Dail, NAT’L REGISTRY EXONERATIONS, <http://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=3147> (last updated June 1, 2014).

¹²⁸ See Brief of Amicus Curiae the National Innocence Network, Melendez-Diaz, *supra* note 30, at *48.

¹²⁹ See, e.g., Schwab v. Crosby, 451 F.3d 1308, 1320–21 (11th Cir. 2006).

¹³⁰ See Brief of Amicus Curiae the National Innocence Network, Melendez-Diaz, *supra* note 30, at *44.

¹³¹ *Id.*

¹³² See *Causes of Wrongful Convictions*, NEW ENGLAND INNOCENCE PROJECT, <http://www.newenglandinnocence.org/causes-of-wrongful-convictions/> (last visited Apr. 19, 2019).

forensic testimony, noted that the training of “forensic science users,” such as lawyers, ought to be a continued focus.¹³³

Finally, after former Attorney General Jeff Sessions’s decision to decommission the NCFS, there is now, as Mnookin put it, no “locus for a broadly conceived, authoritative panel of experts and stakeholders to convene regularly to assess the state of forensic science and recommended reforms.”¹³⁴ Thus, the reliability testing of forensic science is, now, very much a grassroots effort.¹³⁵ We have one certain guarantee for such testing and that is the guarantee of the Confrontation Clause, which is a constitutionally mandated stop-gap while efforts for serious reform in how forensic science is used in our courtrooms may be on the decline.¹³⁶

It would also behoove us, momentarily, to set aside the atrocities that are all of the wrongful convictions based on flawed forensics, and ask, what kind of system do we want? Do we want a system where some evidence is outright, without any real process, found to be inherently reliable? Does that not sound a lot like the Marian examination and what was advanced by the judicial officers in Sir Walter Raleigh’s disastrous trial?¹³⁷ As Judge Harry Edwards¹³⁸ once reflected in a speech at the first NCFS meeting in 2014:

In his 1963 Letter from Birmingham Jail, Rev. Martin Luther King, Jr., reminded us that “*Injustice anywhere is a threat to justice everywhere.*” Isn’t that the point? We are not talking about good science merely for its own sake. We are talking about the need for good science in order to serve justice.¹³⁹

A rule from the Supreme Court that requires the confrontation (and, thus, the cross-examination) of the performing analyst or observer of the underlying testing moves us a step closer to serving justice.¹⁴⁰

¹³³ See NAT’L COMM’N ON FORENSIC SCI., *supra* note 96, at 6, 9.

¹³⁴ Mnookin, *supra* note 39, at 100.

¹³⁵ See *id.* at 100–02.

¹³⁶ See *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 318 (2009).

¹³⁷ See Allen D. Boyer, *The Trial of Sir Walter Raleigh: The Law of Treason, the Trial of Treason and the Origins of the Confrontation Clause*, 74 MISS. L.J. 869, 889–90 (2005).

¹³⁸ A former Senior Court Judge for the United States Court of Appeals for the District of Columbia Circuit. *Harry T. Edwards*, U.S. CT. OF APPEALS D.C. CIR., <https://www.cadc.uscourts.gov/internet/home.nsf/Content/VL+-+Judges+-+THE> (last visited Mar. 25, 2019).

¹³⁹ Hon. Harry T. Edwards, Senior Circuit Judge, U.S. Court of Appeals for the D.C. Circuit, Speaker at the First Public Meeting of the National Commission on Forensic Science 6 (Feb. 3, 2014), <https://www.justice.gov/sites/default/files/ncfs/legacy/2014/05/13/harry-edwards.pdf>.

¹⁴⁰ It should be noted that in Judge Edwards’s speech, he ended the above quote with the line: “I sincerely hope that the work of this Commission will push us closer to this goal.” *Id.*

B. Four Primary Ways Forensic Science Is Insulated in Practice

Science is insulated from reliability testing in a variety of ways in the lower courts. First, the surrogate expert may not actually be an expert at all; specifically, where the expert lacks the requisite qualifications and knowledge to speak to the forensic area, but, nonetheless, satisfies the lower bar under Evidence Rule 702 in the eyes of the court.¹⁴¹ This is particularly so when such surrogate is asked to testify about a specific area that is intimately bound up with his or her findings, such as a standard or reference that is used to ensure the accuracy and reliability of an alcohol breath test that was created and certified by an external laboratory.¹⁴² Permitting such an “expert” to rely upon crucial evidence that supports the accuracy and reliability of the end results (i.e., breath test results) even though he or she does not have the requisite knowledge to speak on such evidence eliminates any meaningful opportunity to cross-examine about that evidence.¹⁴³ Because this expert lacks knowledge to testify about the particular piece of evidence, cross-examination is limited to that fact alone; meanwhile, insulated from reliability testing, is the forensic evidence that supports the expert’s overall conclusions.¹⁴⁴

Second, the surrogate expert may not have seen, let alone actually tested or observed the analysis of the evidentiary sample at issue; instead, presuming that the many steps in the cumulative scientific process before the final stage (or report) was performed competently.¹⁴⁵ This is problematic as the discussion in Subsections 1 and 2 of this Part, *infra*, demonstrate because particularly in toxicology and DNA testing, the accuracy and reliability of the end results rest on all of the stages that come before that final one, i.e., the publication of results.¹⁴⁶

Third, the surrogate may not have reviewed any of the “raw data” to assess the appropriateness of the performing analyst’s ultimate conclusions and reported results.¹⁴⁷ This was the case in *Williams* where the testifying expert was not employed by the testing

¹⁴¹ See, e.g., *In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717, 744 (3d Cir. 1994) (“The evidentiary requirement of reliability is lower than the merits standard of correctness.”).

¹⁴² See Elizabeth Stevens, *Crawford’s Last Stand? What Melendez-Diaz v. Massachusetts Means for the Confrontation Clause and for Criminal Trials*, 2 CONLAWNOW 81, 129–30 (2011).

¹⁴³ See *Bullcoming v. New Mexico*, 564 U.S. 647, 662 (2011).

¹⁴⁴ See Stevens, *supra* note 142, at 104, 120, 125–26, 130.

¹⁴⁵ See *id.* at 123–24.

¹⁴⁶ See Brief of Amicus Curie the Innocence Network *Bullcoming*, *supra* note 30, at 24, 32.

¹⁴⁷ See, e.g., *Williams v. Illinois*, 567 U.S. 50, 62 (2012); *id.* at 124–25 (Kagan, J., dissenting) (quoting *Bullcoming v. New Mexico*, 564 U.S. 647, 661 (2011)).

laboratory and testified that while she compared the defendant's DNA profile with the profile generated by the outside laboratory from crime scene evidence, she "confirmed that she did not conduct or observe any of the testing on [the rape kit evidence], and that her testimony relied on the DNA profile produced by [an outside laboratory]."¹⁴⁸ The testifying expert then added that she "trusted [the testing laboratory] to do reliable work because it was an accredited lab, but she admitted she had not seen any of the calibrations or work [that the laboratory] had done in deducing [the relevant DNA profile]."¹⁴⁹ In this way, the testifying expert was a mere conduit who served only to relay the conclusions and findings of the performing analyst who had conducted the testing and then reviewed and interpreted the raw data.¹⁵⁰ Insulated from cross-examination was not only the early-on processing of the DNA sample, but also the interpretation (which represents an extremely important stage of DNA analysis as illustrated in Subsection 2 of this Part) of the raw data.¹⁵¹

Finally, the surrogate may not be employed by or, at the bare minimum, know and understand the protocols and practices of the testing laboratory.¹⁵² These practices are particularly prevalent in the "assembly line" or multi-analyst forensic disciplines of toxicology, DNA, and alcohol breath testing, where some laboratories assign multiple analysts to analyze a single evidentiary sample or outsource work to third party laboratories as was the case in *Williams*.¹⁵³ Here, too, alcohol breath testing serves as an example of this scenario where the testifying expert is not employed by the laboratory that prepared or certified important standards or reference materials, such as the dry gas external standard¹⁵⁴ discussed in Subsection 3 of this Part.

C. The Insulated Scientific Processes of Toxicology, DNA, and Alcohol Breath Testing

Each of the three multi-analyst forensic disciplines at the center of this Article consist of processes that involve both humans and

¹⁴⁸ *Williams*, 567 U.S. at 62 (plurality opinion).

¹⁴⁹ *Id.*

¹⁵⁰ *See id.*

¹⁵¹ *See id.* at 124–25 (Kagan, J., dissenting).

¹⁵² *See id.* at 123–25.

¹⁵³ *See id.* at 85 (plurality opinion); *Bullcoming v. New Mexico*, 564 U.S. 647, 654 n.1 (2011).

¹⁵⁴ *See Lightfoot v. State*, No. 05-12-00428-CR, 2013 Tex. App. LEXIS 9052, at *12–13, 14, 16 (Tex. Ct. App. July 23, 2013).

machines.¹⁵⁵ They (especially Toxicology and DNA analysis)¹⁵⁶ present the potential for what may be described as a feedback loop between humans and machines where the analysts may respond to some output from a machine, adjust accordingly, and continue with the processing of evidence.¹⁵⁷ Both the Toxicology and DNA disciplines, along with their specific processes, have been effectively explained by others who have come before this Article, appearing before the Supreme Court.¹⁵⁸

1. Summary of the Insulated Process and Practice of Toxicology

First, in *Bullcoming v. New Mexico*, the Innocence Network and the National Association of Criminal Defense Lawyers (NACDL)¹⁵⁹ submitted amici curiae briefs in support of the petitioner.¹⁶⁰ These briefs fully describe the toxicological processing of an evidentiary blood sample for alcohol and drugs.¹⁶¹ There are multiple stages of the process where human error can impact the accuracy and reliability of the end product, including vital steps that must be taken by the performing analyst in the pre-analysis, analysis, and interpretation stages.¹⁶² “Each tier of the process of testing by [gas chromatography] involves the exercise of judgment and proper technique, and presents a risk of error by the analyst that can be

¹⁵⁵ See Brief of Amicus Curiae National Ass’n of Criminal Defense Lawyers et al. in Support of Petitioner, *Bullcoming v. New Mexico*, 564 U.S. 647 (2011) (No. 09–10876), 2010 WL 5043101, at *20–21; Brief of Amicus Curiae the Innocence Project, *Bullcoming*, *supra* note 30, at *55; Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at *21–22.

¹⁵⁶ See Brief of Amicus Curiae National Ass’n of Criminal Defense Lawyers et al., *Bullcoming*, *supra* note 155, at *19, *23, *28 (regarding toxicology testing on a gas chromatograph machine); Brief of Amicus Curiae the Innocence Network, *Bullcoming*, *supra* note 30, at *26, *28–29 (regarding all stages of DNA testing).

¹⁵⁷ See Brief of Amicus Curiae National Ass’n of Criminal Defense Lawyers et al., *Bullcoming*, *supra* note 155, at *20–21; Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at *21–22.

¹⁵⁸ See Brief of Amicus Curiae National Ass’n of Criminal Defense Lawyers et al., *Bullcoming*, *supra* note 155, at *9, *11, *12, *14, *20; Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at *23–24.

¹⁵⁹ The National Association of Criminal Defense Lawyers was joined by the National College for DUI Defense and the New Mexico Criminal Defense Lawyers Association as amici curiae. Brief of Amicus Curiae National Ass’n of Criminal Defense Lawyers et al., *Bullcoming*, *supra* note 155, at *5–6.

¹⁶⁰ *Id.* at *5–6; Brief of Amicus Curiae the Innocence Network, *Bullcoming*, *supra* note 30, at 9.

¹⁶¹ See Brief of Amicus Curiae National Ass’n of Criminal Defense Lawyers et al., *Bullcoming*, *supra* note 155, at *9, *11, *12, *14, *20; Brief of Amicus Curiae the Innocence Network, *Bullcoming*, *supra* note 30, at *48, *49–50, *51, *52–53.

¹⁶² See Brief of Amicus Curiae National Ass’n of Criminal Defense Lawyers et al., *Bullcoming*, *supra* note 155, at *21; Brief of Amicus Curiae the Innocence Network, *Bullcoming*, *supra* note 30, at *26.

disclosed only through cross-examination of the actual analyst who performed those steps in sample preparation.”¹⁶³

For example, the performing analyst is responsible for properly loading vials into the machine; at first blush, this may appear to be akin to a “chain of custody” or simple administrative task.¹⁶⁴ However, the analyst is actually communicating with a machine that cannot know whether there has been proper placement of unknown samples within it.¹⁶⁵ There is potential for mistake in this stage as demonstrated in Section A of this Part where recently a Washington State Patrol forensic toxicologist had multiple episodes of improper vial placement.¹⁶⁶

Further, and significantly, after the machine-generated data is produced, the analyst must review and interpret this data (this is printed in the form of a graph) before rendering conclusions and writing the report.¹⁶⁷ The data does not pop out of the machine ready for evidentiary admission.¹⁶⁸ For example, in blood alcohol testing, the gas chromatography machine produces graphs consisting of peaks and data, which lead to a particular reported alcohol concentration.¹⁶⁹ Sometimes the graphs contain unknown peaks or asymmetrical peaks that have the potential of co-eluting (i.e., not appearing symmetrical or separated from one another)¹⁷⁰ with the most important peaks, such as the alcohol or internal standard (e.g.,

¹⁶³ Brief of Amicus Curiae National Ass’n of Criminal Defense Lawyers et al., *Bullcoming*, *supra* note 155, at *21.

¹⁶⁴ *See id.* at *25.

¹⁶⁵ NACDL, in its amici brief, argued:

The proper labeling and placement of the vials in the autosampler is not only necessary to determine which blood samples belong to which defendants, but it is also essential that sufficient calibrators, controls, and water blanks be placed in their proper places in the autosampler to protect the integrity of the test.

Id. at *26.

¹⁶⁶ *See* Corrective Action Report—Basic Drug Screen Sample Switching, *supra* note 120, at 1, 2; Corrective Action Report—EMIT Screen Sample Switching, *supra* note 121, at 1; Corrective Action Report—Cocaine Confirmation Sample Switch, *supra* note 121, at 1.

¹⁶⁷ *See* Brief of Amicus Curiae National Ass’n of Criminal Defense Lawyers et al., *Bullcoming*, *supra* note 155, at *13–14, *30–31; Brief of Amicus Curiae the Innocence Network, *Bullcoming*, *supra* note 30, at 56.

¹⁶⁸ *See* Brief of Amicus Curiae National Ass’n of Criminal Defense Lawyers et al., *Bullcoming*, *supra* note 155, at *30–31.

¹⁶⁹ *See id.* at *13–14, *30–31.

¹⁷⁰ *See* WASH. STATE PATROL TOXICOLOGY LAB., ANALYSIS OF VOLATILES IN AQUEOUS AND BIOLOGICAL SPECIMENS BY HEADSPACE GAS CHROMATOGRAPHY 7, 9 (2017), http://wsp.wa.gov/forensics/docs/toxicology/sop_manuals/sop_volatiles_07-24-2017.pdf (referring to peaks for ethanol and the internal standard, n-propanol being symmetrical, i.e., no co-elution, split peaks, or shoulders and stating peaks for ethanol, acetone, isopropanol, methanol, and n-propanol “shall appear symmetrical” with no footnoted exceptions).

n-propanol) peaks.¹⁷¹ Analysts have to make judgment calls as to whether or not co-elution (non-separation between peaks) exists and whether to perform manual integration upon reviewing and considering the machine's output.¹⁷²

Based on the human decision-making that occurs during the interpretation stage as well as the human contributions to the entire toxicology testing process, it would be erroneous to believe, as many courts do, that the machine alone is responsible for the end product, rather than the analyst.¹⁷³ "Print-outs from a machine are still the work products of the analyst and may contain within them manifestations of human error that only confrontation of the analyst can reveal."¹⁷⁴ Unfortunately, it is routine practice in cases involving toxicology results to allow supervisors and other surrogates to testify in place of the performing analyst.¹⁷⁵

Subjecting a performing analyst, such as the aforementioned Washington State Patrol forensic toxicologist (and his lack of attention to detail),¹⁷⁶ to cross-examination is the only way to fully test the competency, accuracy, and reliability of the end product, the test results. All of those tasks and actions conducted by the

¹⁷¹ See *id.* at 2, 7; Brief of Amicus Curiae National Ass'n of Criminal Defense Lawyers et al., Bullcoming, *supra* note 155, at *31.

¹⁷² See Brief of Amicus Curiae National Ass'n of Criminal Defense Lawyers et al., Bullcoming, *supra* note 155, at *19; see also WASH. STATE PATROL TOXICOLOGY LAB., *supra* note 170, at 7, 9 (referring to peaks for ethanol and the internal standard, n-propanol being symmetrical, i.e., no co-elution, split peaks, or shoulders and stating peaks for ethanol, acetone, isopropanol, methanol, and n-propanol "shall appear symmetrical" with no footnoted exceptions).

¹⁷³ See Bullcoming v. New Mexico, 564 U.S. 647, 673 (2011) (Sotomayor, J., concurring) ("[T]his is not a case in which the State introduced only machine-generated results, such as a printout from a gas chromatograph."); see also United States v. Moon, 512 F.3d 359, 362 (7th Cir. 2008) (citing United States v. Washington, 498 F.3d 225, 230, 232 (4th Cir. 2007) ("Only the machine, through its diagnostic and technical process, could provide facts about the chemical composition of [the] blood" and "the raw data generated by the machines [was] not the statements of technicians.")) (finding the machine's printouts in a drug testing case were not statements); cf. People v. John, 52 N.E.3d 1114, 1125 (N.Y. 2016) ("We will not indulge in the science fiction that DNA evidence is merely machine-generated, a concept that reduces DNA testing to an automated exercise requiring no skill set or application of expertise or judgment.").

¹⁷⁴ Brief of Amicus Curiae the Innocence Network, Bullcoming, *supra* note 30, at *20.

¹⁷⁵ See, e.g., People v. Lopez, 286 P.3d 469, 471–72 (Cal. 2012); Marshall v. People, 2013 CO 51, ¶¶ 1–2; Jenkins v. State, 2010-CT-00203-SCT (¶¶ 19–20) (Miss. 2012); State v. Watson, 185 A.3d 845, 859–60 (N.H. 2018); State v. Michaels, 95 A.3d 648, 651–52 (N.J. 2014); State v. Ortiz-Zape, 743 S.E.2d 156, 157, 165 (N.C. 2013); Commonwealth v. Yohe, 79 A.3d 520, 540–41 (Pa. 2013); State v. Jones, No. 31639-4-III, 2014 Wash. App. LEXIS 2695, *3–4, *10–11 (Wash. Ct. App. 2014); State v. Mattox, 2017 WI 9, ¶¶ 2–4, 373 Wis. 2d 122, 890 N.W.2d 256; but see Martin v. State, 60 A.3d 1100, 1109 (Del. 2013); Burch v. State, 401 S.W.3d 634, 637 (Tex. 2013).

¹⁷⁶ See Corrective Action Report—Cocaine Confirmation Sample Switch, *supra* note 121; Corrective Action Report—EMIT Screen Sample Switching, *supra* note 121; Corrective Action Report—Basic Drug Screen Sample Switching, *supra* note 120.

performing analyst that occur prior to the writing of a report cumulatively impact the truth of the test results.¹⁷⁷ “Only the testing analyst is aware of how the sample appeared, how he or she prepared it for testing, and how he or she operated the machine in a particular test.”¹⁷⁸ Furthermore, as the Supreme Court highlighted long ago, Confrontation:

(1) insures that the witness will give his statement under oath—thus impressing him with the seriousness of the matter and guarding against the lie by the possibility of a penalty for perjury; (2) forces the witness to submit to cross-examination, the “greatest legal engine ever invented for the discovery of truth”; (3) permits the jury that is to decide the defendant’s fate to observe the demeanor of the witness making his statement, thus aiding the jury in assessing his credibility.¹⁷⁹

Without the opportunity to cross-examine the performing analyst, all work, judgment calls, and decision-making that preceded the final results are insulated and, instead, presumed to be reliable and an adequate out-of-court substitute for adversarial testing.¹⁸⁰ This, our Framers, would have vehemently opposed.

2. Summary of the Insulated Process and Practice of DNA Analysis

In *Williams*, the Innocence Network amicus curiae provided a comprehensive overview of the primary stages of DNA analysis and outlined the potential for error in each step.¹⁸¹ The five stages of DNA testing are extraction (where DNA is extracted from a biological sample), quantification (where the amount of DNA is quantified in the sample), amplification (where polymerase chain reaction (PCR) is utilized to amplify or copy alleles), capillary electrophoresis (where DNA fragments are separated and passed through a detector), and, finally, interpretation (where the analyst must translate the data from electropherograms and make significant judgment calls, often referred to as “allele calls,” related to the generation of a DNA profile).¹⁸² Some courts erroneously believe that human decision-

¹⁷⁷ See Brief of Amicus Curie the Innocence Network, Bullcoming, *supra* note 30, at *6.

¹⁷⁸ *Id.* at *37.

¹⁷⁹ Lee v. Illinois, 476 U.S. 530, 540 (1986) (quoting California v. Green, 399 U.S. 149, 158 (1970)).

¹⁸⁰ See Melendez-Diaz v. Massachusetts, 557 U.S. 305, 319–21 (2009).

¹⁸¹ See Brief of Amicus Curie the Innocence Network, *Williams*, *supra* note 29, at *15–23.

¹⁸² *Id.*

making only enters the equation at the final stage, interpretation.¹⁸³ This is simply not the case, the analyst has to make decisions throughout the entire processing of an evidentiary sample, and there is much room for error along each step of the way.¹⁸⁴

As noted previously, in its 2016 report, while PCAST found single-source and simple-mixture DNA analysis less problematic in terms of its overall validity as a forensic feature-comparison method, it still noted that even this kind of DNA analysis is fallible.¹⁸⁵ Although its reliability and power has increased throughout its decades of existence, it is not infallible.¹⁸⁶ Indeed, a number of exonerations have resulted in cases where DNA testing was used to convict the innocent.¹⁸⁷

Take Josiah Sutton, for example. In 1998, Mr. Sutton and an alleged accomplice were accused of raping a woman in the backseat of her vehicle; semen was collected from the vaginal swabs and a stain from the back seat.¹⁸⁸ “DNA analysis was performed on the evidence, and Sutton was excluded as the source of the stain. That conclusion, however, was not mentioned in the official report or in the analyst’s testimony at trial.”¹⁸⁹ Although the probability that the male profile deduced from the vaginal swabs belonged to someone other than Sutton was extremely high (between one in eight and one in fifteen black men in Texas, including Sutton), the expert provided no such statistical analysis at trial.¹⁹⁰ Instead, the analyst testified, “[i]f it came from one person, it should have a same exact DNA pattern. No other two persons will have [the] same DNA except in the case of-of identical twins.”¹⁹¹ Implicit from this expert testimony was that the DNA profile on the swabs from the victim uniquely belonged to Sutton, but that was simply not the case.¹⁹² After proper DNA analysis and interpretation was applied, the truth was revealed, Mr. Sutton was excluded as a contributor to the vaginal

¹⁸³ See e.g., *State v. Lui*, 315 P.3d 493, 507–08 (Wash. 2014).

¹⁸⁴ See Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at *36.

¹⁸⁵ See PRESIDENT’S COUNCIL OF ADVISORS ON SCI. & TECH., *supra* note 73, at 7.

¹⁸⁶ See Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at *2–3.

¹⁸⁷ See *id.* at 3; William C. Thompson, *Tarnish on the ‘Gold Standard’: Understanding Recent Problems in Forensic DNA Testing*, 30 CHAMPION 10, 10 (2006).

¹⁸⁸ Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at *11; see *Josiah Sutton*, NAT’L REGISTRY EXONERATIONS, <http://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=3672> (last updated Nov. 26, 2016).

¹⁸⁹ Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at *11.

¹⁹⁰ *Id.*

¹⁹¹ *Id.*

¹⁹² See *Josiah Sutton*, *supra* note 28.

swabs and, ultimately, exonerated.¹⁹³

In spite of the great stock jurors put into this evidence and the many opportunities for error to insert itself into the analytical process, it is common practice for courts to condone the insulation of most of the DNA testing process and the performing analyst's work.¹⁹⁴ Even in cases where there is no resulting exoneration (and perhaps no wrongful conviction), this kind of insulation ought not to be tolerated in a system that sets its course for justice. One stark example of a court permitting unacceptable insulation is in *People v. Rodriguez*,¹⁹⁵ where the appellate court upheld the lower court's decision to allow a surrogate witness to testify in lieu of the performing analysts.¹⁹⁶ One such analyst conducted the quantitation phase and found, per the surrogate witness's testimony, "significant amount of DNA" belonging to one male donor on the wire cutters at issue.¹⁹⁷ Apparently, "[t]he handles contained five or six times more than the minimum amount of DNA required for testing, which suggested that the donor had used the tool '[f]orcefully or for a decent amount of time.'"¹⁹⁸ Ultimately, this profile was associated with the defendant, and the analyst that performed the quantitation phase of the DNA process was not required to testify and, thus, was insulated from cross-examination.¹⁹⁹

Cross-examination of the performing analysts in the DNA process is capable of exposing incompetency and error in each stage of the analysis.²⁰⁰ One of the most formidable DNA experts in the nation, Dr. John Butler, has noted the importance of cross-examination in the DNA context, stating that it "provides the final level of review in order to confirm the DNA testing results."²⁰¹

3. Alcohol Breath Testing—Insulation of the External Standard

The forensic discipline of alcohol breath testing has received much less attention; therefore, a brief explanation of that process and how courts insulate the attendant evidence supporting the accuracy and reliability of the breath test is appropriate.

¹⁹³ *See id.*

¹⁹⁴ *See, e.g.,* *People v. Barba*, 155 Cal. Rptr. 3d 707, 730 (Ct. App. 2013); *Derr v. State*, 73 A.3d 254, 272 (Md. 2013); *State v. Lui*, 315 P.3d 493, 507 (Wash. 2014).

¹⁹⁵ *People v. Rodriguez*, 59 N.Y.S.3d 337 (App. Div. 2017), *aff'd*, 31 N.Y.3d 1067 (2018).

¹⁹⁶ *See Rodriguez*, 59 N.Y.S.3d at 347.

¹⁹⁷ *Id.* at 350 (Acosta, J., dissenting).

¹⁹⁸ *Id.*

¹⁹⁹ *See id.* at 340 (majority opinion).

²⁰⁰ *See* Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at *26.

²⁰¹ *Id.*

It is routine practice in misdemeanor courts—where most driving under the influence (DUI) cases are heard—for the court to not require the analyst who certified the external standard (typically in a third party laboratory) to appear, finding such testing and certification to be “nontestimonial” under “conventional witness” confrontation clause analysis.²⁰² In addition, in some states, unqualified witnesses are permitted to testify about the external standard as their qualifications do not suit the testimony or they do not work in the testing laboratory.²⁰³ Although this forensic evidence is most frequently admitted in misdemeanor matters, the Confrontation Clause makes no distinction between lower level crimes and felonies.²⁰⁴

²⁰² State v. Kramer, 278 P.3d 431, 437–38 (Idaho Ct. App. 2012) (holding certificates were nontestimonial because they were not direct proof of an element of the crime, were admitted only as proof that the machine was working properly, and were not tied to the prosecution of any particular person); State v. Fischer, 726 N.W.2d 176, 182–83 (Neb. 2007) (“[T]he statements in the certificate did not occur in the context of structured police questioning and did not pertain to any particular pending matter. . . . [Instead] the primary purpose . . . was to assure that the solution used to calibrate and test breath testing devices was of the proper concentration.”); People v. Pealer, 933 N.Y.S.2d 473, 474 (App. Div. 2011) (“[T]he statements contained in the breath test documents are not accusatory in the sense that they do not establish an element of the crimes.”); Green v. DeMarco, 812 N.Y.S.2d 772, 777–78, 782–83 (Sup. Ct. 2005) (finding that the records at issue had a primary business purpose and were admissible under the business records exception to hearsay and that the records are not inculpatory, but neutral in character); Alcaraz v. State, 401 S.W.3d 277, 282 (Tex. Ct. App. 2013) (“[T]he reference samples were created for the purpose of confirming the breathalyzer machine’s accuracy by demonstrating whether the machine was working at the time of administration.”); Boutang v. State, 402 S.W.3d 782, 790 (Tex. Ct. App. 2013) (holding that the records were not necessary to establish or prove some facts potentially relevant to later criminal prosecution and were prepared for equipment maintenance purposes).

²⁰³ The type of individual called to testify in these cases varies by jurisdiction. For example, in the state of Washington, the prosecution calls a breath test technician to testify who is a trooper with the Washington State patrol that has had some training in the area of alcohol breath testing and machines; notably, many of these individuals have only a high school degree. See *Breath Test Program Public Records Index*, WASH. ST. PATROL, <https://www.wsp.wa.gov/breathtest/btptestindex.php> (last visited Apr. 16, 2019); see, e.g., *Shane Madsen: Curriculum Vitae*, WASH. ST. PATROL (Jan. 19, 2018), https://www.wsp.wa.gov/breathtest/docs/webdms/Breath_Curriculum_Vitae/Madsen,%20Shane%20Curriculum%20Vitae%202002-19-2019.pdf (for an example of such individual). In Wyoming, the prosecution tends to call a forensic toxicologist from Wyoming Chemical Testing, a branch of the state’s Department of Health. See *Chemical Testing Program*, WYO. DEP’T HEALTH, <https://health.wyo.gov/publichealth/lab/ctp/> (last visited Apr. 16, 2019). Nevertheless, both states use third party laboratories to create, test, and certify the dry gas external standards utilized in their respective breath test programs. See, e.g., WASH. STATE PATROL, BREATH TEST PROGRAM: TECHNICAL MANUAL 10 (2017), https://www.wsp.wa.gov/breathtest/docs/webdms/Breath_Calibration_Manuals/BTP_Technical%20Manual_Isued_20171107.pdf (outlining the ordering and subsequent receipt of dry gas external standards from vendors); *Calgaz External Standard Documentation*, WASH. ST. PATROL BREATH TEST PROGRAM: DRAEGER ALCOTEST 9510, https://www.wsp.wa.gov/breathtest/draeger_docs.php#dry_gas (last visited Apr. 16, 2019).

²⁰⁴ See U.S. CONST. amend. VI.

i. The Alcohol Breath Test

The actual breath test on any machine is quite automated.²⁰⁵ An individual is asked to provide several breath samples into a breath tube that is connected to the machine.²⁰⁶ From there, analysis occurs within the machine as programmed via algorithms in the software.²⁰⁷ The end result of the test is a printed ticket with some limited information about the breath test along with the test results.²⁰⁸ Although the breath test itself is automated, there are several steps that are specific to ensuring the accuracy and reliability of the results that take place external to the machine.²⁰⁹ Relevant to this discussion is the external standard.²¹⁰

ii. The External Standard

In alcohol breath testing, the external standard (which may be in the form of a wet bath simulator solution or a dry gas)²¹¹ serves as a reference or accuracy check during each evidential breath test performed on a given machine.²¹² Its role is to verify the accuracy and proper working order of the breath test machine during each evidential breath test.²¹³ The external standard is run during every breath test in between the two subject samples.²¹⁴ The external standard result is so vital to each evidential breath test that if it does not fall within the set acceptable range, “the instrument will place itself out of service.”²¹⁵ The dry gas external standard is typically

²⁰⁵ See, e.g., *Draeger Alcotest 9510 Operator's Manual*, WASH. ST. PATROL, https://www.wsp.wa.gov/breathtest/docs/webdms/Draeger/Op_T/Draeger%20Operator's%20Manual.pdf (last visited Apr. 16, 2019).

²⁰⁶ See *id.*

²⁰⁷ See *id.*; Letter from Ken Denton, Sergeant Impaired Driving Section, to Dr. Fiona J. Couper, Toxicology Lab. Div. (Sept. 30, 2014), <https://www.wsp.wa.gov/breathtest/docs/webdms/Draeger/Software/Draeger%20Software%20Approval%202014.pdf>.

²⁰⁸ See WASH. STATE PATROL, *supra* note 203, at 22.

²⁰⁹ See *id.* at 30.

²¹⁰ Although not discussed here, it is worth noting that the officer or operator of the machine at the time of the breath test must comply with certain procedures, such as a 15-minute observation period and mouth check per agency manuals as well as many administrative codes or statutes. *Id.* at 10.; see also WASH. REV. CODE § 46.61.506 (4)(a)(i)–(viii) (2018) (often referred to as the “admissibility statute” in breath test cases in the state of Washington).

²¹¹ WASH. STATE PATROL, *supra* note 203, at 7.

²¹² *Id.* at 5, 7.

²¹³ *Id.* at 7; see also *Lightfoot v. State*, No. 05-12-00428-CR, 2013 Tex. App. LEXIS 9052, at *2 (Ct. App. July 23, 2013).

²¹⁴ WASH. STATE PATROL, *supra* note 203, at 3; see *Lightfoot*, 2013 Tex. App. LEXIS 9052, at *2.

²¹⁵ See *id.*

prepared, tested, and certified by a third party laboratory; the testing laboratory provides a “Certificate of Analysis” for the lot of dry gas cylinders provided to the agency.²¹⁶ This certificate or the mere fact that the dry gas is certified by an accredited laboratory is routinely relied upon to establish the accuracy and reliability of breath test results. State breath test experts testify that if the machine is capable of measuring the external standard properly, then it can validly read the subject’s unknown sample.²¹⁷ Critically, this forensic evidence remains insulated from reliability testing since it is often labelled “nontestimonial” under the “conventional witness” confrontation clause analysis.²¹⁸ The message to jurors is that, based on the proper certification of the dry gas external standard and its accuracy checks during the breath test process, the defendant’s breath test sample is accurate and reliable.²¹⁹

The preparation and certification of the external standard is subject to error and manipulation.²²⁰ In 2008, the head of the Washington State Patrol crime and toxicology laboratories resigned “for allegations of sloppy work and fraud.”²²¹ In particular, the breath test program’s credibility and competency was called into question “when former toxicology lab[oratory] manager Anne Marie Gordon was accused of falsely claiming to have verified solutions used for breath testing in drunken-driving cases.”²²² Here, too, cross-examination of the performing analyst who claims to have properly prepared and certified the external standard, would be able to test that analyst’s competency and honesty.

²¹⁶ See WASH. STATE PATROL, *supra* note 203, at 10, 32, 35 (noting that only certified gas cylinders are to be used). Washington’s provider is Calgaz, a division of Airgas USA LLC. See *Certificate of Registration of Calgaz Ltd.*, WASH. ST. PATROL (Apr. 28, 2016), https://www.wsp.wa.gov/breathtest/draeger_docs.php (follow “Calgaz Accreditation Certificate 01132017.pdf” hyperlink).

²¹⁷ See, e.g., *Lightfoot*, 2013 Tex. App. LEXIS 9052, at *2.

²¹⁸ See, e.g., *supra* note 202.

²¹⁹ To this end, the Washington State Patrol Breath Test Program’s definition of the external standard contemplates: “[t]he reference standard attached to the instrument and used to provide a known alcohol vapor concentration to *verify the accuracy and proper working order* of the instrument as part of a *field evidentiary breath test*.” WASH. STATE PATROL, *supra* note 203, at 7 (emphasis added).

²²⁰ See *State v. Lui*, 315 P.3d 493, 521 (Wash. 2014) (Stephens, J. dissenting); Jennifer Sullivan, *State Crime-Lab Chief to Resign*, SEATTLE TIMES (Feb. 15, 2008), <https://www.seattletimes.com/nation-world/state-crime-lab-chief-to-resign/>.

²²¹ Sullivan, *supra* note 220.

²²² *Id.*; see *Lui*, 315 P.3d at 521.

II. THE MAKE AND DESIGN OF THE CONFRONTATION CLAUSE: THE MARIAN EXAMINATION AND A CONCERN WITH PROCESS (NOT MERELY FORM)

One would be hard-pressed to write anything about the confrontation clause (or even mention Justice Scalia) without, first, paying homage to its history. Indeed, when one pays close attention to the history surrounding the adoption of the Confrontation Clause, it evidences how the Supreme Court should respond to its forensic evidence confrontation conundrum. The key is process; process over mere form.²²³

A. *The Marian Examination Then and Now—a Problematic, Insulated, Substitute Process*

It is undisputed that the “principal evil” the Confrontation Clause was designed to prevent was the Sixteenth and Seventeenth century Marian examination.²²⁴ In nearly all its primary opinions centered on confrontation, the Supreme Court cites to this problematic historical practice as the impetus for the clause.²²⁵ A careful review of this process, particularly in examining the oft-cited 1603 trial of Sir Walter Raleigh, illustrates that the Framers were concerned not merely with the form of evidence borne out of the Marian examination or the mere use of the examinations, but with the process itself that was meant to serve as a substitute for in-court processes.²²⁶

The problem with how the Marian examination was ultimately implemented in some of our historical cases is that its process became a substitute for that which was supposed to happen in court.²²⁷ Ironically, there is historical support that the Marian committal statute from which the Marian examination was derived was not intended to institute “a system of written evidence.”²²⁸ Interestingly,

²²³ See *People v. Lopez*, 286 P.3d 469, 486 (Cal. 2012) (Liu, J., dissenting).

²²⁴ *Crawford v. Washington*, 541 U.S. 36, 50 (2004).

²²⁵ See, e.g., *Williams v. Illinois*, 567 U.S. 50, 111 (2012) (Breyer, J., concurring) (citing *Davis v. Washington*, 547 U.S. 813, 835 (2006) (Thomas, J., dissenting)); *Michigan v. Bryant*, 562 U.S. 344, 357–58 (2011) (citing *Crawford*, 541 U.S. at 51); *Crawford*, 541 U.S. at 43–44, 50; *White v. Illinois*, 502 U.S. 346, 352 (1992); *White*, 502 U.S. at 361–62 (Thomas, J., concurring) (citing *Dutton v. Evans*, 400 U.S. 74, 94 (1970)); *California v. Green*, 399 U.S. 149, 156 (1970); *Mattox v. United States*, 156 U.S. 237, 242–43 (1895).

²²⁶ See *Crawford*, 541 U.S. at 50.

²²⁷ See *id.* at 43, 50.

²²⁸ LANGBEIN, *supra* note 6, at 24. Justice Scalia also noted in *Crawford* that it was unlikely that the original purpose of the Marian committal statute was to obtain evidence to be used

historian John H. Langbein (who is frequently cited to by the Court) contends that the transcription (within two days) of the oral examination and the certification or physical transmission of the written examination to the courts were conceived as minor administrative matters.²²⁹ The emphasis, Langbein asserts, was on the oral examination: “[t]he predominant purpose of the statute was to institute systematic questioning of the accused and the witnesses.”²³⁰

Regardless of its intended purpose, the Marian examination was used as evidence in some cases, including in the 1603 trial of Sir Walter Raleigh.²³¹ “Justices of the peace or other officials examined suspects and witnesses before trial. These examinations were sometimes read in court in lieu of live testimony, a practice that ‘occasioned frequent demands by the prisoner to have his “accusers,” i.e., the witness against him, brought before him face to face.”²³²

Insulated from testing were certain out-of-court declarants along with their statements and written evidence; instead, the reliability of such things was declared already tested—a sort of “been there, done that, you needn’t worry about it” message to the court and the accused. Such message was loud and clear in Sir Walter Raleigh’s trial.

Much focus has been placed on Raleigh’s trial as the prime example of the principal evil that was the Marian examination. Raleigh was sentenced to death after having been found guilty based, primarily, on his alleged accomplice’s statements.²³³ And there is much discourse that the reason this process was so problematic was the presentation of *ex parte* affidavits in lieu of live testimony to prosecute the defendant.²³⁴ However, in reading the transcript of Raleigh’s trial, what is perhaps most instructive is how the judicial officers reacted when Raleigh challenged the Marian examination process and how Lord Cobham’s statements were obtained by demanding face-to-face confrontation.²³⁵ From their strong

later at trial. *Crawford*, 541 U.S. at 44.

²²⁹ See LANGBEIN, *supra* note 6, at 23.

²³⁰ *Id.*

²³¹ See *Crawford*, 541 U.S. at 44.

²³² *Id.* at 43.

²³³ See *id.* at 44.

²³⁴ See *Dutton v. Evans*, 400 U.S. 74, 94 (1970) (Harlan, J., concurring) (“[T]he paradigmatic evil the *Confrontation Clause* was aimed at [was] trial by affidavit.”); *California v. Green*, 399 U.S. 149, 156 (1970); *Mattox v. United States*, 156 U.S. 237, 242–43 (1895).

²³⁵ JARDINE, *supra* note 7, at 418, 420–22.

reactions,²³⁶ it is evident that they held the process up as solemn, formal, and impenetrably reliable.

At the trial, Lord Chief Justice Popham described the circumstances under which Cobham made his accusation against Raleigh.²³⁷ He reported to the court that when Cobham had reviewed a letter written by Raleigh to Lord Cecil that Cobham exclaimed, “That wretch! that traitor, Raleigh! [H]ath he used me thus? Nay, then, I will tell you all.”²³⁸ Thereafter, Cobham made his accusation and Lord Chief Justice Popham told the court “and surely the countenance and action of my Lord Cobham much satisfied me that what he confessed was true, and that he surely thought Sir W. Raleigh had betrayed him.”²³⁹ Later, Popham claimed, in response to Raleigh’s persistent request for confrontation, that he was worried if Cobham should be forced to testify, that he may recant,

[w]here no circumstances do concur to make a matter probable, then an accuser may be heard; but so many circumstances agreeing and confirming the accusation in this case, the accuser is not to be produced . . . if we shall now hear [Cobham] again in person, he may favour or fear retract what formerly he hath said, and the jury may, by that means, be inveigled.²⁴⁰

The second examination of Cobham was read into evidence; this examination was not signed by Cobham.²⁴¹ Notably, when Raleigh questioned this, the Attorney-General asserted, “[b]eing taken in the presence of so many Privy Councillors, to whom faith must be given, the Declaration is of like force as if it had been subscribed.”²⁴² When the Attorney-General then proceeded to question Raleigh’s doubt in the reliability of Cobham’s examination, the Attorney-General stated that “the Lord Cobham had twice called for the letter, and twice paused a good while upon it.”²⁴³ The Attorney-General went on to note that Cobham’s accusation also implicated himself, making it more believable.²⁴⁴

Significantly, later, Justice Warburton claimed to marvel at

²³⁶ *Id.* at 421–22.

²³⁷ *Id.* at 415.

²³⁸ *Id.*

²³⁹ *Id.*

²⁴⁰ *Id.* at 427.

²⁴¹ *Id.* at 415.

²⁴² *Id.*

²⁴³ *Id.* at 417.

²⁴⁴ *See id.*

Raleigh who remained steadfast in his demand for face-to-face confrontation of Cobham.²⁴⁵ The Justice exclaimed, “for many horse-stealers should escape if they may not be condemned without witnesses. By law, a man may be condemned *upon presumption and circumstances*, without any witness to the main fact.”²⁴⁶ Raleigh aptly responded: “Yet by your favour, my Lord, the trial of fact at the common law is by jury and witnesses.”²⁴⁷

The process was the issue in Marian examinations. The inferred reliability of out-of-court evidence attained by what judicial officers of that time believed to be commendable, formal, and solemn procedures.²⁴⁸ That Popham believed Cobham’s accusations to be true by witnessing its delivery.²⁴⁹ That the Attorney-General asked the fact finders to presume reliability of Cobham’s examination because it was taken before so many Privy Councillors, whom should be trusted.²⁵⁰ That Cobham thought long and hard and deeply considered his accusation before so making it.²⁵¹ All of this supports that the Raleigh court believed the Marian examination to be a trustworthy process. Warbuton’s comments, that a man may be condemned upon presumption and circumstances without witness, resemble those of Justices Kennedy, Alito, and Breyer when discussing forensic evidence, its processes, and its analysts.²⁵²

Forensic science and its processes are the Twenty-First century Marian examination. The very same insulation and presumptions that plagued the Marian examination are at work when modern-day courts do not require confrontation to test the reliability and accuracy of the performing analyst’s work.²⁵³ Justice Alito described the DNA report in *Williams* as having been prepared by a “modern, accredited laboratory,” asserting that it bore “little if any resemblance to the historical practices that the Confrontation Clause aimed to eliminate.”²⁵⁴ Justice Breyer referred to the analysts who developed the relevant DNA profile as “professional analysts working on

²⁴⁵ *Id.* at 421.

²⁴⁶ *Id.* (emphasis added).

²⁴⁷ *Id.*

²⁴⁸ *See id.* at 420.

²⁴⁹ *Id.* at 415.

²⁵⁰ *Id.*

²⁵¹ *Id.* at 417.

²⁵² *See Williams v. Illinois*, 567 U.S. 50, 62 (2012); *Williams*, 567 U.S. at 93 (Breyer, J., concurring); *Bullcoming v. New Mexico*, 564 U.S. 647, 681 (2011) (Kennedy, J., dissenting); *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 345–46, 351 (2009) (Kennedy, J., dissenting); JARDINE, *supra* note 7, at 421.

²⁵³ *See, e.g., Williams v. Illinois*, 567 U.S. 50, 62 (2012).

²⁵⁴ *Id.* at 86 (quoting *Michigan v. Bryant*, 562 U.S. 344, 379 (2011) (Thomas, J., concurring)).

technical matters at a certified laboratory.”²⁵⁵ He also suggested that the lower courts could “create an exception that presumptively would allow introduction of DNA reports from accredited crime laboratories.”²⁵⁶ Justice Kennedy has condoned the use of lab reports like that in *Bullcoming*, labelling them impartial reports “prepared by experienced technicians in laboratories that follow professional norms and scientific protocols.”²⁵⁷

Although within the context of separating “analyst” from “conventional witness,” Justice Kenney has, nonetheless, acknowledged the danger that the Confrontation Clause was designed to prevent:

The danger is that innocent defendants may be convicted on the basis of unreliable, untested statements by those who observed—or claimed to have observed—preparation for or commission of the crime. And, of course, those statements might not have been uttered at all or—even if spoken—might not have been true.²⁵⁸

To be clear, even though there may be some notable differences between an “analyst”²⁵⁹ and a “conventional witness,” the same level of insulation that the Court has been unwilling to accept in the more traditional context is becoming readily acceptable in the forensic

²⁵⁵ *Williams*, 567 U.S. at 93 (Breyer, J., concurring).

²⁵⁶ *Id.* Justice Breyer then suggests that if there was “significant reason to question a laboratory’s technical competence or its neutrality, the presumptive exception would disappear,” requiring the prosecution to call the proper witnesses. *Id.*

²⁵⁷ *Bullcoming v. New Mexico*, 564 U.S. 647, 681 (2011) (Kennedy, J., dissenting); *see also Melendez-Diaz*, 557 U.S. at 351 (Kennedy, J., dissenting) (“The modern trend in the state courts has been away from the Court’s rule and toward the admission of scientific test results without testimony—perhaps because the States have recognized the increasing reliability of scientific testing.”). Justice Kennedy has also equated forensic analysts to “copyists” who, in the 19th century, would create copies of the original records; these copies were relied upon by the prosecution in order to introduce records into evidence at trial as the originals could not be taken from the archives. *Melendez-Diaz*, 557 U.S. at 347. Thus, Justice Kennedy asserts that “the copyist’s honesty and diligence are just as important as the analyst’s [in *Melendez-Diaz*].” *Id.* Here, Justice Kennedy fails to appreciate the analytical demands of forensic analysts, analogizing them to mere copyists, as well as the impact of cognitive bias on their work, especially when (like many laboratories across the nation) the testing laboratory is attached to a law enforcement entity. *See AAFS Workshop*, BOARD FORENSIC DOCUMENT EXAMINERS, https://www.bfde.org/cognitive_bias.html (last visited Apr. 22, 2019) (describing the concept and impact of cognitive bias in forensic analytical work); *see, e.g., About Us*, WASH. ST. PATROL, <http://www.wsp.wa.gov/about-us/bureaus/> (last visited Apr. 21, 2019) (“The Crime Laboratory Division provides forensic science services to local, state, and federal law enforcement agencies throughout Washington.”).

²⁵⁸ *Bullcoming*, 564 U.S. at 680 (Kennedy, J., dissenting).

²⁵⁹ *Melendez-Diaz*, 557 U.S. at 330, 332–33 (Kennedy, J., dissenting) (discussing who may be considered an “analyst” under the majority’s confrontation clause interpretation).

evidence context.

Take for instance the DNA process, if the Supreme Court were to adopt a surrogate witness rule (i.e., where a surrogate who has had, arguably, more connection to the testing process than the surrogate presented in the *Bullcoming* case is permitted to testify in lieu of the performing analyst)²⁶⁰ akin to what is steadily being implemented by lower courts that would be wholly unacceptable. Specifically, insulated from reliability testing are all those tasks the surrogate did not personally observe—extraction, quantification, amplification, capillary electrophoresis, and (in some cases) interpretation of the electropherograms (as some courts have held that only the comparison of DNA profiles is “inculpatory”).²⁶¹ As has been previously noted, each of those steps is subject to error; error that will be shielded from challenge should only the surrogate have to testify. This is how forensic evidence has become the modern-day Marian examination. There have been too many instances of flawed, mistaken, and dishonest forensic analysis to grant just this one (surrogate) exception to the Confrontation Clause.²⁶²

B. A Concern with Formal Process, Not Mere Form

It is no wonder after reading Raleigh’s trial transcript that the Framers were up in arms about the Marian examination. The Raleigh court viewed Cobham’s examinations as properly insulated from cross-examination by Raleigh because of perceived reliability, formality, and solemnity of the process through which Cobham’s statements were obtained.²⁶³ Apparently, a formal enough process had taken place before trial in the court’s mind.²⁶⁴ Specifically, references to the circumstances in which Cobham made his statements and to whom he made them were frequent during trial.²⁶⁵ It did not matter that one of Cobham’s examinations was unsworn; it was the process and its perceived formality and solemnity that insulated Cobham from reliability testing and embraced notions of

²⁶⁰ See *Bullcoming*, 564 U.S. at 652–55; *id.* at 672–73 (Sotomayor, J., concurring in part).

²⁶¹ See Brief of Amicus Curiae the Innocence Network, Williams, *supra* note 29, at 23–24, 29–30, 31; see, e.g., *State v. Lui*, 315 P.3d 493, 508 (Wash. 2014).

²⁶² See, e.g., *Commonwealth v. Chmiel*, 173 A.3d 617, 632–33 (Pa. 2017) (Mundy, J., dissenting) (discussing the 2012 Department of Justice and Federal Bureau of Investigation review of microscopic hair examination and widespread flawed forensic testimony in such cases).

²⁶³ See JARDINE, *supra* note 7, at 409, 415, 417, 421.

²⁶⁴ See *id.* at 415, 417, 421.

²⁶⁵ See *id.* at 409, 415, 417, 421.

inherent reliability that were at the core of Raleigh's demise.²⁶⁶ It was a concern over process, not mere form.

As Justice Thomas constantly reminds, it is those statements that are sufficiently "formal" or "solemn" that are captured by the Confrontation Clause.²⁶⁷ Justice Sotomayor has also aptly pointed out the importance of "formality" to confrontation analysis, highlighting that the forensic report at issue in *Bullcoming* was inherently formal, which "suggest[ed] its evidentiary purpose."²⁶⁸ Justice Thomas's "formality and solemnity" approach, however, unduly focuses on the form or format of documentary evidence sought to be introduced at trial rather than the process that elicited the statements in the first place.²⁶⁹ Thus, his approach must be modified to better align with history. It is worth recalling that historian Langbein has pointed out that the recording and transcription of the end results of the Marian examination were merely administrative matters (i.e., akin to mere form); in other words, the crux of the Marian examination was the oral examination of witnesses and the accused (i.e., the process).²⁷⁰ Raleigh's trial transcript also provides support that it was the process that was emphasized by the judicial officers, i.e., the process that obtained Cobham's statements that was exceptional in their view, not merely the form of his letters or statements.²⁷¹ Indeed, one of Cobham's examinations was not sworn.²⁷²

That the Framers' primary concern was about process over mere form is supported not just by the Raleigh trial transcript, but also by the Supreme Court's emphasis—over years of confrontation clause analysis—on process over form, particularly when it comes to determining the formality of statements.²⁷³ Where Justice Thomas's

²⁶⁶ See *id.* at 409, 415.

²⁶⁷ See, e.g., *Williams v. Illinois*, 567 U.S. 50, 103–04 (2012) (Thomas, J., concurring) (quoting *Michigan v. Bryant*, 562 U.S. 344, 378 (2011) (Thomas, J., concurring)).

²⁶⁸ *Bullcoming v. New Mexico*, 564 U.S. 647, 671 (2011) (Sotomayor, J., concurring).

²⁶⁹ See, e.g., *Williams*, 567 U.S. at 111 (Thomas, J., concurring) (citing *Bryant*, 562 U.S. at 379) (distinguishing an informal questioning from formalized testimonial materials); *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 329–30 (2009) (Thomas, J., concurring) (citing *White v. Illinois*, 502 U.S. 346, 365 (1992)) ("[M]y position [is] that 'the Confrontation Clause is implicated by extrajudicial statements only insofar as they are contained in formalized testimonial materials.'").

²⁷⁰ See LANGBEIN, *supra* note 6, at 23–24.

²⁷¹ See JARDINE, *supra* note 7, at 415, 417, 421, 427.

²⁷² *Id.* at 415.

²⁷³ See, e.g., *Williams*, 567 U.S. at 111 (Thomas, J., concurring) (citing *Bryant*, 562 U.S. at 379) (where Thomas draws upon historical practices of interrogation and finds that the police questioning in the instant case was not, *inter alia*, "a formalized dialogue") (internal citations omitted).

approach is lacking in emphasis on process, a dissenting opinion in California provides instructive analysis of why process over form illustrates what statements are formal.²⁷⁴ As Justice Liu of the California Supreme Court wrote in his dissent in *People v. Lopez*, “a careful reading of the Supreme Court’s decisions suggests that the proper determination of a statement’s formality for purposes of the *confrontation clause* is closely intertwined with the nature and purpose of the process that procured the statement.”²⁷⁵

In analyzing *Crawford*, Justice Liu found that the Court paid special attention to the process used to obtain out-of-court statements; he paid particular close attention to the passage where *Crawford* explained that,

[a]n accuser who makes a formal statement to government officers bears testimony in a sense that a person who makes a casual remark to an acquaintance does not. The constitutional text, like the history underlying the common-law right of confrontation, thus reflects an especially acute concern with a specific type of out-of-court statement.²⁷⁶

Justice Liu noted that “[w]hile this reference to a ‘type’ of statement could be read to pertain to the statement’s *format*, the high court paid special attention to *processes* driven by government officers”²⁷⁷

Justice Liu then examined the importance of process that informed the *Davis* decision; there, Justice Liu emphasized that the Supreme Court compared Michelle McCottry’s 911 call to Sylvia Crawford’s statements, observing that,

the difference in the level of formality between the two interviews is striking. Crawford was responding calmly, at the station house to a series of questions, with the officer-interrogator taping and making notes of her answers; [here, the declarant’s] frantic answers were provided over the phone, in an environment that was not tranquil, or even (as far as any reasonable 911 operator could make out) safe.²⁷⁸

Justice Liu noted that these considerations related to context led

²⁷⁴ See *People v. Lopez*, 286 P.3d 469, 485, 486 (Cal. 2012) (Liu, J., dissenting).

²⁷⁵ *Id.* at 486 (emphasis in original).

²⁷⁶ *Id.* (citing *Crawford v. Washington*, 541 U.S. 36, 51 (2004)).

²⁷⁷ *Lopez*, 286 P.3d at 486 (emphasis in original).

²⁷⁸ *Lopez*, 286 P.3d at 487 (quoting *Davis v. Washington*, 547 U.S. 813, 827 (2006)).

the Court to the application of its “primary purpose” rule and to find that the purpose of the 911 call was to aid police in an ongoing emergency.²⁷⁹ Justice Liu concluded, “[a]s these passages from *Davis* make clear, the high court focused on the process by which an out-of-court statement was generated, not the ultimate format of the resulting statement.”²⁸⁰

Significantly, Justice Scalia has commented that “[t]he right to confrontation was not invented in response to the use of the *ex parte* examinations in *Raleigh’s case*. That use provoked such an outcry precisely because it flouted the deeply rooted common-law tradition ‘of live testimony in court subject to adversarial testing.’”²⁸¹ Even Justice Thomas has, on occasion, emphasized process over form; for example, in *Davis*, in support of his belief that affidavits, depositions, prior testimony, and confessions were “formalized testimonial materials” captured by the Confrontation Clause, he wrote that such materials “are, by their very nature, taken through a *formalized process*. Likewise, confessions, when extracted by police in a *formal manner*, carry sufficient indicia of solemnity to constitute formalized statements”²⁸²

It was, albeit, a formal and, perhaps, solemn substitute process that produced such disdain for the Marian examination which outright disregarded the preferred common-law practice. It is process that best instructs us not only on what is “formal” or “solemn,” but also what is akin to this “principal evil.”²⁸³

III. THE CURRENT CONFRONTATION CLAUSE NARRATIVE AS APPLIED TO FORENSIC EVIDENCE—THE “CONVENTIONAL WITNESS” RULES TO THE “WHO KNOWS WHAT” IN *WILLIAMS*

In part, Justice Kennedy is correct; analysts and the scientific process are different from the “conventional witnesses” in *Crawford*, *Davis*, and *Bryant*. For one, analysts and the scientific process are (setting aside the emotional and distracted analyst who shows up to work on a bad day) insusceptible to the emotions and motives of the traditional witness.²⁸⁴ That is, what we have seen in the

²⁷⁹ See *Lopez*, 286 P.3d at 487 (citing *Davis*, 547 U.S. at 828).

²⁸⁰ *Lopez*, 286 P.3d at 487.

²⁸¹ *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 315 (citing *Crawford*, 541 U.S. at 43) (emphasis in original) (internal citation omitted).

²⁸² *Davis*, 547 U.S. at 836–37 (Thomas, J., dissenting) (citing *Crawford*, 541 U.S. at 52) (emphasis added).

²⁸³ See *Crawford*, 541 U.S. at 50, 51.

²⁸⁴ See *Melendez-Diaz*, 557 U.S. at 330 (Kennedy, J., dissenting).

“conventional witness” line of cases is the Court’s exploration of the motives and purpose of the typical witness and the life events or circumstances that surrounded the witness at the time of his or her out-of-court statements to determine whether they are “testimonial” and subject to confrontation.²⁸⁵ Science, on the other hand, is the same whether on the outside of the laboratory walls there is an ongoing emergency or a perfectly calm setting, or whether an investigation is early on in its course or it is more calculated and directed toward specific suspects.²⁸⁶ The practices, protocols, and standards inside the laboratory for processing scientific evidence are the same in all situations.²⁸⁷ This is why the “conventional witness” rules—the objective witness rule and the primary purpose rule—as exemplified by the Court’s ruling in *Williams*, do not work in the forensic evidence context.²⁸⁸ Such rules must be abandoned for a modified version of Justice Thomas’s “formality and solemnity” approach where process, not mere form is determinative.

A. The Makings of the Primary Purpose and Objective Witness Rules, the “Conventional Witness” Rules—White, Crawford, and Davis

At first blush, it may seem that the “conventional witness” rules were first borne out of *Crawford* and *Davis*, but a closer look at the arguments put forth by the government in *White* along with Justice Thomas’s concurrence illuminates what was to come to fruition in *Crawford* and *Davis*.²⁸⁹

At the center of dispute in the *White* case was the admissibility of statements made by a four-year-old victim of sexual assault to her mother and a police officer.²⁹⁰ The government argued the admission of these statements did not offend the Confrontation Clause, asserting that because the clause’s purpose was to prevent prosecuting defendants solely through *ex parte* affidavits, it was only those statements that fit such description that must be confronted.²⁹¹ Such argument was made in an attempt by the government to assert

²⁸⁵ See *id.* at 330–31.

²⁸⁶ See *id.* at 345–46.

²⁸⁷ See *id.*

²⁸⁸ See *Williams v. Illinois*, 567 U.S. 50, 117–18 (2012) (Thomas, J., concurring).

²⁸⁹ See *White v. Illinois*, 502 U.S. 346, 364 (1992) (Thomas, J., concurring).

²⁹⁰ See *id.* at 349–50 (majority opinion).

²⁹¹ See *id.* at 352. To be sure, the government also asserted, what aligns with Justice Thomas’s “formalized testimonial materials,” that affidavits, depositions, prior testimony, and confessions would be of relevant character such that they should be confronted. Brief for Respondent at 3, 7–8, *White v. Illinois*, 502 U.S. 346 (1992) (No. 90-6113).

that confrontation did not apply to statements admitted under hearsay exceptions.²⁹²

The Court responded that if that were to be the rule then

[t]he only situation in which the Confrontation Clause would apply to such an exception, [the government] argues, would be those few cases where the statement sought to be admitted was in the character of an *ex parte* affidavit, i.e., where the circumstances surrounding the out-of-court statement's utterance suggest that the statement has been made for the *principal purpose* of accusing or incriminating the defendant.²⁹³

Such characterization of the government's proposed rule by the Court smacks not only of an early version of the *Davis* primary purpose rule,²⁹⁴ but of Justice Alito's accusatory version of the primary purpose rule that baffled Justice Thomas and the dissenters in *Williams*.²⁹⁵ Nonetheless, the *White* court rejected the government's rule as too narrow of a reading of the Confrontation Clause, focusing primarily on the government's position that the clause is governed by the hearsay exceptions.²⁹⁶

In his concurrence, Justice Thomas warned that any attempt to formalize the government's proposed rule, i.e., its "principal purpose" rule, into something more could be problematic.²⁹⁷ "Attempts to draw a line between statements made in contemplation of legal proceedings and those not so made would entangle the courts in a multitude of difficulties."²⁹⁸ Justice Thomas foretold what was to come; the "primary purpose" rule now in existence since *Davis* has, indeed, entangled the courts in great difficulties.²⁹⁹ Here, too, Justice Thomas's "formality and solemnity" requirement is first announced; that is, "the Confrontation Clause is implicated by extrajudicial statements only insofar as they are contained in formalized testimonial materials, such as affidavits, depositions, prior

²⁹² See *White*, 502 U.S. at 352.

²⁹³ *Id.* (emphasis added).

²⁹⁴ See *Davis v. Washington*, 547 U.S. 813, 822 (2006).

²⁹⁵ See *Williams v. Illinois*, 567 U.S. 50, 114 (2012) (Thomas, J., concurring); *id.* at 135 (Kagan, J., dissenting).

²⁹⁶ See *White*, 502 U.S. at 352.

²⁹⁷ See *id.* at 366 (Thomas, J., concurring).

²⁹⁸ *Id.* at 364.

²⁹⁹ See *id.* at 358.

testimony, or confessions.”³⁰⁰

Next, in *Crawford*, the Supreme Court introduced the “objective witness” rule.³⁰¹ The *Crawford* opinion was certainly a landmark one as Justice Scalia rejected the “amorphous notions of ‘reliability’” that had plagued confrontation clause analysis since *Roberts* in 1980, replacing it with a “testimonial” analysis.³⁰² The Court was asked to determine whether the defendant’s wife, Sylvia Crawford, and her statements made to police during an interrogation must have been subject to confrontation.³⁰³ In his quest to answer that question, Justice Scalia conducted two notable analyses. First, in deciphering the Confrontation Clause’s “witnesses against” language, he defined both “witness” and “testimony.”³⁰⁴ The Clause “applies to ‘witnesses’ against the accused—in other words, those who ‘bear testimony.’ ‘Testimony,’ in turn, is typically ‘[a] solemn declaration or affirmation made for the purpose of establishing or proving some fact.’”³⁰⁵ Second, although he need not do this for the case at hand, Justice Scalia created a “core class of ‘testimonial’ statements.”³⁰⁶ It was clear that Sylvia Crawford’s statements made in the course of a police interrogation would meet even the narrowest definition of “testimonial”; however, Justice Scalia still made efforts to start defining what the limits of “testimonial” might be.³⁰⁷

Justice Scalia’s “core class” of “testimonial” statements included Justice Thomas’s “formalized testimonial materials,” but it also included “statements that were made under circumstances which would lead an objective witness reasonably to believe that the statement would be available for use at a later trial.”³⁰⁸ Justice Scalia believed that these formulations shared a “common nucleus”; arguably, that each was meant to be used prosecutorially or had the potential to ultimately serve as a substitute for live in-court testimony.³⁰⁹ In Justice Scalia’s view, statements obtained as an “obvious substitute for live testimony [and] do precisely *what a*

³⁰⁰ *Id.* at 365.

³⁰¹ *See Crawford v. Washington*, 541 U.S. 36, 52 (2004).

³⁰² *See id.* at 61–63.

³⁰³ *See id.* at 38.

³⁰⁴ *Id.* at 51.

³⁰⁵ *Id.* (internal citations omitted).

³⁰⁶ *Id.* at 51–52.

³⁰⁷ *See id.* at 52.

³⁰⁸ *Id.* at 52 (first quoting *White v. Illinois*, 502 U.S. 346, 365 (1992), and then quoting Brief for National Ass’n of Criminal Defense Lawyers et al. as Amici Curiae Supporting Petitioner at 3, *Crawford*, 541 U.S. 36 (No. 2-9410)).

³⁰⁹ *See Crawford*, 541 U.S. at 52.

*witness does on direct examination . . . are inherently testimonial.*³¹⁰

The infamous “primary purpose” rule first entered the scene in *Davis* where the Court was tasked with deciding whether the two scenarios before it—Michelle McCottry’s frantic 911 call and Amy Hammon’s controlled interview with police—violated the Confrontation Clause.³¹¹

Justice Scalia found McCottry’s 911 call to be of a different nature than that of Hammon’s and Sylvia Crawford’s interviews with police.³¹² The Court held that “[statements] are testimonial when the circumstances objectively indicate that there is no . . . ongoing emergency, and that the primary purpose of the [police] interrogation is to establish or prove past events potentially relevant to later criminal prosecution.”³¹³ Although not quite succinctly put by the Court, at its core, the primary purpose rule inquires: were the out-of-court statements intended to serve as “testimony” so defined in *Crawford* as “[a] solemn declaration or affirmation made for the purpose of establishing or proving some fact.”³¹⁴ This version of the “primary purpose” rule was only version 1.0, with many more updates to come.

B. The “Conventional Witness” Rules Evolve—Bryant and Clark

In spite of Justice Scalia’s desire that the “primary purpose” rule be applied by relying only on the point of view of the declarant,³¹⁵ the *Bryant* court expanded the rule to analyzing the surrounding circumstances in which the statements were made, including the intent of others beyond the declarant that are involved, such as the police in the case that was before the Court.³¹⁶ In many respects, Justice Sotomayor’s opinion in *Bryant* was a blast back to the past that was *Roberts*, announcing that the rules of hearsay in identifying other circumstances (besides an ongoing emergency) and the

³¹⁰ *Davis v. Washington*, 547 U.S. 813, 830 (2006).

³¹¹ *See id.* at 817, 819–20.

³¹² *See id.* at 828, 829.

³¹³ *Id.* at 822. Justice Scalia noted that this holding should not imply “that statements made in the absence of any interrogation are necessarily nontestimonial. The Framers were no more willing to exempt from cross-examination volunteered testimony or answers to open-ended questions than they were to exempt answers to detailed interrogation.” *Id.* at 822 n.1 (citing *Raleigh’s Case* (1603) 2 How. St. Tr. 1, 27 (Eng.)) (where a letter presented from Lord Cobham “was plainly not the result of sustained questioning”).

³¹⁴ *Crawford*, 541 U.S. at 51.

³¹⁵ *See Michigan v. Bryant*, 562 U.S. 344, 381 (2011) (Scalia, J., dissenting).

³¹⁶ *See id.* at 359 (majority opinion); *see also Ohio v. Clark*, 135 S. Ct. 2173, 2180 (2013) (“[W]e further expounded on the primary purpose test [in *Bryant*]. The inquiry, we emphasized, must consider ‘all of the relevant circumstances.’”) (quoting *Bryant*, 562 U.S. at 369).

reliability of statements will be relevant to the primary purpose analysis.³¹⁷ The primary purpose rule then morphs into an “objective analysis of the circumstances of an encounter and the statements and actions of all parties” rule.³¹⁸ Justice Sotomayor held “the relevant inquiry is not the subjective or actual purpose of the individuals involved in a particular encounter, but rather the purpose that reasonable participants would have had, as ascertained from the individuals’ statements and actions and the circumstances in which the encounter occurred.”³¹⁹

In *Bryant*, there appeared to be a mixing of the “objective witness” and “primary purpose” rules, with the primary purpose rule taking center stage in later jurisprudence.³²⁰ Indeed, Justice Scalia himself appeared to be embracing that blend—in describing how to assess “the primary purpose of [an] interrogation,” he noted, after referring to the definition of “testimony,” that for an out-of-court statement to be testimonial, the declarant “must make the statement with the understanding that it may be used to invoke the coercive machinery of the State against the accused.”³²¹ Thus, after *Bryant*, the definition of “testimony” and the “objective witness” and “primary purpose” rules, in the “conventional witness” context, appeared to be intimately bound up with one another.

In *Clark*, the High Court’s most recent take on the “conventional witness” confrontation analysis is presented.³²² In that case, the Court applied its newly evolved standard from *Bryant* to statements made by a child to his teachers, breaking the new test down into factors—reminiscent of *Roberts* and a lower court’s nine-factor test that was disregarded in *Crawford*.³²³ Justice Alito, writing for the majority, announced that under the *Bryant* rule, the primary purpose test was but one factor in the analysis, adding that another factor is “the informality of the situation and the interrogation.”³²⁴

³¹⁷ See *Bryant*, 562 U.S. at 358–59.

³¹⁸ *Id.* at 360.

³¹⁹ *Id.*

³²⁰ See *id.* at 360; see, e.g., *Clark*, 135 S. Ct. at 2177.

³²¹ See *Bryant*, 562 U.S. at 381 (Scalia, J., dissenting) (quoting *Davis v. Washington*, 547 U.S. 813, 822 (2006)) (citing Richard D. Friedman, *Crawford and Beyond: Exploring the Future of the Confrontation Clause in Light of Its Past: Grappling with the Meaning of “Testimonial”*, 71 BROOK. L. REV. 241, 259 (2005)).

³²² See *Clark*, 135 S. Ct. at 2181.

³²³ See *id.*; see also *Crawford v. Washington*, 541 U.S. 36, 41, 62–63 (2004) (referring to the Washington Court of Appeals decision in the matter as well as other factor-based tests formerly applied by lower courts as examples that a reliability inquiry was amorphous).

³²⁴ See *Clark*, 135 S. Ct. at 2180–81 (quoting *Bryant*, 562 U.S. at 377) (“Thus, the primary purpose test is a necessary, but not always sufficient, condition for the exclusion of out-of-court statements under the Confrontation Clause.”).

Significantly, here, in the Court's most recent confrontation clause opinion, we see, again, an emphasis on process.

It is against this backdrop that we now turn to how the "conventional witness" rules have been applied in the forensic evidence context, with *Williams* as the prime example of the rules' failings to provide necessary protection to the accused in this "non-conventional" landscape.

*C. First Application of the "Conventional Witness" Rules to Forensic Evidence—Melendez-Diaz*³²⁵

Justice Thomas's early-on and then continued warnings about a "principal" or "primary purpose" rule should have been heeded.³²⁶ He predicted that such a rule would cause the courts to be entangled in great difficulties; he was correct.³²⁷ In addition, as we see in Justice Kennedy's dissents in *Melendez-Diaz* and *Bullcoming* that then make way for the plurality (as well as the concurring opinion of Justice Breyer) in *Williams*, the rules are not fit for the forensic evidence context, and when they are applied, it is by way of unpredictable, open-ended interpretation.³²⁸ This, although the Court has taken great care to point out the unacceptability of open-ended exceptions to the Confrontation Clause.³²⁹ With the application of the "conventional witness" rules to this "non-conventional" context, forensic evidence has become the feared open-ended exception to

³²⁵ It should be noted that both *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 331–32 (2009) and *Bullcoming v. New Mexico*, 564 U.S. 647 (2011) were decided before *Bryant* and the morphing of the primary purpose rule mentioned in Part III B.

³²⁶ See *Williams v. Illinois*, 567 U.S. 50, 114, 115 (2012) (Thomas, J., concurring) (expressing the difficulty in applying the primary purpose rule and the lack of historical support for the newer version of that rule adopted by the plurality); *Bryant*, 562 U.S. at 378–79 (Thomas, J. concurring) (quoting *Davis v. Washington*, 547 U.S. 813, 838–39 (2006)) ("I have criticized the primary-purpose test as 'an exercise in fiction' that is 'disconnected from history' and 'yields no predictable results.'"); *Davis*, 547 U.S. at 838, 839 (Thomas, J., concurring in part and dissenting in part) (quoting *New York v. Quarles*, 467 U.S. 649, 656 (1984)) ("Assigning one of these two 'largely unverifiable motives,' primacy requires constructing a hierarchy of purpose that will rarely be present—and is not reliably discernible. It will inevitably be, quite simply, an exercise in fiction.").

³²⁷ See *Williams*, 567 U.S. at 114 (Thomas, J., concurring) (citing *Davis*, 547 U.S. at 839); *Davis*, 547 U.S. at 834 (Thomas, J., concurring in part and dissenting in part).

³²⁸ See generally *Williams*, 567 U.S. at 57–58, 86–102 (Breyer, J., concurring); *Bullcoming*, 564 U.S. at 674–84 (Kennedy, J., dissenting); *Melendez-Diaz*, 557 U.S. at 331–32, 343, 357 (Kennedy, J., dissenting) (arguing the confrontation rules from *Crawford* and *Davis* should not apply, but then, essentially, asserts that forensic evidence should fall outside the Clause's reach).

³²⁹ See *Crawford v. Washington*, 541 U.S. 36, 54 (2004) ("The text of the Sixth Amendment does not suggest any open-ended exceptions from the confrontation requirement to be developed by the courts.").

confrontation.

The first application of these rules in the forensic evidence context occurred in *Melendez-Diaz*. There, the Court was tasked with deciding whether certificates of analysis concluding that a tested substance was, indeed, a controlled substance, i.e., cocaine, could be admitted without live testimony by the analysts who wrote the certificates.³³⁰ The Court determined that, without live testimony, the admission of the certificates of analysis violated the Confrontation Clause.³³¹ Justice Scalia found “little doubt” that the certificates fell within the “core class of testimonial statements,” where affidavits was mentioned twice.³³² He noted that certificates were “incontrovertibly” testimony and were “functionally identical to live, in-court testimony, doing ‘precisely what a witness does on direct examination.’”³³³

Despite having already found the certificates to be “affidavits” (and, therefore, safely a part of the protected “core class of testimonial statements”), Justice Scalia went on to find that the objective witness and primary purpose rules were met.³³⁴ Specifically, he noted that not only were the certificates “made under circumstances which would lead an objective witness reasonably to believe that the statement would be available for use at a later trial,” but also under the state law at issue their sole purpose was to provide prima facie evidence relevant to the analyzed substance.³³⁵ “We can safely assume that the analysts were aware of the affidavits’ evidentiary purpose,” Scalia remarked, as the relevant state law was reprinted on the certificates.³³⁶ Unsurprisingly, Justice Thomas would have stopped the analysis much sooner, joining the opinion only because the certificates were “plainly affidavits.”³³⁷

Nevertheless, the majority in *Melendez-Diaz* did clarify that it did not anticipate every witness who had touched the evidence must be called to testify.³³⁸ Specifically, as explained in a footnote and in an attempt to answer the what or who is an “analyst” question, the Court briefly commented “we do not hold, and it is not the case, that anyone whose testimony may be relevant in establishing the chain of

³³⁰ See *Melendez-Diaz*, 557 U.S. at 308–09.

³³¹ See *id.* at 310–11.

³³² See *id.* at 310.

³³³ *Id.* at 310–11 (quoting *Davis v. Washington*, 547 U.S. 813, 830 (2006)).

³³⁴ See *id.* at 311.

³³⁵ *Id.* at 311 (quoting *Crawford v. Washington*, 541 U.S. 36, 52 (2004)).

³³⁶ *Id.* at 311.

³³⁷ See *id.* at 330 (Thomas, J., concurring).

³³⁸ See *id.* at 311 n.1 (majority opinion).

custody, authenticity of the sample, or accuracy of the testing device, must appear in person as part of the prosecution's case."³³⁹ There, the Court also added that "documents prepared in the regular course of equipment maintenance may well qualify as nontestimonial records."³⁴⁰ This note has become popularly cited among the states, particularly in the wake of *Williams*.³⁴¹

Although the majority opinion in *Melendez-Diaz* interpreted the Confrontation Clause such that sufficient protection may be provided in other similarly situated cases where forensic reports, in their format, replicated affidavits, its unnecessary application of the "conventional witness" rules left much to be desired.³⁴² There was no clarification on how the "objective witness" or "primary purpose" rule should be applied in instances where a forensic report, such as the one before it that was virtually identical to an affidavit, was not admitted, but expert testimony ensued.³⁴³

Meanwhile, the dissent in *Melendez-Diaz* laid out what was to become an initial version of the *Williams* plurality, supporting a forensic evidence exception to the Confrontation Clause by advancing notions of "amorphous reliability," i.e., that science is different and inherently reliable unlike the "conventional witness."³⁴⁴ This, too, is where Justice Kennedy asked one of those attendant questions of the forensic evidence confrontation inquiry (still out there waiting to be answered by the Court); who or what is an analyst?³⁴⁵ Justice Kennedy then proceeded down the slipperiest of slopes where he suggested that even chain of custody witnesses may be swept into the Clause's reach under the majority's rule.³⁴⁶

In his dissent, he also referenced what was, perhaps, the Court's earliest version of the surrogate witness—the laboratory director who, Kennedy asserted, "is arguably the most effective person to confront . . ."³⁴⁷ Justice Kennedy recommended other mechanisms, beyond the Confrontation Clause, that would be, in his view, more appropriate for challenging forensic evidence, such as retesting by the defense, the state's burden to prove the case beyond a reasonable

³³⁹ *Id.*

³⁴⁰ *Id.*

³⁴¹ This point will be further explored in Part IV where some of the most common lower court approaches to forensic evidence confrontation are analyzed.

³⁴² See *Melendez-Diaz*, 557 U.S. at 322–23.

³⁴³ See *id.* at 311.

³⁴⁴ See *Melendez-Diaz*, 557 U.S. at 343–52 (Kennedy, J., dissenting).

³⁴⁵ See *id.* at 333–34.

³⁴⁶ See *id.* at 335–36.

³⁴⁷ See *id.* at 334.

doubt, and the evidence rules.³⁴⁸ Regardless of how misguided the dissent was to presume confrontation would not or is not necessary to test the reliability of forensic evidence, it was on point when it accused the majority of “wooden application” of the *Crawford* and *Davis* rules.³⁴⁹ “There is nothing predictable here . . . other than uncertainty and disruption that now must ensue.”³⁵⁰ There was quite clearly two, perhaps three camps, forming—one that believed the “conventional witness” rules could be bootstrapped to forensic evidence confrontation analysis; another that believed forensic evidence was excepted from confrontation; and, then, Justice Thomas and his “formality and solemnity” requirement.³⁵¹

*D. No Surrogates (at Least Not the Razatos Kind) Allowed—
Bullcoming*

Two years later, the Court had before it a live witness with a report, just not the proper witness. In *Bullcoming*, the state sought to admit a blood test report through testifying analyst Razatos who worked in the same laboratory as the performing analyst, Caylor, and was aware of the testing laboratory’s protocols.³⁵² There was not much known about Caylor other than he had been placed on unpaid leave for an undisclosed reason.³⁵³ Justice Ginsburg, writing for the Court, rejected Razatos as an appropriate surrogate, finding “surrogate testimony of the kind Razatos was equipped to give could not convey what Caylor knew or observed about the events his certification concerned, i.e., the particular test and testing process he employed. Nor could such surrogate testimony expose any lapses or lies on the certifying analyst’s part.”³⁵⁴

Critically, Justice Ginsburg also held that despite the unsworn blood test report, “the formalities attending the ‘report of blood alcohol analysis’ [were] more than adequate to qualify Caylor’s assertions as testimonial.”³⁵⁵ Notably, Justice Ginsburg makes what the author believes to be an initial attempt to describe science as

³⁴⁸ See *id.* at 338, 339–40 (first citing *United States v. U.S. Gypsum Co.*, 438 U.S. 422, 446 (1978); and then citing *Holms v. South Carolina*, 547 U.S. 319, 331 (2006)).

³⁴⁹ See *Melendez-Diaz*, 557 U.S. at 337.

³⁵⁰ *Id.*

³⁵¹ See *id.* at 315, 323; *id.* at 329 (Thomas, J., concurring) (quoting *White v. Illinois*, 502 U.S. 346, 365 (1992) (Thomas, J., concurring in part)).

³⁵² See *Bullcoming v. New Mexico*, 564 U.S. 647, 651, 655 (2011).

³⁵³ See *id.* at 659.

³⁵⁴ *Id.* at 661–62.

³⁵⁵ *Id.* at 665; see also *Crawford v. Washington*, 541 U.S. 36, 52 (2004) (“[T]he absence of oath was not dispositive”).

formal; she wrote “[l]ike the *Melendez-Diaz* certificates, Caylor’s certificate is ‘formalized’ in a signed document, headed a ‘report.’ Noteworthy as well, the SLD report form contains a legend referring to municipal and magistrate courts’ rules that provide for the admission of certified blood-alcohol analyses.”³⁵⁶ Recall, also, that in the *Melendez-Diaz* certificates the applicable state law was recited on the report.³⁵⁷

Significantly, most of the footholds for future (now present) discourse about who might be an appropriate surrogate witness in the forensic evidence context can be found in Justice Sotomayor’s concurring opinion in *Bullcoming*.³⁵⁸ Many states have relied upon Justice Sotomayor’s examples of what might make for a good surrogate witness.³⁵⁹ In her concurrence, Justice Sotomayor lays out four examples of cases *Bullcoming* was not; three of those examples are most relevant to this discussion.³⁶⁰ First, subject of much lower court exploration is Justice Sotomayor’s note that this was not a case where “the person testifying is a supervisor, reviewer, or someone else with a personal, albeit limited, connection to the scientific test at issue.”³⁶¹ Justice Sotomayor suggested that the *Bullcoming* case would have been different in her eyes if “a supervisor who observed an analyst conducting a test” was the surrogate witness; however, she did not expand upon what level of involvement would suffice since Razatos had played no role at all.³⁶²

Next, Justice Sotomayor highlighted that this was not a case where “an expert witness was asked for his independent opinion about underlying testimonial reports that were not themselves admitted”³⁶³ One year later, in *Williams*, the plurality highlighted this portion of Justice Sotomayor’s concurrence in *Bullcoming*, suggesting that the *Williams* fact pattern presented such a case.³⁶⁴ Finally, Justice Sotomayor found that this was not a

³⁵⁶ See *Bullcoming*, 546 U.S. at 665 (quoting *Davis v. Washington*, 547 U.S. 813, 837 n.2 (2006) (Thomas, J., concurring in part, dissenting in part)).

³⁵⁷ See *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 311 (2009).

³⁵⁸ See *Bullcoming*, 546 U.S. at 668–74 (Sotomayor, J., concurring in part).

³⁵⁹ See, e.g., *Marshall v. People*, 2013 CO 51, ¶ 17; *State v. Watson*, 185 A.3d 845, 857–58 (N.H. 2018); *State v. Michaels*, 95 A.3d 648, 662 (N.J. 2014); *State v. Lopez*, 45 A.3d 1, 13 (R.I. 2012).

³⁶⁰ See *Bullcoming*, 546 U.S. at 672–74 (Sotomayor, J., concurring in part).

³⁶¹ *Id.* at 672.

³⁶² *Id.* at 673.

³⁶³ *Id.* (citing FED. R. EVID. 703).

³⁶⁴ See *Williams v. Illinois*, 567 U.S. 50, 67 (2012).

In concurrence, Justice Sotomayor highlighted the importance of the fact that the forensic report had been admitted into evidence for the purpose of proving the truth of the matter

case “in which the State introduced only machine-generated results, such as a printout from a gas chromatograph.”³⁶⁵ Thus, she indicated that the Court did not need to find whether raw data in conjunction with expert testimony (via a surrogate witness) was appropriate.³⁶⁶

In his *Bullcoming* dissent, Justice Kennedy expanded upon what he had previously stated in his *Melendez-Diaz* dissent.³⁶⁷ One fundamental flaw in his dissent was when Justice Kennedy relied upon the record that “the certifying analyst’s role here was no greater than that of anyone else in the chain of custody.”³⁶⁸ For support, he cited to trial testimony that “once the material is prepared and placed into the machine, you don’t need any particular expertise to record the results” and found Caylor (the certifying analyst) to be comparable to a mere chain of custody witness.³⁶⁹ That is simply not the case.

In Part I of this article, blood testing and its procedures are summarized based on the very briefing that was before the Court in *Bullcoming*.³⁷⁰ After the machine produces results, the GC graphs must necessarily be reviewed and judgment calls made as to any unknown peaks or co-elution (or the lack thereof).³⁷¹ In addition, as Justice Ginsburg relays in footnote eight of the opinion, “[a]t *Bullcoming*’s trial, Razatos acknowledged that ‘you don’t know unless you actually observe the analysis that someone else conducts, whether they followed th[e] protocol in every instance.’”³⁷²

Another problematic component to Justice Kennedy’s dissent was his willingness to judge science as reliable without more process, referring to the lab report as impartial and the product of “experienced technicians in laboratories that follow professional

it asserted. She emphasized that “this [was] not a case in which an expert witness was asked for his independent opinion about underlying testimonial reports that were not themselves admitted into evidence.”

Id. (quoting *Bullcoming*, 564 U.S. at 673 (Sotomayor, J., concurring in part)). “We would face a different question,” she observed, “if asked to determine the constitutionality of allowing an expert witness to discuss others’ testimonial statements if the testimonial statements were not themselves admitted as evidence.” *See Bullcoming*, 564 U.S. at 673. “We now confront that question.” *See Williams*, 567 U.S. at 67.

³⁶⁵ *See Bullcoming*, 564 U.S. at 673.

³⁶⁶ *See id.* at 674.

³⁶⁷ *See id.* at 674–75 (Kennedy, J., dissenting) (citing *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 330–32 (2009) (Kennedy, J., dissenting)).

³⁶⁸ *See Bullcoming*, 564 U.S. at 676.

³⁶⁹ *See id.*

³⁷⁰ *See supra* Part I.

³⁷¹ *See supra* text accompanying notes 169–73.

³⁷² *See Bullcoming*, 564 U.S. at 662 n.8 (alteration in original).

norms and scientific protocols.”³⁷³ This is frightfully reminiscent of Sir Walter Raleigh’s trial transcript where judicial officers Popham, Warbuton, and the Attorney General spoke highly of the process that had already occurred prior to trial.³⁷⁴ And it is notable because in just one year’s time, Justice Kennedy found himself in good company with Justice Alito and the plurality in *Williams* where application of the “conventional witness” rules aligned with much of Justice Kennedy’s *Melendez-Diaz* and *Bullcoming* dissents.³⁷⁵

However, Justice Kennedy correctly continued to point out that the wooden application of rules from *Crawford* and *Davis* would not hold, noting “[t]he persistent ambiguities in the Court’s approach [were] symptomatic of a rule not amenable to sensible applications.”³⁷⁶ The groundwork had been laid in *Melendez-Diaz* and *Bullcoming* for the want of an approach that would fit the forensic evidence context, but instead we received a fractured, convoluted opinion from the High Court in *Williams*.

E. The Need to Abandon the “Conventional Witness” Rules in the Forensic Evidence Context—Williams

The truest part of the *Williams* opinion was, quite possibly, Justice Kagan’s foretelling in her dissent: “What comes out of four Justices’ desire to limit *Melendez-Diaz* and *Bullcoming* in whatever way possible, combined with one Justice’s one-justice view of those holdings, is—to be frank—who knows what.”³⁷⁷ Indeed, Justice Kagan referred to Justice Alito’s opinion as the “plurality” for tradition’s sake, but for no other reason.³⁷⁸ “Five Justices specifically reject every aspect of its reasoning and every paragraph of its explication.”³⁷⁹

As previously noted, *Williams* involved a case where an outside laboratory, Cellmark, generated a DNA profile for key crime scene evidence, i.e., the vaginal swabs of a rape victim.³⁸⁰ Thereafter, the state crime laboratory analyst compared that profile with a sample

³⁷³ See *id.* at 681 (Kennedy, J., dissenting).

³⁷⁴ See JARDINE, *supra* note 7, at 417–18, 421, 422, 427.

³⁷⁵ See *Williams v. Illinois*, 567 U.S. 50, 57–58, 66, 88–89 (2012) (first quoting *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 330 (2009) (Kennedy, J., dissenting); and then quoting *Bullcoming*, 564 U.S. at 674–75 (Kennedy, J., dissenting)) (citing *Bullcoming*, 564 U.S. at 679–80 (Kennedy, J., dissenting)).

³⁷⁶ See *Bullcoming*, 564 U.S. at 679 (Kennedy, J., dissenting).

³⁷⁷ See *Williams*, 567 U.S. at 141 (Kagan, J., dissenting).

³⁷⁸ See *id.* at 120.

³⁷⁹ See *id.*

³⁸⁰ See *id.* at 61 (plurality opinion).

DNA profile belonging to the defendant.³⁸¹ Ultimately, she testified that the profiles matched.³⁸² Problematically, no analyst from Cellmark testified about the generation of the profile from the rape kit evidence.³⁸³ Instead, the testifying analyst (from the state crime laboratory) relied upon the Cellmark profile and presumed it reliable based on her prior experience with Cellmark.³⁸⁴ This analyst did not perform or observe the Cellmark testing nor did she review the raw data generated from the testing.³⁸⁵

Justice Alito, writing for the plurality, suggested two ways in which the insulation of the Cellmark DNA profile (not generated by the surrogate witness or even done so in her laboratory) was acceptable.³⁸⁶ First that the Cellmark DNA profile was not used to prove the truth of the matter it asserted, but rather for the surrogate expert's opinion.³⁸⁷ Justice Alito's analysis bore striking resemblance to the days of "firmly rooted exceptions" of the hearsay rule as the guidepost for confrontation analysis that was *Roberts* and uprooted by Justice Scalia eight years earlier in *Crawford*.³⁸⁸ The five other justices (Justice Thomas in his concurrence in judgment and the dissenters) made quick haste with this open-ended exception to the Confrontation Clause, asserting that it would be hard to imagine an instance where information supporting an expert's opinion would not also have to be true for such opinion to be proper.³⁸⁹ Justice Thomas remarked, "[t]here is no meaningful distinction between disclosing an out-of-court statement so that the factfinder may evaluate the expert's opinion and disclosing that statement for its truth."³⁹⁰

Sensing that the "it was not offered for its truth" argument may not prove to be convincing, Justice Alito provided a second rationale for his decision that the Cellmark DNA profile was not "testimonial."³⁹¹ Critically, it is this analysis and Alito's application of the "conventional witness" rules in the forensic evidence setting that demonstrated the extreme malleability of such rules. Justice Alito professed that the primary purpose of the Cellmark DNA profile

³⁸¹ *See id.*

³⁸² *See id.* at 77.

³⁸³ *See id.* at 88 (Breyer, J., concurring); *id.* at 119–20 (Kagan, J., dissenting).

³⁸⁴ *See id.* at 60–61, 62 (plurality opinion).

³⁸⁵ *See id.* at 62.

³⁸⁶ *See id.* at 57–58.

³⁸⁷ *See id.* at 58.

³⁸⁸ *See id.* at 120–21 (Kagan, J., dissenting).

³⁸⁹ *See id.* at 120; *id.* at 106 (Thomas, J., concurring).

³⁹⁰ *Id.* at 106 (Thomas, J., concurring).

³⁹¹ *See id.* at 81–82, 84 (plurality opinion).

was to “catch a dangerous rapist who was still at large, not to obtain evidence for use against petitioner, who was neither in custody nor under suspicion at that time.”³⁹² Justice Alito also implicitly cited to the “objective witness” rule in finding, through the perspective of the Cellmark analysts (and other analysts who prepare DNA profiles), they would have “no way of knowing whether [the profile] will turn out to be incriminating or exonerating—or both.”³⁹³ Of course, this “new” version of the primary purpose rule was met with aghast by the five other justices.³⁹⁴

That four justices could go so far afield from past precedents should and did give the Court pause. The “conventional witness” rules should not be copied and pasted over into the forensic evidence context. Science, as Justice Kennedy has reminded us on occasion, is different.³⁹⁵ If left to an approach Justice Breyer had on his mind in *Williams* with regard to DNA reports,³⁹⁶ the constitutional guarantee of confrontation in the Twenty-First century and beyond is in real trouble. There is urgent need for a new workable rule that provides the necessary guarantees of testing in the crucible with regard to forensic evidence. The lower courts that see this kind of evidence far more frequently require guidance from the High Court now. What came of *Williams* at the state level is in line with Justice Kagan’s “who knows what” prediction.

IV. THE PATH OF MUCH CONFUSION AND ARBITRARINESS: LOWER COURTS FERRYING IN THE UNMANAGEABLE WAKE OF *WILLIAMS*

Words like “muddled” and “abyss” have been used by the lower courts to describe the state of the Supreme Court’s confrontation clause doctrine in the forensic evidence context.³⁹⁷ One unlucky lower court heard a case that was actually pending throughout the triffecta—*Melendez-Diaz*, *Bullcoming*, and *Williams*—and each time

³⁹² *Id.* at 84.

³⁹³ *See id.* at 85.

³⁹⁴ *See id.* at 113–14 (Thomas, J., concurring) (quoting *Davis v. Washington*, 547 U.S. 813, 822 (2006)) (first citing *Michigan v. Bryant*, 562 U.S. 344, 380–81 (2011) (Scalia, J., dissenting)); then citing *Davis*, 547 U.S. at 838–42 (Thomas, J., concurring in part and dissenting in part); and then citing *Bryant*, 562 U.S. at 378 (Thomas, J., concurring); *id.* at 135 (Kagan, J., dissenting).

³⁹⁵ *See Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 345 (2009) (Kennedy, J., dissenting).

³⁹⁶ *See Williams v. Illinois*, 567 U.S. 50, 93 (2012) (Breyer, J., concurring).

³⁹⁷ *See People v. Lopez*, 286 P.3d 469, 483 (Cal. 2012) (Liu, J., dissenting) (citing *Williams*, 567 U.S. 50); *People v. John*, 52 N.E.3d 1114, 1128 (N.Y. 2016) (Garcia, J., dissenting) (first citing *Crawford v. Washington*, 541 U.S. 36 (2004); then citing *Melendez-Diaz*, 557 U.S. 305; and then citing *Bullcoming v. New Mexico*, 564 U.S. 647 (2011)).

was asked to analyze the case per the Supreme Court's decision.³⁹⁸ That court rightfully exclaimed that “[m]aking sense out of the case law in this area is to some extent an exercise in ‘tasseomancy.’”³⁹⁹

A comprehensive review of cases in lower courts across the nation reveals there are three common approaches to confrontation in the forensic evidence context that have emerged in the wake of *Williams*. First, some courts have applied some version of the “primary purpose” rule, whether that be the *Davis* (i.e., pre-*Williams*), *Williams*, or *Clark* version of this ever-evolving rule coupled with some analysis of Justice Thomas’s “formality and solemnity” approach.⁴⁰⁰ Second, some courts have adopted an accusatory-like primary purpose rule (following closely in the footsteps of Alito’s modified primary purpose rule in *Williams*), such as the state of Washington which has created an “inculpatory” test.⁴⁰¹ Finally, a third, and perhaps most prominent, approach is for lower courts to rely on *Bullcoming* (in particular Justice Sotomayor’s concurrence) to find that the surrogate witness before the court is not the improper *Bullcoming* surrogate.⁴⁰² Critically, each of these approaches allow for insulation of the performing analyst and the work preceding the end results, and, in some cases, could permit future insulation of the end results themselves when there is a misunderstanding of science.

A. *The Many Shades of the Primary Purpose Rule Plus Formality and Solemnity*

Some courts, after having found that *Williams* had no precedential value, have decided to apply the pre-*Williams* version of the primary purpose rule.⁴⁰³ Others have either adopted some version of the *Williams* primary purpose rule along with Thomas’s “formality and solemnity” approach or have set out to predict what at least five justices of the High Court would agree upon as a confrontation rule

³⁹⁸ See *People v. Barba*, 155 Cal. Rptr. 3d 707, 711 (Ct. App. 2013).

³⁹⁹ See *id.* at 728. The court was referring to both the Supreme Court’s and its own precedent. See *id.* at 728–30.

⁴⁰⁰ See, e.g., *People v. Barba*, 155 Cal. Rptr. 3d 707, 723–27 (Ct. App. 2013); *People v. Lopez*, 286 P.3d 469, 476–79 (Cal. 2012); *People v. Holmes*, 150 Cal. Rptr. 3d 914, 919 (Ct. App. 2012); *Jenkins v. United States*, 75 A.3d 174, 189–91 (D.C. 2013); *State v. Norton*, 117 A.3d 1055, 1073–74 (Md. 2015); *State v. Mattox*, 2017 WI 9, ¶¶ 26–27, 30, 373 Wis. 2d 122, 890 N.W.2d 256; *Anderson v. State*, 2014 WY 13, ¶¶ 37–41, 317 P.3d 1108, 1121 (Wyo. 2014) (quoting *State v. Medina*, 306 P.3d 48, 63 (Ariz. 2013)).

⁴⁰¹ See *State v. Lui*, 315 P.3d 493, 499, 506–07, 508 (Wash. 2014).

⁴⁰² See, e.g., *Ex parte Ware*, 181 So. 3d 409, 416–17 (Ala. 2014); *Marshall v. People*, 2013 CO 51, ¶¶ 17–20; *State v. Watson*, 185 A.3d 845, 857–58 (N.H. 2018); *Paredes v. State*, 462 S.W.3d 510, 517–18 (Tex. Crim. App. 2015).

⁴⁰³ See *Jenkins*, 75 A.3d at 189.

in light of *Williams*.⁴⁰⁴ Still, others have not been as direct in accepting *Williams* and instead have developed a similar two-part primary purpose and formality test.⁴⁰⁵ Finally, in light of the Supreme Court's most recent confrontation opinion, at least one court has adopted a *Clark* primary purpose approach in the forensic evidence context.⁴⁰⁶

First, in *Jenkins*, the District of Columbia Court of Appeals concluded that “*Williams* produce[d] no new rule of law that [it] could apply . . .” and proceeded to employ the pre-*Williams* primary purpose rule.⁴⁰⁷ The court held that serology and DNA testing in that case were testimonial because the testing was “conducted for the primary purpose of establishing some fact relevant to a later criminal prosecution: the identity of the [victim’s] killer.”⁴⁰⁸ Unfortunately, resorting to the pre-*Williams* primary purpose rule is what led to the fractured *Williams* opinion in the first instance. As both Justices Kennedy and Thomas have recognized, continued “wooden application” of the “conventional witness” rules will result in great difficulties for courts in the future.⁴⁰⁹ This is particularly true when we look to the result in *Williams* where the High Court was split in the application of these rules.⁴¹⁰

Next, in *Norton*, the Maryland Court of Appeals, after taking the opportunity to further refine its approach, adopted both the plurality and Thomas’s concurring opinions in *Williams*.⁴¹¹ Specifically, the court subjected a DNA report to two inquiries—first, whether the report was sufficiently formal and, second, whether the primary purpose of the report was to accuse a targeted individual.⁴¹² The court embraced a “if not this, then maybe that” approach by finding “[s]hould there be a determination that the document in issue was not formal, the next inquest would be” Alito’s modified primary purpose rule. This approach is also problematic in that the court (much like Justice Thomas) focused solely on the formality of the

⁴⁰⁴ See *People v. Barba*, 155 Cal. Rptr. 3d 707, 730 (Ct. App. 2013); *Norton*, 117 A.3d at 1073–74.

⁴⁰⁵ See *Lopez*, 286 P.3d at 476–79.

⁴⁰⁶ *State v. Mattox*, 2017 WI 9, ¶ 32, 373 Wis. 2d 122, 890 N.W.2d 256.

⁴⁰⁷ *Jenkins*, 75 A.3d at 189.

⁴⁰⁸ *Id.* at 191.

⁴⁰⁹ See *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 337 (2009) (Kennedy, J., dissenting); *White v. Illinois*, 502 U.S. 346, 364 (1992) (Thomas, J., concurring in part).

⁴¹⁰ See *Williams v. Illinois*, 567 U.S. 50, 82–85 (2012) (plurality opinion); *id.* at 134–38 (Kagan, J., dissenting).

⁴¹¹ *State v. Norton*, 117 A.3d 1055, 1073 (Md. 2015).

⁴¹² *Id.* at 1073–74.

form of the report, and not the process of the scientific testing,⁴¹³ and because Alito's primary purpose rule requires that a suspect already be identified at the time of testing even though the test will very likely be used at a later criminal prosecution.⁴¹⁴

Next, at least one court of appeal in California has applied *Williams* by deciding that at least five justices would agree with its confrontation analysis in the instant case because neither Justice Alito's primary purpose rule nor Justice Thomas's "formality and solemnity" requirement had been met.⁴¹⁵ In *Barba*, a case that was sent back to California on three separate occasions as it had the fortune of pending throughout the *Melendez-Diaz*, *Bullcoming*, and *Williams* opinions, the court conducted a comprehensive review of its own cases as well as the Supreme Court's opinions.⁴¹⁶ Ultimately, the court decided that based on direction from its precedence, it "must determine whether there was a confrontation clause violation under Justice Thomas's opinion *and* whether there was [such] a . . . violation under the plurality's opinion [in *Williams*]." ⁴¹⁷ The court also added to its mix that, again, based on its own precedence, *Williams* did not stand for the proposition that if a suspect had already been identified or was targeted, then the confrontation clause did not apply; instead, "that narrow language [of *Williams*] actually serves as the jumping-off point for a broader interpretation."⁴¹⁸ The *Barba* court held there was no confrontation violation where Justice Thomas would approve that the DNA reports lacked the required "formality and solemnity" and the plurality would agree because the DNA reports' primary purpose was not to accuse a targeted individual.⁴¹⁹ Further, the court also delved into surrogate analysis in finding that the witness who ultimately testified was the accuser

⁴¹³ See *supra* Part II, section B regarding the need to focus on process over mere form under Justice Thomas's "formality and solemnity" approach.

⁴¹⁴ Although the *Norton* court found the forensic evidence to be "testimonial" under this approach, the approach itself is arbitrary and unpredictable as the next court could apply the same rules and reach a different conclusion. See *Norton*, 117 A.3d at 1074. The *Norton* court is all but an example of this as evidenced when it cited to its "*Derr II*" opinion that led it to take the instant case to further refine the approach it utilized in that case. See *id.* (citing *Derr v. State*, 73 A.3d 254, 272 (Md. 2013) (noting that *Derr II* was decided correctly as, in addition to not being admissible under Justice Thomas's approach, the *Derr II* evidence would not have met Justice Alito's rule).

⁴¹⁵ See *People v. Barba*, 155 Cal. Rptr. 3d 707, 730 (Ct. App. 2013).

⁴¹⁶ See generally *Barba*, 155 Cal. Rptr. 3d at 711, 714–723 (noting that the Supreme Court has remanded this case back to the California Court of Appeals three times and expansively reviewed California's and the Supreme Court's jurisprudence on this issue).

⁴¹⁷ *Id.* at 723–24 (quoting *People v. Dungo*, 286 P.3d 442, 456 (Cal. 2012)).

⁴¹⁸ See *Barba*, 155 Cal. Rptr. 3d at 727.

⁴¹⁹ See *id.* at 730.

and she was subject to rigorous cross-examination.⁴²⁰ The court held, “[s]o long as a qualified expert who is subject to cross-examination conveys an independent opinion about the test results, then evidence about the DNA tests themselves is admissible.”⁴²¹ In addition to those problems already outlined regarding Alito’s and Thomas’s tests in *Williams*, this last finding by the court further insulates from reliability testing the performing analyst and his or her work earlier on in the scientific process.

Just four months earlier than the *Barba* opinion, the California Supreme Court, in *Lopez*, articulated a slightly different approach by focusing on three different versions of the primary purpose rule, but ultimately deciding that the “formality and solemnity” requirement carried the day in the case.⁴²² The *Lopez* court highlighted that the primary purpose inquiry was a complex one, explaining that there are at least three different versions of that rule: (1) a primary purpose of accusing a targeted individual, (2) a primary purpose of establishing some fact with the understanding that the statements may be used in a later prosecution, and (3) a primary purpose of establishing past facts potentially relevant to later prosecution.⁴²³ Ultimately, the court was able to do an end-round of the primary purpose conundrum and simply held that the documentary evidence at issue was “not made with the requisite degree of formality or solemnity to be considered testimony.”⁴²⁴ Here, too, this “formality and solemnity” approach is plagued with an over-emphasis on the mere form of the scientific report or document rather than the scientific process itself.

Finally, within this category of approaches the Wisconsin Supreme Court has applied the High Court’s most recent confrontation case, *Clark*, to the forensic evidence context. In *Mattox*, the court held that a toxicology report relied upon by a medical examiner to determine cause of death was not testimonial.⁴²⁵ After finding that *Williams* had no precedential value, the *Mattox* court found that the *Clark* case informed its review as *Clark* “reaffirm[ed] the primary purpose test: the dispositive ‘question is whether, in light

⁴²⁰ See *id.* at 718, 730–31.

⁴²¹ *Id.* at 730. Notably, this is akin to the third (perhaps most dominant) lower court approach, *infra*, where courts have applied Justice Sotomayor’s surrogate analysis from her concurrence in *Bullcoming*. See *Bullcoming v. New Mexico*, 564 U.S. 647, 672–73 (2011) (Sotomayor, J., concurring in part).

⁴²² *People v. Lopez*, 286 P.3d 469, 477 (Cal. 2012).

⁴²³ *Id.*

⁴²⁴ *Id.*

⁴²⁵ *State v. Mattox*, 2017 WI 9, ¶ 41, 373 Wis.2d 122, 890 N.W.2d 256.

of all the circumstances, viewed objectively, the “primary purpose” of the [out-of-court statement] was to creat[e] an out-of-court substitute for trial testimony.”⁴²⁶ The court used four factors outlined in *Clark*, including the “formality/informality of the situation producing the out-of-court statement,” focusing on whether the statements were given to law enforcement or not.⁴²⁷ Although the first factor, the “formality/informality” inquiry, does suggest an interest in the process of how the evidence was obtained, it was simplistically applied in *Mattox* where the court noted that the report was not prepared for or provided to law enforcement.⁴²⁸ Most problematic was the court’s analysis of whether the intention of the report was to serve as a substitute for in-court testimony; the focus was on the front-end, i.e., at the time of the creation of the report, rather than what the prosecution’s intention in using such evidence was at the criminal trial.⁴²⁹ Although the report may have only been intended to assist the medical examiner in determining cause of death at the time of its creation, it was ultimately used to help convict the defendant. Science and its process should not be insulated from the crucible of cross-examination based on a rule at risk of such arbitrary application.

B. Following the Footsteps of Justice Alito—an Accusatory or Inculpatory Test

In Washington, the state supreme court, after determining that the case before it was unlike *Williams*, struck out on its own to define the Confrontation Clause’s phrase “witnesses against.”⁴³⁰ In *Lui*, a supervisor, who had not performed or observed the underlying DNA testing, was permitted to testify from the DNA reports of two subordinate analysts at trial in lieu of such analysts testifying.⁴³¹ The court noted that “a majority of the [Supreme] Court has never agreed on a test for expert witnesses, making it very difficult for courts to effectively follow.”⁴³² It then laid out a new rule.⁴³³

Specifically, the *Lui* court held that a reading of the words

⁴²⁶ *Id.* at ¶ 32 (quoting *Michigan v. Bryant*, 562 U.S. 344, 358 (2011)) (citing *Ohio v. Clark*, 135 S. Ct. 2173, 2180 (2015)).

⁴²⁷ *Mattox*, 2017 WI 9, ¶ 32 (citing *Clark*, 135 S. Ct. at 2180–82).

⁴²⁸ *Mattox*, 2017 WI 9, ¶ 33.

⁴²⁹ *See id.*

⁴³⁰ *See State v. Lui*, 315 P.3d 493, 503–04 (Wash. 2014).

⁴³¹ *See id.* at 497.

⁴³² *Id.* at 503.

⁴³³ *See id.* at 503–05.

“witness” and “against” together “in the context of Supreme Court hints and the reasoned practices of other jurisdictions” gave way to a workable rule: “If the declarant makes a factual statement to the tribunal, then he or she is a witness. If the witness’s statements help to identify or inculcate the defendant, then the witness is a ‘witness against’ the defendant.”⁴³⁴ This approach, of course, disregards still valid precedent in *Melendez-Diaz* and *Bullcoming* where the Supreme Court struck down arguments that evidence had to be inculpatory or accusatory before it could be subject to confrontation.⁴³⁵

Perhaps more problematic was the *Lui* court’s demonstrated misunderstanding of DNA science.⁴³⁶ The court claimed that human decision-making did not enter the DNA testing process until the very last stage where electropherograms are interpreted.⁴³⁷ As made clear in Part I, nothing could be further from the truth; analysts have to make important judgment calls throughout the entire process and, in fact, the author knows of several analysts who would adamantly object to the court’s belittling of their role in the process.⁴³⁸

What is possibly worse, however, is that the *Lui* court goes on to say that even at that point the Confrontation Clause does not attach.⁴³⁹ “The necessary inculpatory element enters the equation once an expert compares the DNA profiles.”⁴⁴⁰ The court believed that an allele table did not inculcate or identify anyone and would not have any particular meaning to a non-expert, referring to it as, in the surrogate expert’s words, “gobbledygook.”⁴⁴¹ The dissent forcefully challenged this, asserting that the creation of the allele table from the raw data, i.e., the interpretation of the raw data, was

⁴³⁴ *Id.* at 504–05.

⁴³⁵ See *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 313–14 (2009) (citing *Kirby v. United States*, 174 U.S. 47, 53, 55 (1899)); *Bullcoming v. New Mexico*, 564 U.S. 647, 665 (2011); see also *Williams v. Illinois*, 557 U.S. 50, 117 (Thomas, J., concurring) (quoting *Melendez-Diaz*, 557 U.S. at 313) (“[W]e previously rejected the view that a witness is not subject to confrontation if his testimony is ‘inculpatory only when taken together with other evidence.’”); *Williams*, 557 U.S. at 138 (Kagan, J., dissenting) (citing *Melendez-Diaz*, 557 U.S. at 317–18) (“And *Melendez-Diaz* made yet a more fundamental point in response to claims of . . . reliability of scientific evidence: It is not up to us to decide . . . what evidence is trustworthy and what is not.”).

⁴³⁶ See *Lui*, 315 P.3d at 507; Brief of Amicus Curie the Innocence Network, *Williams*, *supra* note 29, at 15; *supra* Part I.C.2.

⁴³⁷ *Lui*, 315 P.3d at 507 (“Only here does *any* element of human decision-making enter the process; an expert must translate the peaks and valleys of the electropherogram into a DNA profile.”).

⁴³⁸ See *supra* Part I.C.2.

⁴³⁹ See *Lui*, 315 P.3d at 508.

⁴⁴⁰ *Id.*

⁴⁴¹ *Id.*

inculpatory.⁴⁴²

[T]he graphic Pineda referred to was prepared as a visual aid for trial, and it is both readable and meaningful to a layperson. The graphic Pineda referred to on the stand takes the familiar form of a chart. Each column displays a source of DNA, and each line shows a potential for a genetic match. The more matches between a suspect and a sample, the greater the likelihood that the sample contains the suspect's DNA. While expertise is necessary to calculate precisely how probative any given result is in terms of probability, anyone can see that there are far more matches between the samples and Lui's DNA than any other potential suspect. Thus, the report is plainly inculpatory and hardly "gobbledygook." But even if the report were written in hieroglyphics, the Sixth Amendment guarantees a defendant the right to confront all witnesses against him, not just those who offer easy-to-understand testimony or who openly profess the defendant's guilt.⁴⁴³

The *Lui* majority opinion is problematic. It insulates from reliability testing not only every single stage of the DNA testing process prior to the comparison of DNA profiles, but, based on its finding that only such comparison of DNA profiles is "inculpatory," it may be reasonably construed as permitting surrogate experts to testify who have not reviewed the raw data and made their own interpretations.

Furthermore, courts that have applied this kind of accusatory or inculpatory test appear to disagree on when DNA analysis does, in fact, become inculpatory. In *John*, the Court of Appeals for New York relied on its own case law that articulated a primary purpose rule and "testimonial" analysis informed by "whether the statement was prepared in a manner resembling ex parte examination and second, whether the statement accuses [the] defendant of criminal wrongdoing."⁴⁴⁴ The court held that the testifying analyst was a

⁴⁴² See *id.* at 517 (Stephens, J., dissenting).

⁴⁴³ *Id.*

⁴⁴⁴ *People v. John*, 52 N.E.3d 1114, 1122–23 (N.Y. 2016) (quoting *People v. Rawlins*, 884 N.E.2d 1019, 1033 (N.Y. 2008)) (citing *People v. Pealer*, 985 N.E.2d 903, 905–06 (N.Y. 2013)), *cert. denied sub nom. Meekins v. New York*, 557 U.S. 934 (2009). The *John* court first noted that the primary purpose rule was essential to determining whether evidence was testimonial: "[A] statement will be treated as testimonial only if it was 'procured with a

mere conduit for the conclusion of others who had conducted critical work during the DNA testing process.⁴⁴⁵ In the *John* court's assurance that its opinion would not require all analysts to testify,⁴⁴⁶ the court found that "the generated numerical identifiers and the calling of the alleles at the final stage of the DNA typing [] effectively accuse[d] [the] defendant of his role in the crime charged."⁴⁴⁷ Significantly, this is different from what the *Lui* court in Washington found as accusatory, i.e., that it was the comparison of the profiles and not the calling of alleles (or creation of the "gobbledygook" allele table) that was inculpatory.⁴⁴⁸

Both New York's and Washington's take on what is accusatory or inculpatory within the DNA analysis context are problematic. Still insulated from reliability testing is all of the critical work that impacts the end results and final interpretation stage.

C. "This Is No Bullcoming Surrogate" Test

Inspired by Justice Sotomayor's concurrence in *Bullcoming* comprised of examples of what an appropriate surrogate witness might look like, some lower courts have adopted a "no *Bullcoming* surrogate" witness approach.⁴⁴⁹ In other words, courts have distinguished the instant surrogate witness before them from the improper surrogate in *Bullcoming*.

For example, in *Marshall v. People*, the Colorado Supreme Court held that the testifying witness was a proper surrogate under

primary purpose of creating an out-of-court substitute for trial testimony." *John*, 52 N.E.3d at 1122 (internal quotation marks omitted) (quoting *Michigan v. Bryant*, 562 U.S. 344, 358 (2016)) (citing *Pealer*, 985 N.E.2d at 905–06).

⁴⁴⁵ *John*, 52 N.E.3d at 1124–26.

⁴⁴⁶ In this respect, the *John* court not only relied on an accusatory test, but it also held in line with other jurisdictions that have found permissible surrogate testimony that is different from that which was found to be improper in *Bullcoming*. See *id.* at 1128. "We conclude that an analyst who witnessed, performed or supervised the generation of defendant's DNA profile, or who used his or her independent analysis on the raw data, as opposed to a testifying analyst functioning as a conduit for the conclusions of others, must be available to testify." *Id.*

⁴⁴⁷ *Id.* at 1127.

⁴⁴⁸ See *supra* notes 436–443.

⁴⁴⁹ See, e.g., *Ex parte Ware*, 181 So.3d 409, 416–17 (Ala. 2014); *Marshall v. People*, 2013 CO 51, ¶¶ 17, 18 (quoting *Bullcoming v. New Mexico*, 564 U.S. 647, 658, 661 (2011)); *State v. Watson*, 185 A.3d 845, 854–55, 857–58 (N.H. 2018) (quoting *Bullcoming*, 564 U.S. at 672–74 (Sotomayor, J., concurring)); *State v. Michaels*, 95 A.3d 648, 673–74, 675 (N.J. 2014); *State v. Lopez*, 45 A.3d 1, 17, 19–20 (R.I. 2012) (citing *Bullcoming*, 564 U.S. at 674 (Sotomayor, J., concurring) (decided four days after *Williams*); *Paredes v. State*, 462 S.W.3d 510, 517–18 (Tex. Crim. App. 2015).

Bullcoming.⁴⁵⁰ As such, [u]nlike in *Bullcoming*, where the testifying witness had no connection with the particular lab report at issue, here [the testifying analyst] supervised the performance of the tests and certified the lab report.”⁴⁵¹ That particular witness had reviewed the raw data and developed her own independent conclusions about the test results.⁴⁵² The *Marshall* court cited to other states that had adopted similar surrogate witness approaches.⁴⁵³ The dissent in *Marshall* found that the surrogate’s testimony there had the same constitutional concerns of the *Bullcoming* surrogate—testimony about results without performing or observing the test that generated those results, resulting in impermissible insulation of important stages of the testing process.⁴⁵⁴ To that end, the dissent cited to the *Bullcoming* court’s reminder that “[t]he ‘text of the Sixth Amendment does not suggest any open-ended exceptions from the confrontation requirement to be developed by the courts.’”⁴⁵⁵

Further, in *State v. Michaels*, the New Jersey Supreme Court, believing *Williams* to be too fractured to follow, applied both *Melendez-Diaz* and *Bullcoming* to its analysis.⁴⁵⁶ Notably, the court highlighted the impetus to many states adopting the surrogate witness analysis: “Justice Sotomayor’s separate opinion has helped curb the belief that *Bullcoming* stands for the proposition that forensic reports require, for their admission, the testimony of all analysts involved in the handling and testing of a sample used in any forensic analysis.”⁴⁵⁷ The court then went on to find no confrontation clause violation under *Melendez-Diaz* and *Bullcoming*.⁴⁵⁸

Recently, in 2018, the New Hampshire Supreme Court also applied this *Bullcoming* surrogate approach, finding that where the testifying expert reviewed all the documentation, raw data, and testing results, as well as issued and signed the admitted report, he was sufficiently different from Razatos in *Bullcoming* and, therefore, there was no Confrontation Clause violation.⁴⁵⁹

This approach, though it can be commended for moving toward a

⁴⁵⁰ See *Marshall*, ¶ 18.

⁴⁵¹ *Id.*

⁴⁵² See *id.*

⁴⁵³ See *id.* ¶ 19.

⁴⁵⁴ See *id.* ¶¶ 38–41 (Bender, C.J., concurring in part and dissenting in part) (citing *Bullcoming v. New Mexico*, 564 U.S. 647 (2011)).

⁴⁵⁵ *Marshall*, ¶ 41 (quoting *Bullcoming*, 564 U.S. at 662).

⁴⁵⁶ See *State v. Michaels*, 95 A.3d 648, 666, 667–68 (N.J. 2014).

⁴⁵⁷ *Id.* at 662.

⁴⁵⁸ See *id.* at 673–74.

⁴⁵⁹ See *State v. Watson*, 185 A.3d 845, 857–58 (N.H. 2018).

witness who has become informed as to the final stages of the testing process, still allows to be insulated the early stages of preparation and analysis that are also critical and involve human decision-making and, thus, present ripe opportunity for error that must be subjected to reliability testing.

V. A “NEW” CONFRONTATION FRAMEWORK FOR THE FORENSIC EVIDENCE CONTEXT: THE TESTIMONY OF SCIENCE AND ITS PROCESSES SATISFY A MODIFIED “FORMALITY AND SOLEMNITY” REQUIREMENT

From *Williams* to the also confusing and wholly incomplete lower court approaches, it is apparent that we need a rule from the Supreme Court that is clear, workable, and predictable. And a rule that will provide the protections guaranteed by the Confrontation Clause. With qualification, there is one approach that would fare better than all others in allowing for testing of forensic evidence in the crucible cross-examination. That is Justice Thomas’s “formality and solemnity” approach, but with an emphasis on the scientific process, not the mere form of the scientific report or documentary evidence. Forensic evidence is testimonial because it satisfies a modified version of Justice Thomas’s “formality and solemnity” requirement; therefore, when it is introduced against the accused at trial, it must be confronted.⁴⁶⁰

A. *Science as the Witness That Bears Testimony Against the Accused*

It is true, as Justice Kennedy asserted in *Melendez-Diaz* and *Bullcoming*,⁴⁶¹ and the plurality insinuated and Justice Breyer embraced in *Williams*,⁴⁶² science is different. It is not the “conventional witness” who is often affected by emotions, motives, or the present circumstances.⁴⁶³ It is the same day-in-and-day-out regardless of whether the investigation has begun and a dangerous suspect remains at large (or has yet to be identified) or the suspect

⁴⁶⁰ See discussion *infra* Part IV.B.

⁴⁶¹ See *Bullcoming v. New Mexico*, 564 U.S. 647, 680–81 (2011) (Kennedy, J., dissenting); *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 330–34, 339, 345–46 (2009) (Kennedy, J., dissenting).

⁴⁶² See *Williams v. Illinois*, 567 U.S. 50, 84–85 (2012) (plurality opinion); *id.* at 93–95, 97–98 (Breyer, J., concurring).

⁴⁶³ See *Melendez-Diaz*, 557 U.S. at 345–46 (Kennedy, J., dissenting).

has been captured and is the target of investigation or prosecution.⁴⁶⁴ The one thing we can presume reliable about science is that it shows up to work every day with the intention of performing in the same way under the same protocols and standards regardless of the weather of life.

Nevertheless, science is not solely machine-driven; as addressed in Part I, each step of the process for toxicology, DNA, and alcohol breath testing has some human component and, thus, room for human manipulation, decision-making, and interpretation, which may yield mischief or mistake.⁴⁶⁵ In addition, although they may not be “conventional witnesses,” the human contributors to the process, the human analysts, are still “percipient witnesses.”⁴⁶⁶ Therefore, science is composed of both human- and machine-driven statements and results, and the forensic evidence, i.e., the final result used at trial by the prosecution against the accused, is the end product of a collective or cumulative process.⁴⁶⁷

The scientific process is made up of statements or implied (written

⁴⁶⁴ See *id.* Even Justice Alito would agree with this per the California Court of Appeal in *Barba*.

The benefits of DNA testing praised by the *Williams* plurality would not simply disappear upon the discovery of a possible suspect. In either case, the same objects would be tested using the same methods by lab technicians who, as Justice Alito observed, have no idea whether their work will exonerate or implicate someone who has been “charged or is under investigation.”

People v. Barba, 155 Cal. Rptr. 3d 707, 728 (Ct. App. 2013) (quoting *Williams*, 567 U.S. at 85 (plurality opinion)).

⁴⁶⁵ See *supra* Part I.

⁴⁶⁶ See *Marshall v. People*, 2013 CO 51, ¶ 38 (Bender, C.J., concurring in part and dissenting in part) (quoting 3 CHRISTOPHER B. MUELLER & LAIRD C. KIRKPATRICK, *FEDERAL EVIDENCE* § 6:6 (3d ed. 2007)) (“When a percipient witness testifies, that witness must testify to what he or she observed: what two commentators call ‘a combination of perception and memory.’”).

⁴⁶⁷ See *Mnookin & Kaye*, *supra* note 16, at 151–52.

or nonverbal) assertions⁴⁶⁸ (or assertive conduct)⁴⁶⁹ of analysts that have worked on the evidence and then passed it along to the next stage of testing with explicit or implied blessing.⁴⁷⁰ It has already been established by the Supreme Court that such “statements” are used for the truth of the matter they assert—Justice Alito’s proposition otherwise having been summarily dismissed by five justices.⁴⁷¹ The ultimate test result is the final declaration that is introduced at trial, but, to be sure, many statements and assertions before that time are made.⁴⁷² It is these out-of-court (and in the laboratory) statements and assertions (written or nonverbal) that do what in-court testimony would do and, if relayed through a surrogate witness or otherwise insulated from cross-examination, would serve as improper substitutes for live testimony.⁴⁷³

As Justice Breyer has acknowledged, “[t]he reality of the matter is that the introduction of a laboratory report involves layer upon layer of technical statements (expressed or implied) made by one expert

⁴⁶⁸ See FED. R. EVID. 801(a) (“‘Statement’ means a person’s oral assertion, written assertion, or nonverbal conduct, if the person intended it as an assertion.”); FED R. EVID. 801 n. (a)

Whether nonverbal conduct should be regarded as a statement for purposes of defining hearsay requires further consideration. Some nonverbal conduct, such as the act of pointing to identify a suspect in a lineup, is clearly the equivalent of words, assertive in nature, and to be regarded as a statement. Other nonverbal conduct, however, may be offered as evidence that the person acted as he did because of his belief in the existence of the condition sought to be proved, from which belief the existence of the condition may be inferred. This sequence is, arguably, in effect an assertion of the existence of the condition and hence properly includable within the hearsay concept.

(citing Edmund M. Morgan, *Hearsay Dangers and the Application of the Hearsay Concept*, 62 HARV. L. REV. 177, 214, 217 (1948); and the elaboration in, Ted Finman, *Implied Assertions as Hearsay: Some Criticisms of the Uniform Rules of Evidence*, 14 STAN. L. REV. 682 (1962)); cf. *United States v. Washington*, 498 F.3d 225, 230 (4th Cir. 2007) (finding that the raw data of the machine consists of statements of the machine not the analysts and that analysts did not say or write such information) (citing FED R. EVID. 801(a)). In its amicus curiae brief in *Williams*, the Innocence Network accurately reflected on this point: “When Cellmark sent the electropherograms to [the testifying analyst], Cellmark made implicit assertions that it followed proper protocols and competently performed the steps that preceded data generation.” Brief of Amicus Curie the Innocence Network, *Williams*, *supra* note 29, at 40.

⁴⁶⁹ See *People v. M.F.*, 25 N.Y.S.3d 816, 822 (Sup. Ct. 2016) (citing *Young v. United States*, 63 A.3d 1033, 1045 (D.C. 2013); *State v. Michaels*, 95 A.3d 648, 669 (N.J. 2014)) (finding that the initial analyst’s role was not limited to application of formula but included “assertive conduct” and “diagnosis”).

⁴⁷⁰ See *M.F.*, 25 N.Y.S.3d at 820.

⁴⁷¹ See *Williams v. Illinois*, 567 U.S. 50, 104, 106–07 (Thomas, J., concurring) (quoting *Crawford v. Washington*, 541 U.S. 36, 59 n.9 (2004)); *Williams*, 567 U.S. at 125–26 (Kagan, J. dissenting) (quoting *Crawford*, 541 U.S. at 59 n. 9 (2004)).

⁴⁷² See *Williams*, 567 U.S. at 107–08 (Thomas, J., concurring).

⁴⁷³ See *Davis v. Washington*, 547 U.S. 813, 830 (2006); *Crawford*, 541 U.S. at 52.

and relied upon by another.”⁴⁷⁴ In addition, Scholars Mnookin and Kaye highlight the differences between “conventional witnesses” and “forensic science witnesses” in their article *Confronting Science: Expert Evidence and the Confrontation Clause*; they describe that one of “the most critical dimensions of scientific knowledge production” is “that it is a collective, rather than an individual enterprise.”⁴⁷⁵ On the other hand, “conventional witnesses” do not “usually testify about knowledge produced through such a collective, interconnected process. Usually such a witness testifies to firsthand, personal observations.”⁴⁷⁶ Mnookin and Kaye point out that “[b]y contrast, the knowledge claims of forensic science witnesses are, intrinsically, strongly interlinked with the actions and knowledge production of others. Expert opinions and conclusions, inevitably and necessarily, require reliance on materials produced by others, data provided by others, and judgments and opinions reached by others.”⁴⁷⁷

One straightforward example is, perhaps, in the context of alcohol breath testing where an analyst who has prepared and certified the dry gas external standard condones its use in the field by the laboratory’s patrons and even sends a “certificate[] of analysis” that smacks of the same formality and solemnity as those certificates in *Melendez-Diaz*.⁴⁷⁸ That certificate or the fact of its existence supports the surrogate expert’s testimony at trial that the defendant’s breath test is accurate and reliable.⁴⁷⁹

All of this is true for toxicology and DNA testing as well. Analysts who perform work in earlier stages of those processes send the sample along to the next stage to be further processed; if, during the process, an analyst believes a sample is not acceptable to proceed in analysis, there are protocols and standard operating procedures in place that would call for the evidence to be held back or not reported.⁴⁸⁰ Based on all of the preparation, testing, decision-making, analysis, and interpretation that goes into the scientific process, the final statement, i.e., the testing result, is introduced by

⁴⁷⁴ See *Williams*, 567 U.S. at 89 (Breyer, J., concurring).

⁴⁷⁵ See Mnookin & Kaye, *supra* note 16, at 102. (emphasis in original).

⁴⁷⁶ See *id.* at 150.

⁴⁷⁷ See *id.* at 151.

⁴⁷⁸ See *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 308 (2009).

⁴⁷⁹ See, e.g., *Lightfoot v. State*, No. 05-12-00428-CR, 2013 Tex. App. LEXIS 9052, at *2 (Ct. App. July 23, 2013).

⁴⁸⁰ See, e.g., WASH. STATE PATROL TOXICOLOGY LAB., TEST METHOD-CONFIRMATION-VOLATILES 7, 9 (July 24, 2017), http://wsp.wa.gov/forensics/docs/toxicology/sop_manuals/sop_volatiles_07-24-2017.pdf (where certain parameters during the testing for blood alcohol must be met in order for both a batch and subject sample to be accepted).

the prosecution to prove or establish some fact against the accused.⁴⁸¹

Science is the witness that bears cumulative testimony consisting of all parts of the process; it is a witness that consists of both human and machine-driven data, but a witness nevertheless.⁴⁸² The cumulative scientific process that supports the accuracy and reliability of the final results (as well as those end-product results themselves) are “solemn declaration[s] or affirmation[s] made for the purpose of establishing or proving some fact.”⁴⁸³ Science is a witness that bears testimony.

When science is introduced at trial by the prosecution to prove or establish some fact, it is sufficiently “against” the accused.⁴⁸⁴ As precedent has made clear, evidence need not be inculpatory on its face or accusatory in order to be of the kind that shall be subject to confrontation.⁴⁸⁵ That science is not vulnerable to the same motives and emotions and life circumstances of the “conventional witness,” suggests that its proposed use at trial may be examined. That is, courts need not worry with what the primary purpose may or may not have been when the statements were made in this context because the same influences on “conventional witnesses” are not at work when it comes to science.⁴⁸⁶ Certainly, the final results of testing would prove or establish facts against the accused, but the entire scientific process made up of statements and assertions by each performing analyst is also used to establish a fact necessary for conviction—the accuracy, reliability, and truth of the final results. For instance, although the use of the external dry gas standard may not be, on its face, inculpatory, it is vital to the overall accuracy and reliability of the breath test results and functions as evidence against the defendant at trial.⁴⁸⁷

That such work may not be inculpatory or accusatory per se is of no moment; as Justice Scalia wrote,

[t]he text of the Amendment contemplates two classes of witnesses—those against the defendant and those in his favor.

⁴⁸¹ *But see* Williams v. Illinois, 567 U.S. 50, 84 (2012).

⁴⁸² *See* Mnookin & Kaye, *supra* note 16, at 151–52.

⁴⁸³ *See* Crawford v. Washington, 541 U.S. 36, 51 (2004).

⁴⁸⁴ *See id.* at 68.

⁴⁸⁵ *See* Williams v. Illinois, 567 U.S. 50, 116 (2012) (Thomas, J., concurring); *id.* at 135–36 (Kagan, J., dissenting); Bullcoming v. New Mexico, 564 U.S. 647, 664 (2011); Melendez-Diaz v. Massachusetts, 557 U.S. 305, 313–14 (2009).

⁴⁸⁶ *See* Mnookin & Kaye, *supra* note 16, at 150–51.

⁴⁸⁷ *See* Lightfoot v. State, No. 05-12-00428-CR, 2013 Tex. App. LEXIS 9052, at *2 (Ct. App. July 23, 2013).

The prosecution *must* produce the former; the defendant *may* call the latter. . . . [Therefore], there is not a third category of witnesses, helpful to the prosecution, but somehow immune from confrontation.⁴⁸⁸

As Justice Thomas added, the concept of “inherently inculpatory” is contrary to history: “The 16th-century Marian statutes instructed magistrates to transcribe *any* information by witnesses that ‘shall be material to prove the felony.’”⁴⁸⁹ Thus, states that have adopted “inculpatory” or “accusatory” tests for determining what is “testimonial” in the forensic evidence context have truly ventured far off course.

Science serves as a witness made up of cumulative statements and assertions that, when sought to be admitted by the prosecution at trial, comprise of testimony against the accused.⁴⁹⁰ Science and its process renders “testimony.” Furthermore, these statements and assertions are of “testimonial” nature because science is formal and solemn.

B. Science and Its Process Is “Testimonial” Satisfying a Modified “Formal and Solemnity” Requirement

As Justice Thomas has noted, “[T]he plain terms of the ‘testimony’ definition we endorsed necessarily require some degree of solemnity before a statement can be deemed ‘testimonial.’”⁴⁹¹ Under Justice Thomas’s approach, there is room to include “formal” or “solemn” processes that resemble the Marian examination; his listing of “formalized testimonial materials” is not exhaustive.⁴⁹² And that is great, because the scientific process is nothing but formal and solemn. It is directed by numerous protocols and procedures as outlined in laboratory manual after manual.⁴⁹³ Science is monitored

⁴⁸⁸ See *Melendez-Diaz*, 557 U.S. at 313–14.

⁴⁸⁹ See *Williams*, 567 U.S. at 116–17 (Thomas, J., concurring) (emphasis added).

⁴⁹⁰ See Mnookin & Kaye, *supra* note 16, at 151.

⁴⁹¹ *Davis v. Washington*, 547 U.S. 813, 836 (2006) (Thomas, J. concurring in part and dissenting in part).

⁴⁹² In all of his prior opinions as well as in *Williams*, Justice Thomas articulates his approach using “such as” when describing those “formalized testimonial materials” that have made it onto his list, indicating this list is not an exclusive one. See *Williams*, 567 U.S. at 111 (Thomas, J., concurring); see also *State v. Norton*, 117 A.3d 1055, 1074 (Md. 2015) (citing *Williams*, 567 U.S. at 11) (“The Report [at] issue . . . come[s] within ‘formalized testimonial materials’ to which Justice Thomas made reference and gave non-exclusive examples.”).

⁴⁹³ See, e.g., WASH. ST. PATROL, BREATH TEST PROGRAM: QUALITY AND OPERATIONS MANUAL (2018), http://www.wsp.wa.gov/breathtest/docs/webdms/Breath_Calibration_Manuals/BTP%20Quality%20and%20Operations%20Manual%20Issued%20January%202018.pdf; WASH.

by standards and generally accepted practices throughout not just the country, but the world.⁴⁹⁴ Analysts are given permits to do the work and they are regularly subjected to proficiency testing.⁴⁹⁵ Laboratories require ongoing documentation as well as the use of preprinted forms, which sometimes cite to court rules and statutes themselves.⁴⁹⁶ Forensic science responds to court admissibility standards with laboratories preparing documentation and case files for court as well as training analysts how to testify.⁴⁹⁷ Many laboratories are accredited and bound by higher standards to maintain that accreditation.⁴⁹⁸ Science is nothing but formal and solemn. If it were not, it would have great difficulty even satisfying the low admissibility bar that is Evidence Rule 702, *Frye*, or

STATE PATROL, TOXICOLOGY LABORATORY DIV., TESTING QUALITY ASSURANCE MANUAL (2017), http://wsp.wa.gov/forensics/docs/toxicology/sop_manuals/testing_quality_assurance_manual_07-10-2017.pdf [hereinafter TESTING QUALITY ASSURANCE MANUAL]; WASH. ST. PATROL CRIME LABORATORY DIVISION, DNA ANALYSIS QUALITY ASSURANCE MANUAL (2018), http://wsp.wa.gov/forensics/docs/crimelab/manuals/technical/dna/DNA_QA_Manual_Revision_30.pdf.

⁴⁹⁴ Some laboratories, such as the Washington State Patrol Breath Test Section and Toxicology Laboratory Division are accredited according to the requirements of ISO17025, which is an international standard used to determine technical competency. See TESTING QUALITY ASSURANCE MANUAL, *supra* note 493, at 20 (citing to laboratory's accreditation and accrediting bodies under section 4.1); Letter from Brad Putnam, Accreditation Manager, ANSI-ASQ Nat'l Accreditation Bd., to Robert Sharpe, Lieutenant, Wash. State Patrol, Breath Test Program (Oct. 5, 2018) (on file with ANSI-ASQ National Accreditation Board); *Crime & Forensic Laboratory Services*, WASH. STATE PATROL, <http://www.wsp.wa.gov/crime/crime-and-forensic-laboratory-services/> (last visited Mar. 27, 2018); see also ISO/IEC 17025:2005, INT'L ORG. FOR STANDARDIZATION, <https://www.iso.org/standard/39883.html> (explaining that ISO/IEC 17025:2005 specifies the general requirements for competence to carry out tests and/or calibrations).

⁴⁹⁵ See, e.g., N.Y. STATE DEP'T. OF HEALTH: WADSWORTH CTR., CLINICAL LABORATORY EVALUATION PROGRAM: A GUIDE TO PROGRAM REQUIREMENTS AND SERVICES 5, 6 (2015), <https://www.wadsworth.org/sites/default/files/WebDoc/339464620/CLEPGUIDE%20July%202015.pdf>.

⁴⁹⁶ See *Bullcoming v. New Mexico*, 564 U.S. 647, 665 (2011); *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 310, (2009); see, e.g., N.Y. STATE DEP'T OF HEALTH, CLINIC LABORATORY EVALUATION PROGRAM CERTIFICATE OF QUALIFICATION: APPLICATION CHECKLIST, https://www.wadsworth.org/sites/default/files/WebDoc/CQ_Initial_App_0816.pdf.

⁴⁹⁷ Sometimes laboratories respond to (or are forced to respond to) litigation, such as the case in King County, Washington, where litigation surrounding the necessity of Uncertainty and confidence intervals inspired the Washington State Patrol Breath Test Program to begin publishing uncertainty calculations for breath tests (provided in the Quality Assurance Procedure) even though, ultimately, it was found that uncertainty calculations were not required for admissibility purposes. See *State v. King Cty. Dist. Court W. Div.*, 307 P.3d 765, 766 (Wash. Ct. App. 2013); WASH. ST. PATROL, MEASUREMENT UNCERTAINTY FOR BREATH ALCOHOL TESTING, https://www.wsp.wa.gov/breathtest/docs/webdms/Studies_Articles/Measurement%20Uncertainty%20for%20Breath%20Alcohol%20Testing.pdf. In addition, more and more laboratories are becoming accredited or taking steps toward separating themselves from law enforcement agencies to become more neutral or independent as science dictates, such as the Houston Forensic Science Center. See *Accreditations*, HOUS. FORENSIC SCI. CTR., <http://www.houstonforensicscience.org/accreditation.php> (last visited Mar. 27, 2019).

⁴⁹⁸ See, e.g., *Crime & Forensic Laboratory Services*, *supra* note 494.

Daubert.⁴⁹⁹

The sheer volume of manuals, protocols, standard operating procedures, accreditation requirements, laboratory policies, documentation, and so on impresses upon the analysts the formal and solemn nature of their work. These things serve as proof that forensic evidence and its process is “sufficiently formal to resemble the Marian examinations.”⁵⁰⁰ Indeed, it is hard to imagine a more formal or solemn process that reflects an out-of-court substitute for in-court testimony than the statements and assertions (written and non-verbal) that are made during the course of the forensic processing of evidence. The manuals, protocols, standard operating procedures, accreditation requirements, laboratory policies, and the like is what has led Justices Kennedy, Alito, and Breyer to essentially advocate for a forensic evidence exception to the Confrontation Clause.⁵⁰¹ However, it is this kind of formal or solemn out-of-court process that is intended to serve as a substitute for in-court process that has always been objectionable under the Clause.⁵⁰²

As outlined in Part II, Justice Liu of the California Supreme Court was first to emphasize this concept that process over form matters.⁵⁰³ As he so smartly put together, “[W]e must look at the process that produced the statements, ‘taking into account all of the surrounding circumstances’ in order to discern not only the statements’ ‘form’ but also their ‘function’ and ‘purpose.’”⁵⁰⁴ In addition, to Justice Liu, there have been other courts that have hinted around the formality of science. First, we saw, even if ever so brief (and perhaps inadvertently), Justice Ginsburg touch on this concept in *Bullcoming* where she wrote “[l]ike the *Melendez-Diaz* certificates, Caylor’s certificate is ‘formalized’ in a signed document, headed a ‘report.’ Noteworthy as well, the SLD report form contains a legend referring

⁴⁹⁹ See FED. R. EVID. 702; *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 592–94 (1993); *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923).

⁵⁰⁰ See *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 329 (2009) (Thomas, J., concurring) (citing *Giles v. California*, 554 U.S. 353, 378 (2008) (Thomas, J., concurring)).

⁵⁰¹ See *Williams v. Illinois*, 567 U.S. 50, 62 (2012); *Williams*, 567 U.S. at 93 (Breyer, J., concurring); *Bullcoming v. New Mexico*, 564 U.S. 647, 681 (2011) (Kennedy, J. dissenting); *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 345–46, 351 (2009) (Kennedy, J., dissenting).

⁵⁰² See *Davis v. Washington*, 547 U.S. 813, 830 (2006); *Crawford v. Washington*, 541 U.S. 36, 52 (2004).

⁵⁰³ See *People v. Lopez*, 286 P.3d 469, 486 (Cal. 2012) (Liu, J., dissenting).

⁵⁰⁴ See *id.* at 488 (quoting *Williams v. Illinois*, 567 U.S. 50, 84 (2012) (plurality opinion)) (citing *Williams*, 567 U.S. at 139–40 (Kagan, J. dissenting)). Justice Liu ultimately found that laboratory reports and certain notations were testimonial as they were produced with government involvement and formality, holding that the produced surrogate witness was improper. See *Lopez*, 286 P.3d at 489–90. It should be noted that Justice Liu did put particular emphasis on the fact that this was a government-driven laboratory. See *id.* at 489.

to municipal and magistrate courts' rules that provide for the admission of certified blood-alcohol analyses."⁵⁰⁵

Perhaps more explicitly, some lower courts have, though rather briefly, examined the formal nature of science. For example, in *People v. John*, the New York Court of Appeals, after highlighting the surrogate expert's testimony that every individual who prepared information within the reports "had a business duty to do so truthfully and accurately," wrote: "It is incongruous to our state's mission to foster scientific excellence in our public DNA crime laboratories to suggest that the recording of the test results in the reports of accredited labs is not an entry of scientific certainty because of the absence of a hypertechnical requirement of formalism."⁵⁰⁶ The court found that even though the DNA reports at issue were not sworn, "they were obviously facts prepared to be used as critical evidence at a criminal trial and [were] sufficiently formal to be considered testimonial."⁵⁰⁷

To explore the formal and solemn nature of forensic evidence and the process of how all of its statements and assertions culminate, let us take toxicology and the Washington State Patrol's accredited laboratory as an example. First, each analyst must be permitted.⁵⁰⁸ Next, the laboratory is accredited by the American Board of Forensic Toxicology (ABFT) as well as by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board or ASCLD/LAB.⁵⁰⁹ The ABFT was created in 1975 "to provide, in the interest of the public, and the advancement of the sciences, a certification program in forensic toxicology."⁵¹⁰ The entity analogizes itself to "the certifying board in the various medical specialties and scientific

⁵⁰⁵ See *Bullcoming v. New Mexico*, 564 U.S. 647, 665 (2011) (citing *Davis v. Washington*, 547 U.S. 813, 837 n.2 (2006) (Thomas, J., concurring in part and dissenting in part)).

⁵⁰⁶ *People v. John*, 52 N.E.3d 1114, 1126 (N.Y. 2016).

⁵⁰⁷ *Id.*

⁵⁰⁸ See WASH. REV. CODE § 46.61.506(3) (2018). Notably, in addition to the laboratory's toxicologists, breath test technicians in the state of Washington must also have a permit per the statute. *Id.* See JAMES P. VAN DIEST, BREATH TEST PROGRAM PERMIT CARD, https://www.wa.gov/breathtest/docs/webdms/Permit_Cards/Van%20Diest,%20James%20-%20Breath%20Test%20Permit%20Card%20-%202006-06-2021.pdf (last visited Dec. 29, 2018), for an example of a permit and the language within.

⁵⁰⁹ See *Crime & Forensic Laboratory Services*, *supra* note 494 ("The laboratory was American Board of Forensic Toxicology (ABFT) accredited in July 2005, becoming the 19th Forensic Toxicology laboratory to achieve ABFT accreditation. The Breath Test Program and Toxicology Laboratory successfully attained ASCLD/LAB ISO International accreditation of their breath alcohol calibration program in November 2009. The Toxicology Laboratory further attained ASCLD/LAB ISO International accreditation for its toxicology testing program in February 2016.").

⁵¹⁰ *American Board of Forensic Toxicology*, AM. BOARD FORENSIC TOXICOLOGY, <https://www.abft.org/> (last visited Apr. 17, 2019).

fields.”⁵¹¹ Meanwhile ASCLD/LAB was developed as a standards subcommittee in the 1980s and merged with the ANSI National Accreditation Board (ANAB) in 2016.⁵¹² In turn, ANAB is “the largest multi-disciplinary accreditation body in North America” and accredits a multitude of systems and entities, including “calibration and testing labs, forensic test and calibration service providers, inspection bodies, police crime units, reference material producers, and proficiency test providers.”⁵¹³ ANAB claims to “make sure [their] clients follow international standards and are competent to do their work,” emphasizing that much like one would not want to be treated by a doctor who is not board certified, ANAB’s work and accreditation duties are equally critical.⁵¹⁴ This ANAB or ASCLD/LAB accreditation requires the state toxicology laboratory to follow, *inter alia*, the prominent scientific international standard for competency, ISO/IEC17025.⁵¹⁵

The laboratory also distributes several manuals.⁵¹⁶ It has standard operating procedures (SOPs) for each category of drug that can be tested within the laboratory.⁵¹⁷ For example, the SOPs related to the testing of volatiles, i.e., ethanol, lay out the exact procedures that should be followed by analysts in every single blood alcohol sample processed at the laboratory.⁵¹⁸ In addition, the laboratory produces an operations manual that covers its mission statement; its goals and directives; its legal direction;⁵¹⁹ chain of command and personnel responsibilities; ethics and professional responsibility; records

⁵¹¹ *Id.*

⁵¹² *Our History*, AM. SOC’Y CRIME LABORATORY DIRECTORS, <https://www.asclcd.org/about-us/our-history/> (last visited Apr. 17, 2019).

⁵¹³ *About ANAB*, ANSI NAT’L ACCREDITATION BOARD, <https://www.anab.org/about-anab> (last visited Apr. 17, 2019).

⁵¹⁴ *See id.*

⁵¹⁵ *See* TESTING QUALITY ASSURANCE MANUAL, *supra* note 493, at 20 (citing to laboratory’s accreditation and accrediting bodies); *see also* ISO/IEC 17025:2005, *supra* note 494 (specifying the general requirements for laboratories to competently carry out tests and/or calibrations).

⁵¹⁶ *See Toxicology Lab Division: Overview*, WASH. STATE PATROL, TOXICOLOGY LABORATORY DIV., <http://wsp.wa.gov/forensics/toxicology.htm#toxforms>.

⁵¹⁷ *Id.*

⁵¹⁸ *See* WASH. STATE PATROL, TOXICOLOGY LAB., *supra* note 170, at 1–12.

⁵¹⁹ Significantly, this portion of the manual states:

The TLD is a publicly funded, legal entity that is responsible for its legislatively mandated actions. The TLD provides scientific and technical assistance to all coroners, medical examiners and prosecuting attorneys, as mandated by Revised Code of Washington (RCW) 43.43.670, 46.61.506 and 68.50.107; and the Washington Administrative Code (WAC) 448-14, 448-15 and 448-16, and statewide criminal justice agencies.

management; the release of results; courtroom testimony;⁵²⁰ administrative procedures; evidence management; and so on.⁵²¹ Notably, as to ethics and professional responsibility, the manual states:

All Laboratory employees are required to review guidelines for ethics and professional responsibility, relevant to the field of forensic toxicology, on an annual basis. The American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) document *ASCLD/LAB Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists* will be reviewed annually with all Laboratory personnel and employee review will be documented.⁵²²

In addition to the voluminous operations manual, the laboratory also produces a quality assurance manual.⁵²³ It covers the laboratory's quality management system; document control; internal audits and management review; control of nonconforming work; personnel qualifications and training; equipment maintenance; reference materials; assuring the quality of results; proficiency testing; records and reports; and traceability and quality control.⁵²⁴ Critically, the manual directs what information must be placed in the toxicology report and "[t]he results of each test carried out by the Laboratory shall be reported accurately, clearly, unambiguously and objectively, and in accordance with any specific instructions in the test methods."⁵²⁵

It would be difficult to find that the scientific process in this laboratory is anything but formal and solemn.⁵²⁶ It is true that not

⁵²⁰ As to courtroom testimony the manual reads:

Providing testimony in a legal context is one of the most important responsibilities for TLD personnel. Employees must approach this responsibility with sincerity, honesty and diligence. Testimony is a significant part of the employee's responsibility and will be subject to the same quality assurance standards as other aspects of their work.

Id. at 26.

⁵²¹ *See id.* at 2–3.

⁵²² *Id.* at 15.

⁵²³ *See* TESTING QUALITY ASSURANCE MANUAL, *supra* note 493.

⁵²⁴ *See id.*

⁵²⁵ *Id.* at 82.

⁵²⁶ It is also worth noting that as to the forensic toxicologist who was recently investigated by the laboratory for his inattention during extraction, there was a formal procedure in place for laboratory management to follow, and they did follow it. *See supra* text accompanying notes

every laboratory report will be sworn or contain the exact “formalized” language Justice Thomas is looking for; however, mere form should not reign over what is clearly a formal and solemn process.⁵²⁷ The statements and assertions that constitute forensic evidence occur during a process that is “sufficiently formal to resemble Marian examinations.”⁵²⁸ Critically, the dissents in *Melendez-Diaz* and *Bullcoming*, as well as the *Williams* plurality and Justice Breyer (in his concurrence), along with multiple lower courts permit the insulation of this process from confrontation based, in large part, on this level of formality or notions of “amorphous reliability.”⁵²⁹ Forensic evidence and its process is sufficiently formal and solemn under Justice Thomas’s approach; thus, all of the statements and assertions that support such evidence must be confronted. Our last question then, is, who in the “collective” must be called to testify?

VI. IF SCIENCE IS FORMAL AND SOLEMN, THEN WITHIN THE
“COLLECTIVE” THE PERFORMER OR AN OBSERVER MUST BE
CONFRONTED

Who must come? Not everyone. But, it must, at minimum, be a “percipient” witness to the instant processing and testing of the evidence on the analyst’s benchtop through its entire analytical life to the end results.⁵³⁰ In other words, the performing analyst or an observer to such work. Those individuals once or more removed from the instant testing process are not intended to be captured.⁵³¹ Rather, the defense may utilize notice and demand statutes or other procedural mechanisms to request confrontation of those individuals who may actually be best described as “*Melendez-Diaz* footnote one witnesses.”⁵³² The percipient witness to the instant testing process

123–24.

⁵²⁷ See *Williams v. Illinois*, 567 U.S. 50, 140 (2012) (Kagan, J., dissenting) (“Indeed, Justice Thomas’s approach, if accepted, would turn the Confrontation Clause into a constitutional geegaw—nice for show, but of little value.”).

⁵²⁸ See *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 329 (2009) (Thomas, J., concurring) (quoting *Giles v. California*, 554 U.S. 353, 378 (2008)).

⁵²⁹ See, e.g., *Williams*, 567 U.S. at 76–77 (plurality opinion); *id.* at 99 (Breyer, J., concurring); *Bullcoming v. New Mexico*, 564 U.S. 647, 682 (2011) (Kennedy, J., dissenting); *Melendez-Diaz*, 557 U.S. at 351 (Kennedy, J., dissenting).

⁵³⁰ See *Marshall v. People*, 2013 CO 51, ¶ 28 (C.J., Bender, concurring in part and dissenting in part).

⁵³¹ One such example would be breath test technicians who conduct the annual quality assurance procedure on breath testing machines discussed *infra*. That analyst is at least once removed from the instant testing process.

⁵³² See *Melendez-Diaz*, 557 U.S. at 311 n.1; see also *People v. M.F.*, 25 N.Y.S.3d 816, 821

of the evidence from benchtop to results must, however, be subject to confrontation.⁵³³

To answer Justice Kennedy's well-put question—who or what is an “analyst,” (or for that matter, who is the relevant percipient witness when it comes to forensic evidence) versus a mere link in the chain of custody or some other nominal actor in the process—Justice Scalia's *Melendez-Diaz* footnote one is instructive. There, Scalia announces that it is not the rule that “anyone whose testimony may be relevant in establishing the chain of custody, authenticity of the sample, or accuracy of the testing device” must be called to testify.⁵³⁴ He further explained that it is unnecessary for each person who laid hands on the evidence or who created documents related to equipment maintenance to be confronted.⁵³⁵ Therefore, it is not the person who delivered the blood sample to the laboratory, for example, who must appear for confrontation purposes. Similarly, an individual who conducted an annual quality assurance procedure (QAP) also need not be confronted unless a specific issue is raised by the defense.⁵³⁶ Rather, it is the analyst who has received the sample and begins the stages of testing (including preparation) and then plays a role in shepherding the evidence throughout the testing process who is the “performing analyst” that must be confronted. These are the individuals who make assertions (both written and non-verbal) that their work is competent and trustworthy and, therefore, may be relied upon to label the forensic evidence accurate and reliable.

To further delineate what the relevant percipient witness for confrontation purposes looks like, let us address each of the three forensic science disciplines covered herein. First, for alcohol breath testing, it is important to note that this discipline is comprised of at least two instant testing procedures: one focused on the subject's breath test and the other focused on the external standard (e.g., dry

(Sup. Ct. 2016) (“If any stage of the testing or particular analyst's work is then called into question by the cross-examination, the defense may renew its application to the court to have the prosecution call an additional witness. This procedure is essentially what Justice Breyer suggests in his concurrence in *Williams*.”).

⁵³³ See *Marshall*, ¶ 28.

⁵³⁴ *Melendez-Diaz*, 557 U.S. at 311 n. 1.

⁵³⁵ See *id.*

⁵³⁶ See *Anderson v. State*, 2014 WY 13, ¶ 41, 317 P.3d 1108, 1122 (Wyo. 2014) (holding that an annual certification procedure performed on a breath testing device was relevant only to routine maintenance and not to prove an element of a crime); *M.F.*, 25 N.Y.S.3d at 821 (“If any stage of the testing or particular analyst's work is then called into question by the cross-examination, the defense may renew its application to the court to have the prosecution call an additional witness. This procedure is essentially what Justice Breyer suggests in his concurrence in *Williams*.”).

gas).⁵³⁷ That is, it is not the subject's breath test alone that is the only relevant forensic evidence in alcohol breath testing cases.⁵³⁸ In other words, an individual beyond the operator of the machine (usually a police officer) at the time of the defendant's breath test must be confronted in these cases.

With that in mind, regarding the external standard, because it is intricate to the accuracy and reliability of every breath test as it is run with every evidential breath test⁵³⁹ and the subject's breath test process will abort if the external standard does not read within the acceptable range,⁵⁴⁰ it is the analyst with actual knowledge⁵⁴¹ of the external standard, the one who took the "ingredients" and put them together to create the standard and, thereafter, tested and certified it who must appear. This analyst differs substantially from a technician who conducts an annual QAP on the breath testing machine for maintenance purposes, falling within the "*Melendez-Diaz* footnote one witness" category.⁵⁴² Although the QAP is important to the proper working order of the device,⁵⁴³ it is not intimately bound up with the subject's breath test process like the external standard, which must be tested and comply with set

⁵³⁷ See WASH. STATE PATROL, *supra* note 203, at 5, 7.

⁵³⁸ See *id.*

⁵³⁹ *Draeger Alcotest 9510 Operator's Manual*, *supra* note 205.

⁵⁴⁰ *Id.*

⁵⁴¹ See *Paredes v. State*, 462 S.W.3d 510, 517 (Tex. Crim. App. 2015) ("When the testifying expert has no personal knowledge of how the testing was conducted, a defendant still cannot adequately challenge through cross-examination the conclusion of that non-testifying analyst offered in that non-testifying analyst's report.").

⁵⁴² See *Melendez-Diaz*, 557 U.S. 305, 311 n. 1 (2009); see also *Anderson v. State*, 2014 WY 13, ¶ 41, 317 P.3d 1108, 1122 (Wyo. 2014) (noting that the primary purpose of the certification was for maintenance purposes, not for proving some fact at trial).

⁵⁴³ A QAP for breath testing machines has been defined as:

A testing procedure for evidentiary breath test instruments in which known traceable reference materials are used to set and confirm the adjustment and establish quantitative estimates for bias and precision. Several other performance measures are also evaluated in order to ensure the proper working order and evidential suitability of the instrument.

WASH. STATE PATROL, *supra* note 203, at 8.

Notably, the QAP process is by no means beyond reproach or inherently reliable. Recently, in New Jersey, the state's supreme court rendered more than 20,000 breath tests invalid because several of the state's machines were not calibrated properly. See *State v. Cassidy*, 197 A.3d 86, 89 (N.J. 2018); *NJ Supreme Court Says More Than 20,000 Breathalyzer Tests Inadmissible*, NBC N.Y. (Nov. 13, 2018), <https://www.nbcnewyork.com/news/local/NJ-Supreme-Court-20000-Breathalyzer-Tests-Inadmissible-500391391.html>. Notably, the officer was criminally charged. *Cassidy*, 197 A.2d at 89. For more information about NIST, see *About NIST*, NAT'L INST. STANDARDS TECH., <https://www.nist.gov/about-nist> (last updated June, 14, 2017).

parameters in order for every breath test to be completed.⁵⁴⁴ The analyst who creates, tests, and certifies the external standard or an observer to this critical work must be confronted.

For DNA testing, the analyst that must be confronted is the individual who receives the evidentiary sample on the benchtop and performs an initial evaluation of how the evidence was received and then follows the evidence through the five stages of DNA testing—extraction, quantitation, amplification, capillary electrophoresis, and interpretation to final product.⁵⁴⁵ Further, it is much the same for toxicology where the analyst that must be confronted is one who first observed the evidentiary sample on the benchtop and then followed the sample through pre-analysis, analysis, and interpretation to final results.⁵⁴⁶ Here too, an observer to this work in both contexts would satisfy the confrontation mandate.

The lower courts' focus on the proper *Bullcoming* surrogate witness has been misguided and cuts against the constitutional guarantee of confrontation. Instead, we should focus on who is the best “shepherd” for the forensic evidence.⁵⁴⁷ Such a shepherd is either the performing analyst who can speak to his or her own work, which, as Part I demonstrates,⁵⁴⁸ is subject to mischief and mistake at each stage of testing, or another percipient witness, i.e., an observer to that work.

An observer, of course, could simply be a qualified analyst who, in person, stands by and observes the performing analyst's work. In multi-analyst structures, this position could be assigned by the laboratory and rotate among personnel, where observing duties last for a certain period of time. This observer would be present for each stage of testing even if the underlying performing analyst should change over that course. However, we can think more creatively; in some instances, it may be possible to video record⁵⁴⁹ the underlying work and the observer can review the video as well as the machine-

⁵⁴⁴ *Draeger Alcotest 9510 Operator's Manual*, *supra* note 205.

⁵⁴⁵ *See, e.g.*, *State v. Lui*, 315 P.3d 493, 508 (Wash. 2014).

⁵⁴⁶ *Bullcoming*, 564 U.S. at 660, 661 (citing *Melendez-Diaz*, 557 U.S. at 319 n.6).

⁵⁴⁷ The concept of being of a “shepherd” comes from the use of the word “shepherded” to describe what happened in the testimony before the *John* court. *People v. John*, 52 N.E.3d 1114, 1124 (N.Y. 2016). It is used herein to describe the shepherding of forensic evidence by the performing analyst or an observer to that analyst's work from start to finish in the relevant testing process.

⁵⁴⁸ *See* Part I; *see also Bullcoming*, 564 U.S. at 661–62 nn. 7–8 (describing the importance of the underlying performing analyst's work in that case).

⁵⁴⁹ *See* Brief of Amicus Curie the Innocence Network, Williams, *supra* note 29, at 30 (suggesting a reviewing analyst could observe a videotape of the procedures). It should be noted, however, that there could be some DNA work that is perhaps too small to be captured clearly by video.

generated raw data, conduct his or her own interpretation of the data, make independent findings, and write a report.⁵⁵⁰ In this way, the assigned observer of the live or video recorded work becomes a shepherd for the forensic evidence. Such observer would be responsible for testifying on behalf of the forensic evidence. That observer would be responsible for not only viewing the testing, but also reviewing the machine-generated raw data, interpreting that data, and coming to his or her own conclusions in the form of a report signed by the observer.⁵⁵¹ Thereafter, the observer would be responsible for testifying and for any admission of the report.⁵⁵²

Not every laboratory is structured in the multi-analyst form,⁵⁵³ but, to be sure, this approach would require those laboratories that are to do some restructuring and hiring to take analysts “off the line” to become observers. Nonetheless, the cost and burden of assigning an observer would pale in comparison to requiring every analyst part of the instant testing and process to testify.⁵⁵⁴ Regardless, we should keep in mind that this is a constitutional right.⁵⁵⁵ As Justice Stephens of the Washington State Supreme Court reminded us:

While the confrontation clause places a burden upon the courts and prosecutors . . . this is hardly a persuasive argument for dispensing with one of the bedrock guaranties of our criminal justice system. The Sixth Amendment also guarantees to criminal defendants the right to a speedy and public trial, to have facts (even “neutral” and “scientific” facts) found by a jury, and to be appointed a competent lawyer at no cost. Each of these guaranties has cost [I]ncalculable money, time, and lost convictions, and the costs continue to mount. If the majority is willing to exempt laboratory analysts from cross-examination to save a little, why not strike confrontation entirely, or do away with jury trials and court-appointed attorneys, and save much more?⁵⁵⁶

In addition, although the use of forensic evidence is on the rise,

⁵⁵⁰ *See id.*

⁵⁵¹ *See id.*

⁵⁵² *See id.* at 30–31.

⁵⁵³ Per the author’s firsthand knowledge, the DNA section of the Washington State Patrol Crime Laboratory is structured with one analyst assigned to an evidentiary sample throughout its course at the laboratory.

⁵⁵⁴ *See Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 342 (2009) (Kennedy, J., dissenting).

⁵⁵⁵ *See State v. Lui*, 315 P.3d 493, 526 (Wash. 2014) (Stephens, J., dissenting).

⁵⁵⁶ *Id.*

there is evidence that criminal trials are not.⁵⁵⁷ As NACDL noted in its recent 2018 report:

In 2016, 97.3% of defendants in the federal criminal justice system opted to concede their guilt. And in 2017, that number held steady at 97.2%. That means that in recent years fewer than 3% of federal criminal defendants chose to take advantage of one of the most crucial constitutional rights.⁵⁵⁸

It appears the sky is falling in a different direction these days.⁵⁵⁹

In the end, with the recent “dismantling” of the National Commission on Forensic Science and the current narrative of forensic science in our criminal justice system, we are left with too few checks on the reliability of forensic evidence and with too great a need to stay on current course.⁵⁶⁰ The Confrontation Clause must continue to live and breathe as our criminal justice system continues to evolve in this Twenty-First century and beyond. This approach permits that to happen.

VII. CONCLUSION

Just months ago, the Supreme Court denied a writ of certiorari in *Stuart v. Alabama*,⁵⁶¹ a case that would have offered the Court an opportunity to provide direction to lower courts tasked with interpreting the mess that is confrontation clause analysis within the context of forensic evidence.⁵⁶² As Justice Gorsuch wrote in dissenting from the denial of certiorari, “[t]his Court’s most recent foray in this field, *Williams v. Illinois*, yielded no majority and its various opinions have sown confusion in courts across the country.”⁵⁶³

⁵⁵⁷ JOSEPH PETERSON ET AL., THE ROLE AND IMPACT OF FORENSIC EVIDENCE IN THE CRIMINAL JUSTICE PROCESS 1 (2010); NAT’L ASS’N OF CRIMINAL DEF. LAWYERS, THE TRIAL PENALTY: THE SIXTH AMENDMENT RIGHT TO TRIAL ON THE VERGE OF EXTINCTION AND HOW TO SAVE IT 14 (2018).

⁵⁵⁸ *Id.* (emphasis omitted) (citing U.S. SENTENCING COMM’N, 2016 SOURCEBOOK OF FEDERAL SENTENCING STATISTICS, S-23 fig. C (2017); U.S. SENTENCING COMM’N, 2017 SOURCEBOOK OF FEDERAL SENTENCING STATISTICS, S-25 fig. C (2017)). See also U.S. COURTS, STATISTICAL TABLES FOR THE FEDERAL JUDICIARY - JUNE 2016 tbl. D-4 (2016) (This figure includes defendants who were acquitted after trial. It does not include those whose charges were dismissed by means other than acquittal).

⁵⁵⁹ See *Bullcoming*, 564 U.S. at 667; *Melendez-Diaz*, 557 U.S. at 325; *id.* at 352, 355 (Kennedy, J., dissenting).

⁵⁶⁰ See Mnookin, *supra* note 39, at 100, 114.

⁵⁶¹ *Stuart v. Alabama*, 139 S. Ct. 36 (2018).

⁵⁶² See *id.* at 36 (Gorsuch, J., dissenting).

⁵⁶³ *Id.* (internal citation omitted).

Applying whatever rules could be deciphered from *Williams* and the “conventional witness” rules from *Crawford* and *Davis* to cases involving the non-conventional witness—science—resembles a return to “amorphous notions of reliability” that were flatly rejected in *Crawford*.

Permitting surrogate witness testimony in lieu of testimony from the performing analyst or an observer of the scientific testing is the modern-day Marian examination. It condones the insulation of science and its process. It is Justice Warburton, responding to Sir Walter Raleigh’s request for confrontation, exclaiming, “[b]y law, a man may be condemned *upon presumption and circumstances*, without any witness to the main fact.”⁵⁶⁴ Just as the petitioner in *Crawford* wrote for the Court sixteen years ago, the Court will soon again be presented with “an opportunity to clarify the operation of the Confrontation Clause and to refasten this critical provision of criminal procedure to its historical and textual underpinnings.”⁵⁶⁵ When Justice Thomas’s approach is modified to, as proposed in this article, emphasize process over mere form, it is readily apparent that the scientific process is solemn and formal, and, thus, must be confronted. Within the forensic evidence context, to re-align the Confrontation Clause with its command that the reliability of evidence be tested in the crucible of cross-examination, the High Court should accept review when next presented with this issue and adopt this modified version of Justice Thomas’s approach.

⁵⁶⁴ JARDINE, *supra* note 7, at 421 (emphasis added).

⁵⁶⁵ Brief for Petitioner at 1, *Crawford v. Washington*, 541 U.S. 36 (2004) (No. 02-9410), 2003 U.S. S. Ct. Briefs LEXIS 668 at 11.