

**CRAWFORD’S LAST STAND?
WHAT *MELLENDEZ-DIAZ V. MASSACHUSETTS* MEANS
FOR THE CONFRONTATION CLAUSE AND FOR CRIMINAL
TRIALS**

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I. INTRODUCTION

In 2004, the U.S. Supreme Court launched a criminal-procedure revolution.¹ With its decision in *Crawford v. Washington*, the Court

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1. See *Crawford v. Washington*, 541 U.S. 36 (2004). See, e.g., *United States v. Acosta*, 475 F.3d 677, 680 (5th Cir. 2007) (*Crawford* “fundamentally altered the role of the Confrontation Clause”); *United States v. Cromer*, 389 F.3d 662, 671 (6th Cir. 2004) (*Crawford* “introduced a fundamental reconception of the Confrontation Clause”); Thomas F. Burke III, *The Test Results Said What? The Post-Crawford Admissibility of Hearsay Forensic Evidence*, 53 S.D. L. REV. 1, 1 (2008) (*Crawford* “dramatically upset th[e] evidentiary landscape”); Richard D. Friedman,

radically reinterpreted the Sixth Amendment's Confrontation Clause, which secures a criminal defendant's right "to be confronted with the witnesses against him."² Before, when a prosecution witness was unavailable for cross-examination by the accused at trial, the witness's out-of-court statements could still be admitted for their truth if the trial judge found them sufficiently reliable.³ After *Crawford*, if such hearsay statements are comparable to in-court testimony, or "testimonial," they are admissible only if the accused had a prior opportunity to cross-examine the witness.⁴ Five years later, in *Melendez-Diaz v. Massachusetts*, the Court applied this rule to forensic evidence, holding that certificates of analysis—used in a drug trial to prove the nature and weight of the proscribed substances, and sworn to and signed by the analysts who performed the tests—are testimonial.⁵ This decision heralds dramatic change for the Confrontation Clause and for criminal trials.

The facts of the case were prosaic. Boston police arrested Luis Melendez-Diaz in a Kmart parking lot after a store employee whom Melendez-Diaz and a companion had picked up in a car dropped four plastic bags of white powder as he stepped out.⁶ En route to the police station, the officers noticed Melendez-Diaz, his companion, and the hapless Kmart employee "fidgeting and making furtive movements" in

Crawford, Davis, and *Way Beyond*, 15 J. L. & POL'Y 553, 554 (2007) (*Crawford* "changed the landscape dramatically").

2. See U.S. CONST. amend. VI.

3. *Ohio v. Roberts*, 448 U.S. 56, 66 (1980) ("[W]hen a hearsay declarant is not present for cross-examination at trial, the Confrontation Clause normally requires a showing that he is unavailable. Even then, his statement is admissible only if it bears adequate 'indicia of reliability.' Reliability can be inferred without more in a case where the evidence falls within a firmly rooted hearsay exception. In other cases, the evidence must be excluded, at least absent a showing of particularized guarantees of trustworthiness.").

4. 541 U.S. at 68. In interpreting the Confrontation Clause, both *Roberts* and *Crawford* refer to "hearsay" and "unavailability," terms defined in most evidence codes. See, e.g., FED. R. EVID. 801 (defining "hearsay" and associated terms); FED. R. EVID. 804(a) (defining "unavailable"). *Roberts* aligned the constitutional standard for admission of hearsay with the evidentiary one. See 448 U.S. at 66 (holding that admission of hearsay statements does not offend the Confrontation Clause if the statements fall within a "firmly rooted hearsay exception"); FED. R. EVID. 802 (making hearsay generally inadmissible); FED. R. EVID. 803 (listing exceptions to Rule 802); FED. R. EVID. 804 (also listing exceptions to Rule 802). *Crawford* makes clear that the Confrontation Clause is concerned with only a subset of hearsay statements, and that the Rules of Evidence do not delineate which statements fall within this sphere. See 541 U.S. at 53-54, 56 (explaining that the Clause proscribes admission of "testimonial" hearsay absent declarant unavailability and a prior opportunity for cross-examination, regardless of whether or not a hearsay exception applies).

5. See *Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2532 (2009).

6. *Id.* at 2530.

the back seat of the police cruiser.⁷ The officers subsequently discovered nineteen additional bags, apparently containing the same substance as the first four, “hidden in the partition between the front and back seats.”⁸ They sent the bags to a state laboratory, where analysts tested the bags’ contents and found cocaine.⁹

At Melendez-Diaz’s trial for cocaine distribution and trafficking, the analysts did not appear. Instead, the prosecution offered the seized bags into evidence along with three “certificates of analysis.”¹⁰ The certificates, to which the analysts at the laboratory swore before a notary public, recited the weight and contents (cocaine) of the substances in the bags.¹¹ Melendez-Diaz objected that the Confrontation Clause entitled him to cross-examine the certificates’ authors, but the trial court nonetheless admitted the certificates “pursuant to state law as ‘prima facie evidence of the composition, quality, and . . . net weight of the narcotic analyzed.’”¹² The jury found Melendez-Diaz guilty, and because the Massachusetts Supreme Judicial Court had held that certificates of forensic analysis were non-testimonial—such that under *Crawford*, defendants had no right to cross-examine their authors—the state appellate courts affirmed his conviction.¹³

In the U.S. Supreme Court, the case triggered a three-way doctrinal split among the Justices. For the five-member majority, the conclusion that the certificates were testimonial followed logically from *Crawford*: as affidavits, they were functionally equivalent to in-court testimony.¹⁴ Hence, they were inadmissible absent either in-court testimony by their authors or a showing by the prosecution of unavailability and a prior opportunity for cross-examination.¹⁵ Although Justice Thomas joined the majority, he wrote separately to emphasize his continued adherence to an independent interpretation of the Confrontation Clause—in effect, *Crawford*-plus—under which a statement must also be solemn, or “formalized,” to trigger the confrontation right.¹⁶ In dissent, four

7. *Id.*

8. *Id.*

9. *Id.* at 2530-31.

10. *Id.* at 2531.

11. *Id.*

12. *Id.* (quoting MASS. GEN. LAWS, ch. 111, § 13 (2008)).

13. *Id.* (noting that *Commonwealth v. Verde*, 827 N.E.2d 701 (Mass. 2005) held that “the authors of certificates of forensic analysis are not subject to confrontation under the Sixth Amendment”). Before *Melendez-Diaz*, state and lower federal courts had split as to whether forensic reports were testimonial under *Crawford*. See *infra* note 77.

14. *Id.*

15. *Id.*

16. See *id.* at 2543 (Thomas, J., concurring).

Justices attacked the majority's conclusion on doctrinal and policy grounds. Alleging that the Court had misread both the Confrontation Clause and *Crawford*, they advanced a competing interpretation of the constitutional text.¹⁷ *Melendez-Diaz* thus leaves the basic *Crawford* rule without majority support. Accordingly, it represents a turning point in the Court's Confrontation Clause jurisprudence and the beginning of a retreat from *Crawford*.

Concerns about *Crawford*'s real-world impact appear to have sparked this rupture. The certificates in *Melendez-Diaz* recited the results of routine controlled substance analyses, but the opinion's logic sweeps broadly, embracing other forms of forensic evidence.¹⁸ Given both the frequency with which prosecutors offer forensic analyses through documents or the testimony of surrogate experts,¹⁹ and the obvious logistical obstacles to making forensic analysts regularly available for live testimony, *Melendez-Diaz* could fundamentally alter how prosecutors build and present criminal cases. The decision will undoubtedly impose significant practical costs, but its corresponding benefit—an increase in verdict reliability in cases involving forensic evidence—counterbalances those costs.

This article will analyze *Melendez-Diaz*'s implications for the Court's Confrontation Clause jurisprudence and for the criminal justice system. In Part II, I focus on doctrine, analyzing the decision and exploring what the dueling opinions tell us about the meaning of the Confrontation Clause and the future of *Crawford*. In Part III, I turn to the decision's real-world impact, outlining its costs and benefits as predicted by the majority and dissent, and explaining why neither opinion gets its cost-benefit analysis quite right.

II. DOCTRINAL IMPLICATIONS

Melendez-Diaz exposed sharp divisions among the Justices over Confrontation Clause doctrine. The majority characterized its decision

17. See *id.* at 2551-52 (Kennedy, J., dissenting) (contending that the Clause applies only to statements of witnesses who have perceived events giving them "personal knowledge of some aspect of the defendant's guilt").

18. See *id.* at 2536-38 (majority opinion) (discussing utility of confrontation in assessing reliability of forensic evidence generally and mentioning several other forensic disciplines).

19. See Jennifer L. Mnookin, *Expert Evidence and the Confrontation Clause After Crawford* v. Washington, 15 J.L. & POL'Y 791, 797, 805 (2007) (noting that "expert evidence is sometimes introduced without any live testimony at all," and that "[o]n many occasions, the forensic expert who testifies in court is not the person who actually conducted the forensic tests in the case").

as “a straightforward application of . . . *Crawford*,”²⁰ but the four dissenters emphatically disagreed.²¹ Moreover, Justice Thomas concurred separately to explain that he had joined the majority only because its holding accorded with his own, distinct view of the Confrontation Clause.²² In this Part, I first outline the majority’s reasoning and the dissent’s proposed alternative. I then examine their dispute concerning the Framers’ intent and *Crawford*’s holding, as well as the significance of Justice Thomas’s concurrence. Finally, I synthesize the Court’s recent Confrontation Clause decisions to determine what *Melendez-Diaz* signals about the future of *Crawford*.

A. *Dueling Definitions*

For the majority, *Melendez-Diaz* was an easy case, and Justice Scalia’s opinion for the Court reads like a mathematical proof:

(1) The Sixth Amendment guarantees criminal defendants the right “to be confronted with the witnesses against [them].”²³

(2) *Crawford* construed the term “witnesses” to mean those “who ‘bear testimony’” against a defendant.²⁴ Thus, the Clause forbids the admission of testimony—or “testimonial” statements—against a defendant unless the witness “appears at trial, or if the witness is unavailable, the defendant had a prior opportunity for cross-examination.”²⁵

(3) *Crawford* offered three possible definitions for “testimonial” statements: (i) “*ex parte* in-court testimony or its functional equivalent—that is, material such as affidavits, custodial examinations, prior testimony that the defendant was unable to cross-examine, or similar pretrial statements that declarants would reasonably expect to be used prosecutorially;” (ii) “extrajudicial statements . . . contained in formalized testimonial materials, such as affidavits, depositions, prior testimony, or confessions;” and (iii) “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.”²⁶

20. *Melendez-Diaz*, 129 S. Ct. at 2533.

21. *See id.* at 2543 (Kennedy, J., dissenting). Chief Justice Roberts and Justices Breyer and Alito joined Justice Kennedy’s dissent. *Id.*

22. *See id.* at 2543 (Thomas, J., concurring).

23. *See id.* at 2531 (majority opinion) (quoting U.S. CONST. amend. VI).

24. *See id.*

25. *See id.*

26. *Id.* (quoting *Crawford v. Washington*, 541 U.S. 36, 51-52 (2004)) (omissions in original).

(4) The certificates at issue in *Melendez-Diaz*, having been sworn to before a notary public, “[we]re quite plainly affidavits,” placing them squarely within formulations (i) and (ii).²⁷ They also fit within formulation (iii), for “under Massachusetts law the[ir] *sole purpose* . . . was to provide ‘prima facie evidence of the composition, quality, and the net weight of the analyzed substance.’”²⁸

(5) Accordingly, the certificates were testimonial statements, and their analyst authors were “witnesses for purposes of the Sixth Amendment.”²⁹ Absent a showing by the prosecution of unavailability and a prior opportunity for cross-examination, *Melendez-Diaz* was entitled to confront them at trial.³⁰

For the dissent, the Court’s error begins at Step (2). In the dissenters’ view, the term “witness” in the Confrontation Clause embraces only “conventional” witnesses—those who perceive events giving them “personal knowledge of some aspect of the defendant’s guilt.”³¹ But unlike a conventional witness, a technician or analyst “observes neither the crime nor any human action related to it.”³² Whereas a conventional witness recalls past events, an analyst’s report consists of “near-contemporaneous observations.”³³ And while analysts conduct “laboratory tests . . . according to scientific protocols,” a conventional witness “responds to questions under interrogation.”³⁴

This dichotomy is not without flaws. Limiting confrontation to those witnesses with first-hand knowledge of the crime would yield

27. *See id.* at 2532.

28. *Id.* (quoting MASS. GEN. LAWS, ch. 111, § 13).

29. *Id.*

30. *Id.*

31. *See id.* at 2551 (Kennedy, J., dissenting). The dissent assumes that thus defined, this class excludes forensic analysts. But the chemists who analyzed the seized substances in *Melendez-Diaz* presumably perceived their own execution of the tests as well as those tests’ results, and on perceiving those results, they acquired personal knowledge that the substances contained cocaine—a fact material to *Melendez-Diaz*’s guilt of trafficking cocaine.

32. *Id.* at 2552.

33. *Id.* at 2551. The Court’s holding in *Davis v. Washington* does incorporate this consideration, *see id.*, but does not turn on it. *Davis* held that statements made under police interrogation are non-testimonial when circumstances objectively indicate that the interrogation’s primary purpose is to enable police to meet an ongoing emergency, and testimonial when circumstances indicate that the interrogation’s primary purpose is to prove past facts potentially relevant to later criminal prosecution. *Davis v. Washington*, 547 U.S. 813, 822 (2006). The distinction between testimonial and non-testimonial statements thus depends on the statements’ primary purpose, not on their timing. *See id.* at 826-28. Whether a statement narrates ongoing events or reports completed acts is simply one factor that may “objectively indicate [that] its primary purpose was to enable police assistance to meet an ongoing emergency,” or alternatively, that its primary purpose was to report or provide evidence of a crime. *Id.* at 828.

34. *Melendez-Diaz*, 129 S. Ct. at 2552 (Kennedy, J., dissenting).

absurd results, allowing unopposed admission of police reports and exempting expert witnesses.³⁵ Further, if near-contemporaneous observations were exempt from confrontation, then victims' crime-scene affidavits and accusations to interrogating officers would be non-testimonial, and *Hammon v. Indiana*, decided in 2006 by an eight-member majority, would have come out the other way.³⁶ As for the suggestion that the Confrontation Clause reaches only responses to interrogation, "[t]he Framers were no more willing to exempt from cross-examination volunteered testimony . . . than they were to exempt answers to detailed questions."³⁷

Nevertheless, two arguments the dissent marshals for its competing constitutional theory merit further examination because they illuminate the depth of the Court's internal dispute—and the direction in which its Confrontation Clause jurisprudence may be headed. First, the dissent turns to the historical record, arguing that the Framers intended the Clause to apply only to "conventional" witnesses. Second, it contends that the majority has misconstrued the Court's holding in *Crawford*, and that *Crawford* in fact agrees with its own reading of the Confrontation Clause. The next two sections analyze the majority and dissenting opinions' arguments and counter-arguments on these two points.³⁸

35. *Id.* at 2535 (majority opinion).

36. *See id.* *Hammon* was consolidated with *Davis*, as both cases involved *Crawford*'s application to statements made in the course of police interrogation. In *Hammon*, police responded to a reported domestic dispute at the Hammons' home, and when Amy Hammon invited them to enter, they saw evidence of a very recent physical altercation. *Davis*, 547 U.S. at 819. Once they had separated the couple for questioning, Amy accused her husband of battery, and at the interviewing officer's request, she signed an affidavit. *Id.* at 819-20. Amy's accusation and her affidavit were made sufficiently close in time to the events she described that in her husband's subsequent battery trial, the court admitted her statements to the officer under the hearsay exception for excited utterances, and her affidavit under the hearsay exception for present sense impressions. *See id.* at 820; IND. R. EVID. 803(1) (defining "present sense impression" as "[a] statement describing or explaining a material event, condition, or transaction, made while the declarant was perceiving the event, condition, or transaction, or immediately thereafter"); IND. R. EVID. 803(2) (defining "excited utterance" as "[a] statement relating to a startling event or condition made while the declarant was under the stress of excitement caused by the event or condition"). Nonetheless, the U.S. Supreme Court held that Amy's statements and affidavit "could not be admitted absent an opportunity to confront the witness." *Melendez-Diaz*, 129 S. Ct. at 2535. Even setting aside this conflict with precedent, the dissent's distinction between "near-contemporaneous observations" and recollection of past events would not change the outcome in *Melendez-Diaz*. The certificates of analysis challenged there, having been "completed almost a week after the tests were performed," could hardly be characterized as setting forth "near-contemporaneous observations." *Id.*

37. *Melendez-Diaz*, 129 S. Ct. at 2535 (quoting *Davis*, 547 U.S. at 822-23 n.1) (alteration in original). In any event, the certificates in *Melendez-Diaz* were produced at police request. *Id.*

38. The dissent also offers a third argument: that by "expand[ing] the Clause to include laboratory analysts," *id.* at 2551 (Kennedy, J., dissenting), the Court had "swe[pt] away an accepted rule governing the admission of scientific evidence" that "ha[d] been established for at least 90

B. *History Lessons*

The dissent claims that when drafting the Confrontation Clause, “[t]he Framers were concerned with a typical witness—one who perceived an event that gave rise to a personal belief in some aspect of the defendant’s guilt”—not with “an analyst who conducts a scientific test far removed from the crime.”³⁹ To support this claim, the dissent cites the established framing-era practice of admitting copyists’ affidavits without confrontation.⁴⁰ Then, as now, prosecutors often relied on official records to prove elements of an offense, and as today, original records could not always be brought to court.⁴¹ Modernly, photocopiers and certifications from records custodians have resolved this dilemma, but at the Framers’ time, copyists reproduced the records by hand. Because a trial could turn on a copyist’s “honesty and diligence,” the copyist would also “prepare[] an affidavit certifying that the copy [was] true and accurate.”⁴² Although the copies and accompanying affidavits had “been made for the purpose of introducing the copies into evidence at trial,” early American courts routinely admitted them in criminal cases.⁴³

Under the *Melendez-Diaz* Court’s holding, copyists would have to provide live testimony: their affidavits are “formal out-of-court statement[s] offered for the truth of two matters (the copyist’s honesty and the copy’s accuracy), and . . . prepared for a criminal prosecution.”⁴⁴ Indeed, the dissent argues, “one possible reading of the Court’s opinion” likewise demands confrontation of modern records custodians, whose unfronted certifications of accuracy have long sufficed to authenticate public and business records.⁴⁵

years” and that had “extend[ed] across at least 35 States and six Federal Courts of Appeals,” *id.* at 2543; *see also id.* at 2558-61 (cataloging hundreds of decisions as evidence for this proposition). In a sense, this argument comes too late. Most of the cases the dissent cites in support of its claim rely on the Supreme Court’s decision in *Roberts*, on “its since-rejected theory that unfronted testimony was admissible as long as it bore indicia of reliability,” or on state law. *See id.* at 2533 (majority opinion). To the extent the Court has upended established practice with respect to the admission of scientific evidence, the crucial rupture occurred six years ago, with *Crawford*. Unless either the majority has misread *Crawford* or that case was wrongly decided, the dissent’s catalog of precedent is beside the point.

39. *Id.* at 2551 (Kennedy, J., dissenting).

40. *Id.*

41. *See id.* at 2553 (citing bigamy, for which marriage records were required, as an example).

42. *See id.*

43. *Id.*

44. *Id.*

45. *Id.* at 2546-47.

In response, the majority contends that a copyist's authority was limited: he could "'certify to the correctness of a copy of a record kept in his office,' but had 'no authority to furnish, as evidence for the trial of a lawsuit, his interpretation of what the record contains or shows, or to certify to its substance or effect.'"⁴⁶ In the majority's view, that this lone historical exception to its reading of the Confrontation Clause was "narrowly circumscribed" "vindicates the general rule."⁴⁷ Copyists could *authenticate* evidence, but they could not *create* it, as the analysts in *Melendez-Diaz* had done.⁴⁸

Intuitively, the distinction between an affidavit offered to prove a defendant's guilt, and an affidavit offered to prove that some other piece of evidence is what it purports to be, seems right. Yet, both are created solely to be introduced at trial, and both are offered for their truth, placing them squarely within the Court's definition of testimonial hearsay. As a logical matter, it is unclear precisely *why* copyists' and authenticating witnesses' "narrowly circumscribed" authority should exempt them from confrontation.⁴⁹ One could argue that the authority of a pure character witness—one who testifies to a percipient witness's character for truthfulness but otherwise lacks personal knowledge of facts relevant to the case—is equally circumscribed. He may attest to the fact witness's general veracity but not the substance of the witness's testimony. Does the Confrontation Clause therefore permit prosecutors to bolster witnesses' credibility with affidavits? Moreover, as the dissent asks, why should "laboratory analysts' authority . . . not also be deemed 'narrowly circumscribed' so that they, too, may be excused from testifying"?⁵⁰

The majority could have more effectively deflated the dissent's argument by simply acknowledging the apparent existence of a historical exception to *Crawford* without attempting to rationalize it. The Court did as much in *Crawford* itself with the traditional exception for testimonial dying declarations.⁵¹ The existence of a single class of

46. *Id.* at 2539 (majority opinion) (quoting *State v. Wilson*, 75 So. 95, 97 (La. 1917)).

47. *See id.*

48. *See id.*

49. *See id.* at 2553 (Kennedy, J., dissenting). Indeed, "[d]etermining whether a witness' authority is 'narrowly circumscribed' has nothing to do with *Crawford's* testimonial framework." *Id.*

50. *Id.*

51. *See Crawford v. Washington*, 541 U.S. 36, 56 n.6 (2004) (observing that, "[a]lthough many dying declarations may not be testimonial, there is authority for admitting even those that clearly are," and concluding that "[i]f this exception must be accepted on historical grounds, it is *sui generis*").

“unconventional” witnesses whose unfronted testimonial statements were traditionally admissible neither proves the existence of other such classes nor vitiates the general rule.⁵² And copyists’ certificates aside, early American courts did require confrontation for other types of “unconventional” witnesses.⁵³ Although courts routinely admitted copyists’ affidavits to authenticate official records, a clerk’s “certificate attesting to the fact that the clerk had searched for a particular relevant record and failed to find it,” did not receive the same treatment.⁵⁴ Such affidavits—like those of the laboratory analysts in *Melendez-Diaz*—“would serve as substantive evidence against the defendant whose guilt depended on the nonexistence of the record for which the clerk searched.”⁵⁵ Accordingly, their authors were subject to confrontation.⁵⁶ Three nineteenth-century cases suggest that the same rule applied to forensic analysts of that era: “[i]n all three cases, defendants—who were prosecuted for selling adulterated milk—objected to the admission of the state chemists’ certificates of analysis,” and in all three cases, the court overruled their objections after the prosecution “came forward with live

52. See *Melendez-Diaz*, 129 S. Ct. at 2538.

53. See *id.* at 2539 & n.9.

54. *Id.* at 2539. Today, these documents are known as CNRs, short for certificate of nonexistence of record, or of no record. See, e.g., *United States v. Martinez-Rios*, 595 F.3d 581, 583 (5th Cir. 2010); *United States v. Burgos*, 539 F.3d 641, 643 (7th Cir. 2008); *Tabaka v. District of Columbia*, 976 A.2d 173, 175 (D.C. 2009). Four days after issuing its decision in *Melendez-Diaz*, the Court issued a GVR order—granting certiorari, vacating the decision below, and remanding for reconsideration in light of *Melendez-Diaz*—in a case in which the Ninth Circuit Court of Appeals had concluded that a CNR was non-testimonial. See *United States v. Norwood*, 555 F.3d 1061, 1066 (9th Cir. 2009), *cert. granted, vacated, and remanded*, 130 S. Ct. 491 (2009). The Court typically issues GVR orders

[w]here intervening developments, or recent developments that we have reason to believe the court below did not fully consider, reveal a reasonable probability that the decision below rests upon a premise that the lower court would reject if given the opportunity for further consideration, and where it appears that such a redetermination may determine the ultimate outcome of the litigation

Lawrence v. Chater, 516 U.S. 163, 167 (1996) (emphasis added). The *Norwood* GVR order strongly hinted that CNRs are testimonial under *Melendez-Diaz*, and since then, lower courts have consistently reached that conclusion. See, e.g., *Martinez-Rios*, 595 F.3d at 585-86; *Tabaka*, 976 A.2d at 175; *Washington v. State*, 18 So. 3d 1221, 1223-25 (Fla. Dist. Ct. App. 2009). Cf. *United States v. Norwood*, 603 F.3d 1063, 1068-69 (9th Cir. 2010) (as amended on denial of rehearing *en banc*) (government conceded that CNR’s author should have been made available to testify, but court held that any error was harmless); *United States v. Madarikan*, 356 F. App’x 532, 534 (2d Cir. 2009) (same).

55. *Melendez-Diaz*, 129 S. Ct. at 2539.

56. *Id.*

witnesses.”⁵⁷ While not definitive, these cases raise “doubt as to the admissibility of the certificates without opportunity for cross-examination.”⁵⁸

Thus, the historical record does not support the dissent’s theory. At the time of the framing, its binary scheme of “conventional” and “unconventional” witnesses did not govern whether confrontation was required. But, history does not unequivocally support the majority’s holding, either. In *Crawford*, the Court relied principally on “the historical background of the [Confrontation] Clause to understand its meaning,” and it examined numerous early cases to ascertain how the Framers would have understood the common-law right before concluding that the Clause applies to testimonial statements.⁵⁹ In *Melendez-Diaz*, the dissent identifies a second category of hearsay statements (in addition to dying declarations) that, though testimonial, were routinely admissible absent confrontation in the Framers’ era. These exceptions may not invalidate the rule, but they do give rise to a colorable argument that the rule is overbroad. The *Melendez-Diaz* dissent could have pointed to mounting evidence that the *Crawford* Court misread its history to reach an erroneously expansive holding. Rather than launch a frontal assault on *Crawford*, however, the dissent opts for intellectual subterfuge, arguing that *Crawford* did not hold what the majority claims it did.

C. *Crawford’s Holding*

The dissent disputes the majority’s reading of *Crawford* and of *Davis v. Washington*, in which the Court addressed *Crawford’s* application to statements made under police interrogation.⁶⁰ The dissent contends that in interpreting the Confrontation Clause, *Crawford* and *Davis* used the adjective “testimonial” only to “avoid the awkward phrasing required by reusing the noun ‘witness.’”⁶¹ By reading *Crawford* to hold “that anyone who makes a testimonial statement is a witness for purposes of the Confrontation Clause,”⁶² the majority had

57. *Id.* at 2539 n.9 (citing *Commonwealth v. Waite*, 93 Mass. 264, 266 (1865)); *see also* *Shivers v. Newton*, 45 N.J.L. 469, 476 (Sup. Ct. 1883); *State v. Campbell*, 13 A. 585, 586 (N.H. 1888)).

58. *Id.*

59. *See* *Crawford v. Washington*, 541 U.S. 36, 42-56 (2004).

60. *See* *Melendez-Diaz*, 129 S. Ct. at 2543 (Kennedy, J., dissenting).

61. *Id.* at 2552.

62. *Id.* at 2543.

“transform[ed] that turn of phrase into a new and sweeping legal rule.”⁶³ *Crawford* and *Davis* may have “suggested that any testimonial statement, by any person, no matter how distant from the defendant and the crime, is subject to” confrontation,⁶⁴ but “th[is] suggestion was *not part of the holding* of *Crawford* or *Davis*.”⁶⁵ Rather, these cases’ holdings extend no further than their facts, and in both, the hearsay declarants whose statements lie at issue—“women who had seen, and in two cases been the victim of, the crime in question”—were conventional witnesses.⁶⁶ In short, the Court’s discussion of “testimonial” statements was just dicta.

The *Melendez-Diaz* majority does not meet this argument directly, evidently trusting to the unambiguous prose in *Crawford* and *Davis* to settle the question in its favor. Indeed, although the words “we hold” do not appear in *Crawford*, the opinion clearly telegraphs its purpose: rather than select or extrapolate from an existing rule to resolve the facts before it, the Court intends to deduce a new rule through application of first principles.⁶⁷ After examining the constitutional text and the historical record, the Court hazards two conclusions: (1) “even if the Sixth Amendment is not solely concerned with testimonial hearsay, that is its primary object”; and (2) “the Framers would not have allowed admission of testimonial [hearsay] of a witness who did not appear at trial unless he was unavailable to testify, and the defendant had had a prior opportunity for cross-examination.”⁶⁸ Thus construed, the Clause applied to the hearsay statements *Crawford* challenged, and because he had had no opportunity to cross-examine the declarant, their admission over his objection was error.⁶⁹

The *Crawford* Court “readily concede[d]” that applying the until-then-prevailing *Roberts* test would not have changed the outcome.⁷⁰ But, it explained, *Crawford* was “one of those rare cases” that “reveals a fundamental failure on our part to interpret the Constitution in a way that secures its intended constraint on judicial discretion,” and that thus compels a plenary reinterpretation of the constitutional provision

63. *Id.* at 2552.

64. *Id.* (emphasis added).

65. *Id.* (emphasis added).

66. *Id.* at 2543.

67. See *Crawford v. Washington*, 541 U.S. 36, 42-47 (2004) (turning to constitutional text and “historical background of the [Confrontation] Clause” to resolve the case).

68. See *id.* at 53-54; accord *id.* at 59.

69. See *id.* at 61, 68.

70. *Id.* at 67.

concerned.⁷¹ In the final paragraphs of its opinion, the Court summarized the results of this process: “Where testimonial evidence is at issue . . . the Sixth Amendment demands what the common law required: unavailability and a prior opportunity for cross-examination.”⁷²

If the absence of the words “we hold” from this sentence creates ambiguity as to its import, *Davis* eliminates all room for doubt. *Davis* required the Court to determine whether and under what circumstances the Confrontation Clause applies to hearsay statements made during police interrogation.⁷³ In setting forth the governing law, the Court states that in *Crawford*,

we held that [the Confrontation Clause] bars “admission of testimonial statements of a witness who did not appear at trial unless he was unavailable to testify, and the defendant had had a prior opportunity for cross-examination.” A critical portion of this holding, and the portion central to resolution of the two cases now before us, is the phrase “testimonial statements.” *Only statements of this sort cause the declarant to be a ‘witness’ within the meaning of the Confrontation Clause.*⁷⁴

Davis thus makes clear that *Crawford* held precisely what the *Melendez-Diaz* dissent insists it did not: that “anyone who makes a testimonial statement is a witness for purposes of the Confrontation Clause.”⁷⁵

Lower courts have certainly understood *Crawford*'s holding in this way.⁷⁶ True, before *Melendez-Diaz*, lower courts had split as to whether

71. *See id.*

72. *Id.* at 68.

73. *See Davis v. Washington*, 547 U.S. 813, 817 (2006) (framing the issue as “when statements made to law enforcement personnel during a 911 call or at a crime scene are ‘testimonial’ and thus subject to the requirements of the Sixth Amendment’s Confrontation Clause”).

74. *Id.* at 821 (quoting *Crawford*, 541 U.S. at 53-54) (citations omitted) (emphasis added).

75. *Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2543 (2009) (Kennedy, J., dissenting). *Davis*'s reading of *Crawford* produced little controversy at the time. Eight members of the Court—including all four *Melendez-Diaz* dissenters—joined the *Davis* majority. *Compare Melendez-Diaz*, 129 S. Ct. at 2543 (Chief Justice Roberts and Justices Breyer and Alito joined Justice Kennedy’s dissent), *with Davis*, 547 U.S. at 815 (Chief Justice Roberts and Justices Stevens, Kennedy, Souter, Ginsburg, Breyer, and Alito joined Justice Scalia’s opinion for the Court). Indeed, two *Melendez-Diaz* dissenters—Justices Kennedy and Breyer—formed part of the seven-justice majority responsible for *Crawford*. *See Crawford*, 541 U.S. at 37 (Justices Stevens, Kennedy, Souter, Thomas, Ginsburg, and Breyer joined Justice Scalia’s opinion for the Court).

76. *See, e.g., United States v. Henry*, 472 F.3d 910, 914 (D.C. Cir. 2007); *United States v. Stewart*, 433 F.3d 273, 290 (2d Cir. 2006); *United States v. Tolliver*, 454 F.3d 660, 664-65 (7th Cir. 2006); *People v. Geier*, 161 P.3d 104, 133-34 (Cal. 2007); *State v. Lopez*, 974 So.2d 340, 345-46

forensic analysts' certificates and reports were admissible under *Crawford*.⁷⁷ But their decisions consistently turned on whether the challenged documents were testimonial, not on whether their authors were conventional witnesses. Some courts deemed forensic reports non-testimonial because the assertions they contained were not overtly accusatory.⁷⁸ Other courts relied on a dictum in *Crawford*. Observing

(Fla. 2008); *People v. Taylor*, 759 N.W.2d 361, 377 (Mich. 2008); *Wall v. State*, 184 S.W.3d 730, 734-35 (Tex. Crim. App. 2006).

77. *Compare* *United States v. Washington*, 498 F.3d 225 (4th Cir. 2007) (raw data generated by chromatograph non-testimonial); *United States v. Ellis*, 460 F.3d 920 (7th Cir. 2006) (blood test result non-testimonial); *Pruitt v. Alabama*, 954 So.2d 611 (Ala. Crim. App. 2006) (compound analysis report non-testimonial); *Geier*, 161 P.3d 104 (DNA test result non-testimonial); *People v. Leach*, 908 N.E.2d 120, 174 (Ill. App. Ct. 2009) (autopsy report non-testimonial); *State v. Lackey*, 120 P.3d 332 (Kan. 2005) (same); *State v. Anderson*, 942 So.2d 625 (La. Ct. App. 2006); *Commonwealth v. Verde*, 827 N.E.2d 701 (Mass. 2005) (compound analysis report non-testimonial); *State v. O'Maley*, 932 A.2d 1 (N.H. 2007) (blood alcohol analysis result non-testimonial); *State v. Forte*, 629 S.E.2d 137 (N.C. 2006) (serology report non-testimonial); *State v. Dedman*, 102 P.3d 628 (N.M. 2004) (blood alcohol analysis result non-testimonial); *People v. Rawlins*, 884 N.E.2d 1019 (N.Y. 2008) (raw data generated by private DNA lab non-testimonial); *State v. Crager*, 879 N.E.2d 745 (Ohio 2007) (same); *Campos v. State*, 256 S.W.3d 757 (Tex. App. 2008) (autopsy report and DNA report containing only raw data non-testimonial), *with* *State v. Moss*, 160 P.3d 1143 (Ariz. Ct. App. 2007) (blood analysis report testimonial); *Hinojos-Mendoza v. People*, 169 P.3d 662 (Colo. 2007) (lab report testimonial); *Thomas v. United States*, 914 A.2d 1 (D.C. 2006) (same); *State v. Johnson*, 982 So.2d 672 (Fla. 2008) (compound analysis report testimonial); *Jackson v. State*, 891 N.E.2d 657 (Ind. Ct. App. 2008); *State v. Laturner*, 163 P.3d 367 (Kan. Ct. App. 2007) (lab report testimonial); *People v. Lonsby*, 707 N.W.2d 610 (Mich. Ct. App. 2005) (same); *State v. Caufield*, 722 N.W.2d 304 (Minn. 2006) (same); *State v. March*, 216 S.W.3d 663 (Mo. 2007) (same); *City of Las Vegas v. Walsh*, 124 P.3d 203 (Nev. 2005) (affidavit from nurse who drew blood for alcohol analysis testimonial); *State v. Kent*, 918 A.2d 626 (N.J. Super. Ct. App. Div. 2007) (state crime lab report and blood-draw certificate both testimonial); *Rawlins*, 884 N.E.2d 1019 (latent fingerprint analysis reports testimonial); *State v. Smith*, No. 1-05-39, 2006 WL 846342 (Ohio Ct. App. Apr. 3, 2006) (compound analysis report testimonial); *State v. Birchfield*, 157 P.3d 216 (Or. 2007) (same); *Acevedo v. State*, 255 S.W.3d 162 (Tex. App. 2008) (fingerprint comparison report testimonial). *Cf.* *Rollins v. State*, 897 A.2d 821, 853 (Md. 2006) (holding that factual observations in autopsy report are non-testimonial, but that contested conclusions and opinions "central to the determination of *corpus delicti* or criminal agency" are testimonial).

78. *See, e.g., Lackey*, 120 P.3d at 351-52 (concluding that "factual, routine, descriptive, and nonanalytical findings made in an autopsy report are nontestimonial"); *Forte*, 629 S.E.2d at 143 (admitting unsworn serology report as non-testimonial because it was "neutral" and contained "objective" analysis "having the power to exonerate as well as convict"); *Dedman*, 102 P.3d at 636 (finding blood alcohol analysis report non-testimonial because it was "routine, non-adversarial, and made to ensure an accurate measurement").

The State tried this argument in *Melendez-Diaz*, but the Court rejected it for two reasons. *See* 129 S. Ct. at 2533-34. First, the Sixth Amendment "contemplates two classes of witnesses—those against the defendant," whom the Confrontation Clause obliges the prosecution to produce, "and those in his favor," whom the Compulsory Process Clause entitles him to subpoena. *Id.* at 2534. "[T]here is not a third category of witnesses, helpful to the prosecution, but somehow immune from confrontation." *Id.* Second, "[i]t is often, indeed perhaps usually, the case that an adverse witness's testimony," though crucial to the prosecution's case, is not accusatory on its face, but courts have never exempted such witnesses from confrontation. *See id.*

that most traditional “hearsay exceptions covered statements that by their nature were not testimonial,” the *Crawford* Court cited business records as an example,⁷⁹ and many lower courts either gave this statement substantial weight or read it as a bright-line rule.⁸⁰ After *Davis*, some lower courts admitting analysts’ certificates and reports absent confrontation did rely, in part, on the fact that the records had been created near-contemporaneously with the observations and conclusions they recited.⁸¹ Yet these courts reasoned that this characteristic rendered the reports non-testimonial—not that it marked their authors as “unconventional” witnesses outside the Confrontation Clause.⁸² Indeed, prior to *Melendez-Diaz*, no court had read *Crawford* as applying the Clause only to “conventional” witnesses.

The dissent turns up little evidence in *Crawford* or in the historical record to support its constitutional theory, but that theory, and the dissent’s efforts to defend it, are meaningful, nevertheless. The dissent’s theory failed to carry the day in *Melendez-Diaz*, but it represents how four members of the Court view the Confrontation Clause. And in light of Justice Thomas’s continued adherence to an independent reading of the Clause, it marks a three-way split in the Court’s jurisprudence. In the next two sections, I examine Justice Thomas’s view of the Clause and explore the implications of this three-way doctrinal division.

79. See *Crawford*, 541 U.S. at 56.

80. See, e.g., *Ellis*, 460 F.3d at 921, 924-26 (concluding that medical records describing results of blood and urine tests conducted by hospital at police request, while defendant was in police custody, were non-testimonial because “[t]here is no indication that the observations embodied in [the] records were made in anything but the ordinary course of business”); *State v. Craig*, 853 N.E.2d 621, 638-39 (Ohio 2006) (agreeing with “the majority view under *Crawford* . . . that autopsy records are admissible as business records”); *Verde*, 827 N.E.2d at 705-06 (admitting drug analysis certificate because “it was akin to a business record, which the Court stated was not testimonial in nature”).

In *Melendez-Diaz*, the Court clarified that while “[d]ocuments kept in the regular course of business may ordinarily be admitted at trial despite their hearsay status . . . that is not the case if the regularly conducted business activity is the production of evidence for use at trial.” 129 S. Ct. at 2538 (citing FED. R. EVID. 803(6)). The same limitation applies to the hearsay exception for public records. See *id.* Thus, records generated for use in litigation do not meet these exceptions, and when the contemplated litigation is a criminal prosecution, the constitution further constrains their admission. See *id.* (citing *Palmer v. Hoffman*, 318 U.S. 109 (1943), and FED. R. EVID. 803(8)).

81. See, e.g., *Geier*, 161 P.3d at 139-40; *O’Maley*, 932 A.2d at 12; *Crager*, 879 N.E.2d at 756-57.

82. See *supra* note 81.

D. *Independent Voter*

Justice Thomas first articulated his theory of the Confrontation Clause in *White v. Illinois*.⁸³ Though written many years earlier, his concurring opinion in that case foreshadows *Crawford* by questioning the Court's increasing conflation of the constitutional right to confrontation with hearsay law, and by proposing that the Court reconsider its understanding of that right in light of the historical record.⁸⁴ As "one possible formulation" of the right, Justice Thomas offered the following: "The federal constitutional right of confrontation extends to any witness who actually testifies at trial, but the Confrontation Clause is implicated by extrajudicial statements only insofar as they are contained in formalized testimonial materials, such as affidavits, depositions, prior testimony, or confessions."⁸⁵ In *Crawford*, the Court quoted this proposal and two others as possible "formulations of th[e] core class of 'testimonial' statements."⁸⁶ The hearsay statement challenged in *Crawford*—a confession given during custodial interrogation—fell squarely within the category Justice Thomas defined in *White*, and he joined the Court's opinion in *Crawford* without writing separately.⁸⁷

In *Hammon*, however, his was the lone voice of dissent.⁸⁸ In *Davis*, the Court held that a woman's statements to a 911 operator, made while the defendant was attacking her, were non-testimonial because the interrogation's primary purpose was to resolve an ongoing emergency.⁸⁹ But in *Hammon*, the companion case, the Court held that an assault victim's statements to police after the officers had secured the scene were testimonial because their primary purpose was to provide evidence against her assailant.⁹⁰ For Justice Thomas, neither woman's statements were testimonial as that term should be defined.⁹¹ In his view, the Confrontation Clause's history makes clear that testimony involves "some degree of solemnity."⁹² Thus, "[a]ffidavits, depositions, and prior

83. See *White v. Illinois*, 502 U.S. 346, 358 (1992) (Thomas, J., concurring in part and concurring in the judgment).

84. See *id.* at 358-66.

85. *Id.* at 365.

86. See *Crawford v. Washington*, 541 U.S. 36, 51-52 (2004).

87. See *id.* at 38-40.

88. See *Davis v. Washington*, 547 U.S. 813, 834 (2006) (Thomas, J., concurring in the judgment in part and dissenting in part).

89. See *id.* at 828 (majority opinion).

90. See *id.* at 830.

91. *Id.* at 840 (Thomas, J., concurring in the judgment in part and dissenting in part).

92. *Id.* at 836.

testimony”—statements that “are, by their very nature, taken through a formalized process”—are testimonial, as are “confessions . . . extracted by police in a formal manner,” such as during custodial interrogation.⁹³ Otherwise, unless offered by the prosecution “to evade confrontation,” statements in response to police interrogation that lack “indicia of formality” do not trigger the constitutional right to confrontation.⁹⁴

In *Melendez-Diaz*, Justice Thomas joined the majority but wrote separately, explaining that he had done so only because the certificates of analysis were “quite plainly affidavits.”⁹⁵ He has thus held steadfastly to an independent—and thoroughly originalist—view of the Confrontation Clause.⁹⁶ When, in his opinion, the Court has drifted too far from the Clause’s original meaning, he has taken it to task. In *Davis*, he criticized the primary purpose test as “disconnected from history and unnecessary to prevent abuse” because, under certain circumstances, it

93. *Id.* at 836-37.

94. *See id.* at 840. Justice Thomas allowed that the Confrontation Clause forbids the admission of even informal out-of-court statements in response to interrogation if the prosecution attempts to use them “as a means of circumventing the literal right of confrontation,” but he did not explain what he would view as an attempt at circumvention. *See id.* at 838. Later in the opinion, however, he observes that in neither *Davis* nor *Hammon* did the prosecution “offer the women’s hearsay evidence at trial to evade confrontation,” and in supporting citations, he notes that in each case, the state endeavored to secure the declarant’s appearance at trial. *Id.* at 840. The witness in *Hammon* ignored a subpoena, and the state could not locate the witness in *Davis* at the time of trial. *Id.* These citations suggest that in Justice Thomas’ view, an informal out-of-court statement only implicates the Confrontation Clause when the declarant is otherwise available to testify at trial. Or conversely, the Clause requires unavailability, but not a prior opportunity for cross-examination, for statements that would be testimonial but for their informality.

95. *Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2543 (2009) (Thomas, J., concurring).

96. In *Giles v. California*, where the testimonial quality of the victim-declarant’s statement was not at issue, Justice Thomas concurred separately to note his continued adherence to his previously-expressed views—under which the victim’s statement to a police officer during an informal dialogue would not be testimonial. 128 S. Ct. at 2678, 2693-94 (2008) (Thomas, J., concurring).

Curiously, Justice Alito also concurred separately in *Giles* to express doubt as to whether the victim—who spoke to the officer three weeks before her death, and who, crying as she spoke, related how the defendant had beaten, choked, and threatened her, *id.* at 2680-81—was a “witness” within the meaning of the Confrontation Clause. *Id.* at 2694 (Alito, J., concurring). The basis for these doubts is unclear. As one who had perceived an event that gave her personal knowledge of some aspect of the defendant’s guilt, the victim in *Giles* was undoubtedly a “conventional” witness as defined by the dissenting opinion Justice Alito joined in *Melendez-Diaz*. *See Melendez-Diaz*, 129 S. Ct. at 2551 (Kennedy, J., dissenting). And the factual circumstances surrounding her statement closely resembled those in *Hammon*, where Justice Alito joined the majority in holding that the victim-declarant’s statements were testimonial. *Compare Giles*, 128 S. Ct. at 2680-81, and *People v. Giles*, 19 Cal. Rptr. 3d 843, 846 (Ct. App. 2004) (depublished when California Supreme Court granted review), with *Davis*, 547 U.S. at 819-20.

captured responses to informal police questioning.⁹⁷ The *Davis* majority reasoned that in the modern era, “[i]t imports sufficient formality . . . that lies to [examining police] officers are criminal offenses.”⁹⁸ For Justice Thomas, however, “[t]he possibility that an oral declaration of past fact to a police officer, if false, could result in legal consequences . . . may render honesty in casual conversations with police officers important[, but] [i]t does not . . . render those conversations solemn or formal in the ordinary meanings of those terms.”⁹⁹ He also disparaged the test’s unpredictable results.¹⁰⁰ In *White*, he had warned 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.”¹⁰¹ Yet the *Davis* Court had drawn just such a line by making the testimonial character of responses to police interrogation dependent on the interrogation’s primary purpose.¹⁰² Because police officers who respond to a reported crime generally have multiple motives for interrogating a witness, accurately identifying their subjective, primary purpose would be impossible.¹⁰³ An objective test aimed at “the function served by the interrogation” would be little better, as it would “shift the ability to control whether a violation occurred from the police and prosecutor to the judge,” whose hindsight purpose assessment “would be unpredictable and not necessarily tethered to the actual purpose for which the police performed the interrogation.”¹⁰⁴

97. *Davis*, 547 U.S. at 838 (Thomas, J., concurring in the judgment in part and dissenting in part).

98. *Id.* at 830 n.5 (majority opinion).

99. *Id.* at 838 n.3 (Thomas, J., concurring in the judgment in part and dissenting in part).

100. *Id.* at 838.

101. *White v. Illinois*, 502 U.S. 346, 364 (1992) (Thomas, J., concurring in part and concurring in the judgment).

102. *See Davis*, 547 U.S. at 838-40 (Thomas, J., concurring in the judgment in part and dissenting in part).

103. *Id.* at 839.

104. *Id.* at 839-40. Justice Thomas did not address a third plausible reading of the primary purpose test—that purpose should be evaluated from an objective declarant’s point of view. Two of the three formulations of “testimonial statements” quoted in *Crawford* incorporate an objective declarant standard: “ex-parte in-court testimony or its functional equivalent . . . [including] similar pre-trial statements that declarants would reasonably expect to be used prosecutorially,” *Crawford*, 541 U.S. at 51 (quoting Brief for Petitioner 23); and “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,” *id.* at 52 (quoting Brief for National Association of Criminal Defense Lawyers et al. as *Amici Curiae* 3). And in *Davis*, the Court emphasized, albeit in a footnote, that whether made under interrogation or otherwise, “it is in the final analysis the declarant’s statements, not the interrogator’s questions, that the Confrontation Clause requires us to evaluate.” 547 U.S. at 822 n.1. Commentators have split as to whether the *Davis* test incorporates the interrogator’s perspective or that of a reasonable declarant, but most have acknowledged that the

Despite the misgivings Justice Thomas expressed in *Davis*, purpose plays a continued role in *Melendez-Diaz*, demonstrating that it remains an important factor for the majority's other four members. In holding that the certificates of analysis were testimonial, the Court emphasized that "under Massachusetts law the[ir] sole purpose . . . was to provide 'prima facie evidence'" in a criminal trial.¹⁰⁵ In contrast, "medical reports created for treatment purposes" and traditional business records—those created in the regular course of a business activity unrelated to the production of evidence or the prosecution of crimes—were inherently non-testimonial.¹⁰⁶ The Court added that "documents prepared in the regular course of equipment maintenance may well qualify as nontestimonial records."¹⁰⁷ Yet this class of records illustrates the problematic malleability of a purpose-focused test that Justice Thomas foresaw in *White* and disparaged in *Davis*. Consider, for example, calibration and maintenance records for a breathalyzer machine owned and operated by a law enforcement agency. Because purpose can be considered at varying levels of abstraction, courts have split as to whether such records are testimonial under *Melendez-Diaz*.¹⁰⁸ Some courts have reasoned that they are created for routine, administrative purposes and not for any particular prosecution, and are accordingly non-testimonial.¹⁰⁹ But others have found that police departments maintain and calibrate breathalyzer machines only to facilitate their production of admissible evidence, so the resulting records are testimonial.¹¹⁰

opinion admits of the latter reading. See, e.g., Friedman, *supra* note 1, at 560-62 (describing ambiguity in the *Davis* opinion, contending that "the declarant's perspective is the better one," and suggesting that the Court may have referenced the interrogator's purpose because it would logically influence a reasonable declarant's perceptions in the context of interrogation); Michael S. Pardo, *Testimony*, 82 TUL. L. REV. 119, 172-74 (2007) (contending that *Davis* leaves open four possibilities for "when a statement becomes testimonial for confrontation purposes"—when it is testimonial from the interrogator's perspective, the declarant's perspective, either, or both—and advocating an either/or standard); Gregory M. O'Neil, Comment, *Davis* & Hammon: *Redefining the Constitutional Right to Confrontation*, 40 CONN. L. REV. 511, 544-47 & n.221 (2007) (discussing varying interpretations of whose perspective governs, and advocating a declarant-focused test).

105. *Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2532 (2009) (quoting MASS. GEN. LAWS, ch. 111, § 13).

106. *Id.* at 2533 n.2, 2538.

107. *Id.* at 2532 n.1.

108. See *infra* notes 171-179 and accompanying text.

109. See, e.g., *United States v. Forstell*, 656 F. Supp. 2d 578, 580-81 (E.D. Va. 2009); *State v. Bergin*, 217 P.3d 1087, 1088-90 (Or. Ct. App. 2009).

110. See, e.g., *People v. Carreira*, 893 N.Y.S.2d 844, 846-47 (City Ct. 2010); *People v. Heyanka*, 886 N.Y.S.2d 801, 802 (Dist. Ct. 2009).

In most cases, however, lower courts need not entangle themselves in such purpose assessments. Because Justice Thomas provided the decisive fifth vote in *Melendez-Diaz*, as the “position taken by th[e] Member[] who concurred in the judgment[] on the narrowest grounds,” his opinion reflects “the holding of the Court.”¹¹¹ That opinion refers to two classes of extrajudicial statements that, in Justice Thomas’s view, qualify as testimonial: (1) those “‘‘contained in formalized testimonial materials’’”;¹¹² and (2) those that are “‘‘sufficiently formal to resemble’’” the seventeenth-century *ex parte* witness examinations that prompted the Framers to constitutionalize the common-law confrontation right.¹¹³ Thus, *Melendez-Diaz* applies to affidavits, depositions, prior testimony, confessions, *Mirandized* or custodial interrogations—and perhaps not much else.

111. See *Gregg v. Georgia*, 428 U.S. 153, 169 n.15 (1976); *accord Marks v. United States*, 430 U.S. 188, 193 (1977).

Few lower courts applying *Melendez-Diaz* have read its holding as limited to “formalized testimonial materials,” and those courts treating Justice Thomas’s concurrence as procedurally determinative have diverged in its substantive application. The New Mexico Supreme Court acknowledged that Justice Thomas’s concurrence defines the bounds of *Melendez-Diaz*, but it construed the class of “formalized testimonial materials” as including unsworn reports of drug and blood-alcohol analyses. See *State v. Aragon*, 225 P.3d 1280, 1284-85 (N.M. 2010) (compound analysis reports); *State v. Bullcoming*, 226 P.3d 1, 8 (N.M. 2010) (results of gas chromatograph analysis of defendant’s blood alcohol content). In contrast, at least one California court has declined to apply *Melendez-Diaz* to unsworn forensic and laboratory reports, which do not obviously constitute “formalized testimonial materials,” or to the in-court recitation of their contents by a live witness. See *People v. Vargas*, 100 Cal. Rptr. 3d 578, 587 (Ct. App. 2009) (concluding that, “because of the limited nature of Justice Thomas’ concurrence, the precedential value of the majority’s analysis” equating “conventional” witnesses who testify to past events, and “analysts” who make near-contemporaneous observations, “is unclear as applied to a laboratory analyst’s report or a similar forensic report”). Distinguishing *Melendez-Diaz*, *Vargas* instead followed the California Supreme Court’s 2007 decision in *People v. Geier*. *Geier* held that a DNA analyst’s report and notes—about which another expert gave in-court testimony—were non-testimonial in part because they documented the analyst’s contemporaneous observations. See 161 P.3d 104, 138-40 (Cal. 2007), *cert. denied*, 129 S. Ct. 2856 (2009). Although the U.S. Supreme Court denied certiorari in *Geier*, this action cannot be read as an implicit endorsement of *Geier*’s reasoning because *Geier* held, in the alternative, that even if constitutional error had occurred, it had been harmless. See 161 P.3d at 140. The California Supreme Court has granted review in several post-*Melendez-Diaz* cases, presumably to resolve *Geier*’s fate. See, e.g., *People v. Benitez*, 106 Cal. Rptr. 3d 39 (Ct. App. 2010), *rev. granted*, 230 P.3d 117 (Cal. 2010); *People v. Dungo*, 98 Cal. Rptr. 3d 702 (Ct. App. 2009), *rev. granted*, 220 P.3d 240 (Cal. 2009); *People v. Gutierrez*, 99 Cal. Rptr. 3d 369 (Ct. App. 2009), *rev. granted*, 220 P.3d 239 (Cal. 2009); *People v. Lopez*, 98 Cal. Rptr. 3d 825 (Ct. App. 2009), *rev. granted*, 220 P.3d 240 (Cal. 2009); *People v. Rutterschmidt*, 98 Cal. Rptr. 3d 390, 412 (Ct. App. 2009), *rev. granted and op. superseded by*, 220 P.3d 239 (Cal. 2009).

112. See *Melendez-Diaz*, 129 S. Ct. at 2543 (2009) (Thomas, J., concurring) (quoting *White v. Illinois*, 502 U.S. 346, 365 (1992) (Thomas, J., concurring in part and concurring in the judgment)).

113. See *id.* (quoting *Giles v. California*, 128 S. Ct. 2678, 2693 (2008) (Thomas, J., concurring)).

E. Doctrinal Tangle

He may have cast the tie-breaking vote in *Melendez-Diaz*, but Justice Thomas will not necessarily play the role of kingmaker in future Confrontation Clause cases. *Melendez-Diaz* split the Court into three camps, but their views do not lie along a one-dimensional spectrum, with Justice Thomas alone in the middle.¹¹⁴ Four Justices believe that the Clause covers “testimonial” statements as defined in *Crawford*;¹¹⁵ for Justice Thomas, the Clause reaches only “formalized testimonial materials” and comparably formal oral testimony—in essence, a subset of testimonial statements under *Crawford*; and four Justices would apply the Clause only to statements uttered by “conventional” witnesses that an objective declarant would anticipate could be used in a later prosecution, except when such statements were made under police interrogation to resolve an ongoing emergency.¹¹⁶ For five members of the Court, the *statement* was what mattered. They would examine its content, context, purpose, and, for Justice Thomas, its formality, to determine whether it constitutes testimony, such that the declarant would be a witness within the Confrontation Clause. The four *Melendez-Diaz* dissenters, however, would start with the *declarant*, asking whether he has perceived an event giving “him personal knowledge of some aspect of the defendant’s guilt.”¹¹⁷ If so, then he is a witness within the Clause. And if circumstances objectively indicated that his statements would be available for use at a later trial, but that enabling police interrogators to meet an ongoing emergency was not their primary purpose, then those statements would implicate the confrontation right.

This doctrinal discord has already produced a curious mix of results. In *Davis*, a conventional witness’s statement was nontestimonial under *Crawford*, lacked formality, and related near-contemporaneous observations for the purpose of resolving an ongoing emergency, so the

114. *But see* G. Michael Fenner, *Today’s Confrontation Clause (After Crawford and Melendez-Diaz)*, 43 CREIGHTON L. REV. 35, 39-40 (2009) (contending that “[f]our Justices believe that the coverage of the Confrontation Clause is quite broad, four believe it is quite narrow, and Justice Thomas’s view falls in the middle”).

115. Justices Stevens, Souter, and Ginsburg joined Justice Scalia’s opinion for the Court in *Melendez-Diaz* as well as the majority opinions (also written by Justice Scalia) in *Crawford* and *Davis*.

116. Chief Justice Roberts and Justices Breyer and Alito joined Justice Kennedy’s dissent in *Melendez-Diaz* as well as the majority opinion in *Davis*. Justices Kennedy and Breyer were among the *Crawford* majority.

117. *Melendez-Diaz*, 129 S. Ct. at 2551 (Kennedy, J., dissenting).

Court unanimously declined to find a right to confrontation.¹¹⁸ In *Melendez-Diaz*, where an unconventional witness's testimonial statement satisfied Justice Thomas's formality requirement, five members of the Court agreed that confrontation was necessary.¹¹⁹ But in *Hammon*, where a conventional witness's statement was testimonial under *Crawford* but not formalized, the Court required confrontation, notwithstanding Justice Thomas's contrary view.¹²⁰ Synthesized, these results support the following proposition: a hearsay statement implicates the Confrontation Clause only if it is testimonial under *Crawford* and *Davis*, and only if either the declarant is a conventional witness or the statement bears sufficient hallmarks of formality.

This proposition may serve as a rule of thumb for how the *Melendez-Diaz* Court would decide future cases, but it is hardly a constitutional rule. Though rightly criticized for its failure to precisely define the universe of "testimonial" statements,¹²¹ *Crawford* at least articulated a clear rule, apparently favored by a seven-member majority of the Court.¹²² In *Davis* and *Hammon*, Justice Thomas expressed a distinct interpretation of the Confrontation Clause that diverged from that followed by the Court, but consensus evidently reigned among the other eight Justices. *Giles v. California* produced sharp divisions, but the dissenters did not question the underlying constitutional principle—that anyone who makes a testimonial statement is a witness within the meaning of the Confrontation Clause.¹²³ *Melendez-Diaz*, however,

118. See *Davis v. Washington*, 547 U.S. 813, 827-28 (2006); *id.* at 840 (Thomas, J., concurring in the judgment in part and dissenting in part).

119. See *Melendez-Diaz*, 129 S. Ct. at 2531-32; *id.* at 2543 (Thomas, J., concurring).

120. See *Davis*, 547 U.S. at 829-30; *id.* at 840 (Thomas, J., concurring in the judgment in part and dissenting in part).

121. Chief Justice Rehnquist criticized this omission, noting that while the Court might be willing to leave the task of fully defining "testimonial" for another day, prosecutors would need such a definition immediately. See *Crawford v. Washington*, 541 U.S. 36, 75-76 (2004) (Rehnquist, J., concurring in the judgment) ("Rules of criminal evidence are applied every day in courts throughout the country, and parties should not be left in the dark in this manner."). Commentators echoed these sentiments. See, e.g., Brooks Holland, *Testimonial Statements Under Crawford*, 71 BROOK. L. REV. 281, 281 (2005) (*Crawford* "cast[] a shadow of uncertainty over a major component of criminal practice"); Miguel A. Mendez, *Crawford v. Washington: A Critique*, 57 STAN. L. REV. 569, 587 (2004) (citing uncertainty resulting from *Crawford's* failure to define "testimonial" as chief among the decision's costs).

122. Chief Justice Rehnquist and Justice O'Connor concurred only in the judgment, explaining that they would not have overruled *Roberts*. See *Crawford*, 541 U.S. at 69 (Rehnquist, J., concurring in the judgment).

123. Justice Breyer, joined by Justices Stevens and Kennedy, disagreed with the majority's conclusion that a defendant forfeits his confrontation right by wrongdoing only when he committed the wrongful act for the purpose of rendering a witness unavailable. See *Giles v. California*, 128 S. Ct. 2678, 2695, 2698-99 (2008).

marks an abrupt retreat from *Crawford*'s simplicity. To be sure, *Crawford* remains good law, but it faces an uncertain future. A mere six years after *Crawford*'s criminal-procedure revolution, only four Justices still endorsed its basic formula, and no single view of the Confrontation Clause held sway with a majority of the Court.

Since the Court decided *Melendez-Diaz*, however, its composition has changed. Two members of the majority, Justices Souter and Stevens, have retired and been replaced, respectively, by Justices Sotomayor and Kagan. The basic *Crawford* formula has lost two of its four adherents. Its future, and that of the Court's Confrontation Clause jurisprudence more broadly, will depend on the two newest Justices.¹²⁴ They will have an early opportunity to stake out their positions next term, when the Court will hear another Confrontation Clause case, *Bryant v. Michigan*, in which the Court will again consider confrontation of hearsay statements made under police interrogation.¹²⁵

124. After Justice Sotomayor joined the Court, it granted certiorari in *Briscoe v. Virginia*, and some commentators suggested that this spelled an early demise for *Melendez-Diaz*. See Stephen Wills Murphy & Darryl K. Brown, *The Confrontation Clause and the High Stakes of the Court's Consideration of Briscoe v. Virginia*, 95 VA. L. REV. IN BRIEF 97, 100 (2010). In *Briscoe*, the Virginia Supreme Court assumed that a certificate of analysis akin to the one in *Melendez-Diaz* was testimonial but held that Briscoe had waived his confrontation right by failing to subpoena the analyst, as permitted by a Virginia statute. See *Magruder v. Virginia*, 657 S.E.2d 113 (Va. 2008), cert. granted sub. nom. *Briscoe v. Virginia*, 129 S. Ct. 2858 (2009). The case presented two issues: whether Briscoe had a right to confront the analyst, and if so, whether permitting him to subpoena the analyst satisfied the right. When the Court accepted *Briscoe* a mere four days after issuing *Melendez-Diaz*—which had resolved the second issue as well as the first, albeit in dicta, see *infra* note 155—observers speculated that the addition of a former prosecutor to the Court had given the dissenters a fifth vote to overrule or limit *Melendez-Diaz*. See Murphy & Brown, *supra*, at 99-100. The actual outcome was anticlimactic. After full briefing and oral argument, the Court issued a terse *per curiam* opinion vacating and remanding the case for reconsideration in light of *Melendez-Diaz*. See 130 S. Ct. 1316 (2010). This result suggests either that Justice Sotomayor agreed in full with the *Melendez-Diaz* majority, or that she has joined the majority but may support future limitations on the decision. See Murphy & Brown, *supra*, at 105-06.

125. See *People v. Bryant*, 768 N.W.2d 65 (Mich. 2009), cert. granted, 130 S. Ct. 1685 (2010). Professor Richard Friedman, a prominent Confrontation Clause scholar whose writing influenced the Court's decision in *Crawford*, see 541 U.S. at 61, anticipates that the Court will answer four questions in *Bryant*: (1) whether the testimonial character of a statement made under police interrogation should be assessed from the speaker's perspective or the interrogator's; (2) whether a statement must be "formal" to be testimonial, and if so, whether that requirement is satisfied if an objective declarant would expect the statement to be available for prosecutorial use; (3) whether statements in response to police interrogation during an ongoing emergency are testimonial if they do not directly relate to resolving the emergency; and (4) whether the fact that a suspect remains at large qualifies as an ongoing emergency, even if he poses no immediate danger to the declarant. See Richard D. Friedman, *More on Bryant*, THE CONFRONTATION BLOG (Mar. 2, 2010, 8:30 AM), <http://confrontationright.blogspot.com/>.

III. PRACTICAL IMPLICATIONS

Melendez-Diaz may well represent *Crawford*'s swansong. If so, *Crawford* has gone out with a bang. As one reads the opinions, the doctrinal debate between the majority and the dissent pales in comparison to their fierce disagreement over the decision's real-world impact. Dismissing the decision's practical benefits as "negligible," the dissent charges that it will impose astronomical costs on federal, state, and local governments, and that "[g]uilty defendants will go free . . . as a direct result of today's decision."¹²⁶ The majority scoffs at these dire predictions, and it challenges the dissent's assertion that cross-examination of forensic analysts will prove an empty formalism.¹²⁷

Neither the majority nor the dissent gets its cost-benefit analysis quite right. The dissent exaggerates the decision's costs, but the majority's assessment is far too optimistic. Compliance with *Melendez-Diaz* will impose a substantial burden on government agencies and coffers, regardless of how narrowly lower courts construe the Court's holding, and despite inherent limitations on its scope. On the other side of the scales, however, both the majority and the dissent give short shrift to the decision's potential benefits. Cross-examination of forensic analysts will enable jurors to make better-informed reliability assessments of forensic evidence and will thereby serve the truth-seeking function of criminal trials. Moreover, it will afford defense counsel an opportunity to dispel the myth that forensic evidence is infallible. Requiring forensic analysts to appear for cross-examination may, as the *Melendez-Diaz* dissent insists it will, result in some guilty defendants walking free, but it may also prevent the conviction of innocent defendants based on speculation disguised as science.

I open this Part by assessing the practical costs of *Melendez-Diaz*. I present and critique the dissent's alarmist arguments as well as the majority's sanguine ripostes before arguing that the reality falls somewhere in between. I then turn to the decision's benefits, framing my analysis of how cross-examination of forensic analysts will advance the truth-seeking process as a response to the *Melendez-Diaz* dissent.

126. See *Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2549-50 (2009) (Kennedy, J., dissenting).

127. See *id.* at 2536-38, 2540-42 (majority opinion).

A. *Costs*

Melendez-Diaz confirms that *Crawford* applies to forensic analysts and laboratory technicians who evaluate or perform tests on physical evidence.¹²⁸ From now on, if prosecutors wish to introduce these persons' testimonial hearsay into evidence, they must afford defendants the opportunity for cross-examination.¹²⁹ While in hindsight, this rule follows logically from *Crawford*, many jurisdictions had not adopted it,¹³⁰ and compliance in these jurisdictions will impose administrative and economic costs on government and the legal system. As the dissent observes, given the often erratic schedules of criminal trials, a forensic analyst called to testify due to *Melendez-Diaz* may "face the prospect of waiting for days in a hallway outside the courtroom."¹³¹ Existing backlogs at public crime laboratories will balloon as analysts spend more time in court (or waiting outside) and less time in the lab. Fiscally-strapped state and local governments will struggle to hire sufficient additional staff to take up the slack. In some cases, authors of forensic reports will be genuinely unavailable at the time of trial, and if their analyses are unrepeatable, and the prosecution's case turns on forensic evidence, guilty defendants may be acquitted, imposing a cost on society.

The magnitude of these costs will depend on how many cases *Melendez-Diaz* affects. On this point, the majority and the dissent sharply diverge. By the dissent's calculations, *Melendez-Diaz* will derail countless prosecutions,¹³² while the majority dismisses the dissent's projections as preposterous.¹³³ In this section, I first present these competing views. I then independently assess the decision's real-world costs in light of inherent limitations on its scope, concluding that the truth lies in the vast gap between the two camps' assessments.

1. The Dissent's Projections

Routine drug prosecutions like *Melendez-Diaz* are ubiquitous: in 2004, more than 18,000 drug trials occurred in state courts.¹³⁴ Counting

128. *See id.* at 2532, 2536-38.

129. *Id.* at 2532.

130. The majority identifies ten jurisdictions (nine states and the District of Columbia) as already applying *Crawford* to forensic analysts. *Id.* at 2540, 2541 n.11. Thus, in forty-one states, *Melendez-Diaz* will require a change in practice.

131. *See id.* at 2549 (Kennedy, J., dissenting).

132. *See id.* at 2549-50.

133. *See id.* at 2540 n.10 (majority opinion).

134. *Id.* at 2550 (Kennedy, J., dissenting).

plea bargains—in which the admissible evidence available to the prosecution almost certainly influenced defendants’ decisions to forgo trial—the states chalked up 362,850 felony drug convictions in that same year.¹³⁵ Translating these numbers to the local level, the dissent calculates that requiring confrontation of laboratory technicians who weigh and identify controlled substances will impose “a crushing burden.”¹³⁶ Based on the number of drug prosecutions in 2007, and assuming a 95% plea bargain rate, each of Philadelphia’s 18 drug analysts would be called to testify in more than 69 trials each year, and each of Cleveland’s six analysts would be summoned in 117 cases.¹³⁷

If these figures were to prove accurate, *Melendez-Diaz* would have staggering consequences for drug prosecutions nationwide. And as the dissent emphasizes, the decision may affect not just drug cases, but *all* cases in which the prosecution relies on forensic analyses. Given that the FBI crime lab’s 500 employees “conduct over one million scientific tests each year,” “[t]he Court’s decision means that before any one of those million tests reaches a jury, at least one of the laboratory’s analysts must board a plane, find his or her way to an unfamiliar courthouse, and sit there waiting to read aloud notes made months ago.”¹³⁸ And the decision may compel more than one of those analysts to follow these steps. The dissent contends that *Melendez-Diaz* can be read to require that every person who plays a role in conducting a forensic test—even the contractor who calibrates the testing equipment—appear in court.¹³⁹ Indeed, in the dissent’s view, the decision can be read to require live testimony for every link in the chain of custody for a piece of evidence,¹⁴⁰ and even require custodians to take the stand to attest to the accuracy of the copies of records they provide.¹⁴¹

Securing court appearances by all of these persons would present a formidable logistical hurdle for the prosecution. To capitalize on that fact, the dissent contends, a defendant will inevitably assert his right to confront each and every one of them.¹⁴² He may thereby hope to negotiate a more favorable plea agreement or reduced sentence;¹⁴³ to create delays that will lead to dismissal of the case on speedy trial

135. *Id.* at 2549.

136. *Id.* at 2550.

137. *Id.*

138. *Id.*

139. *See id.* at 2544-45.

140. *See id.* at 2546.

141. *See id.* at 2546-47.

142. *See id.* at 2556-57.

143. *Id.* at 2557.

grounds; or, “where scientific evidence is necessary to prove an element of the crime,” to earn an acquittal if the analyst is unavailable to testify.¹⁴⁴ Indeed, the dissent argues, defense attorneys’ duty of zealous advocacy will oblige them to put the prosecution to its proof by demanding live testimony, even where the defense does not dispute the identity of a substance or the source of other trace evidence.¹⁴⁵

Viewed from this perspective, the dissent’s prediction that *Melendez-Diaz* may “disrupt or even end criminal prosecutions” looks plausible. The criminal justice system might well collapse if, whenever forensic evidence is introduced, every person who played a role in its collection, processing, and analysis were required to provide live testimony, and if live testimony were likewise required to authenticate every document and to prove every link in the chain of custody for every item.

2. The Majority’s Response

According to the majority, however, the dissent’s “back-of-the-envelope calculations regarding the number of court appearances that will result from [its] ruling . . . rely on various unfounded assumptions.”¹⁴⁶ The dissent assumes:

that the prosecution will place into evidence a drug analysis certificate in every case; that the defendant will never stipulate to the nature of the controlled substance; [and] that even where no such stipulation is made, every defendant will object to the evidence or otherwise demand the appearance of the analyst.¹⁴⁷

None of these assumptions is valid.

First, when the prosecution must prove the weight and/or identity of a controlled substance to make out its prima facie case, it may do so through means other than a drug certificate.¹⁴⁸ This is equally true for other forms of forensic evidence. Some prosecutors’ existing practice may be to call testing analysts to deliver their results on the witness stand. In the drugs context, prosecutors might also choose to present testimony from an arresting officer if he is able to discern a substance’s identity based on experience and observations. Or test results may be offered not for their truth, but as part of the factual basis for a testifying

144. *Id.* at 2556.

145. *See id.* at 2556-57.

146. *See id.* at 2540 n.10 (majority opinion).

147. *Id.*

148. *See id.* at 2542 n.14.

expert's opinion, in theory placing them outside *Crawford*.¹⁴⁹ A prosecutor will rarely confront situations in which an analyst's testimonial hearsay is the sole means by which he can prove an element of his case beyond a reasonable doubt.

Second, the majority opines, “[d]efense attorneys and their clients will often stipulate to the nature of the substance in the ordinary drug case.”¹⁵⁰ Where the defendant does not contest a substance's identity—for example, where the defense theory is that the defendant did not knowingly possess the drugs,¹⁵¹ or that they were for personal use and not intended for sale—the majority deems it “unlikely that defense counsel would insist on live testimony whose effect will be merely to highlight rather than cast doubt on the forensic analysis,” or “to antagonize the judge or jury by wasting their time with the appearance of a witness whose testimony defense counsel does not intend to rebut in any fashion.”¹⁵²

Third, it is not necessarily true that *every* defendant will assert his confrontation right. Indeed, according to the majority, many states already follow the rule announced in *Melendez-Diaz*, while many others empower a defendant to demand confrontation but deem the right waived if the defendant fails to assert it within a given time period after “receiving notice of the prosecution's intent to use a forensic analyst's report.”¹⁵³ That “the criminal justice system has not ground to a halt” in these states strongly suggests that defendants often waive confrontation of forensic analysts.¹⁵⁴ Further, in some other states, including Massachusetts, “a defendant may subpoena the analyst to appear at trial, and yet there is no indication that obstructionist defendants are abusing that privilege.”¹⁵⁵

149. See *infra* Part III.A.3.b.

150. *Melendez-Diaz*, 129 S. Ct. at 2542.

151. *Melendez-Diaz*'s defense theory was that “the prosecution had not shown that he had possessed or dealt in the drugs.” *Id.* at 2548 (Kennedy, J., dissenting).

152. *Id.* at 2542 (majority opinion).

153. See *id.* at 2540-41.

154. See *id.* at 2541.

155. *Id.* (citation omitted). Elsewhere in its opinion, the Court explains that empowering a defendant to subpoena the analyst will not satisfy the Confrontation Clause. See *id.* at 2540. “[T]he Confrontation Clause imposes a burden on the prosecution to present its witnesses, not on the defendant to bring those adverse witnesses into court.” *Id.* “Converting the prosecution's duty under the Confrontation Clause into the defendant's privilege under state law or the Compulsory Process Clause [unfairly] shifts the consequences of adverse-witness no-shows from the State to the accused.” *Id.* Nevertheless, states remain “free to adopt procedural rules governing” a defendant's exercise of his confrontation right. *Id.* at 2541. Although the Court declined to establish a taxonomy of acceptable and unacceptable rules, see *id.* at 2541 n.12, it did address two common procedural schemes. Notice-and-demand statutes that merely “require the prosecution to provide

In short, the majority dismisses the dissent's assumptions, and its projections, as "wildly unrealistic."¹⁵⁶ It also brushes aside the dissent's expansive reading of its holding, assuring the reader that "we do not hold, and it is not the case, that anyone whose testimony may be relevant in establishing the chain of custody, authenticity of the sample, or accuracy of the testing device, must appear in person as part of the prosecution's case."¹⁵⁷ "[G]aps in the chain [of custody] normally go to the weight of the evidence rather than its admissibility," and it remains "up to the prosecution to decide what steps . . . are so crucial as to require evidence."¹⁵⁸ Further, maintenance and calibration records "may well qualify as nontestimonial."¹⁵⁹ The majority closes with a confident pronouncement: "there is little reason to believe that our decision today will commence the parade of horrors respondent and the dissent predict."¹⁶⁰

3. The Reality

On one hand, the majority's assurances underestimate the inevitable consequences of *Melendez-Diaz*. Given the enormous number of drug trials that occur in the United States each year, prosecutors almost certainly rely on drug certificates in hundreds, if not thousands, of cases. This number balloons when one considers that prosecutors may offer other forensic evidence, such as latent fingerprint or ballistics analyses, through sworn certificates. Defendants may sometimes stipulate to test

notice to the defendant of its intent to use an analyst's report as evidence at trial, after which the defendant is given a period of time in which he may" demand the analyst's live testimony, are constitutional. *Id.* at 2541 & n.12. Statutes that require the defendant himself to subpoena the analyst are not. *See id.* at 2540. The Court granted certiorari in a case raising the constitutionality of such a statute only four days after issuing its decision in *Melendez-Diaz*. *See Magruder v. Virginia*, 657 S.E.2d 113 (Va. 2008), *cert. granted sub. nom. Briscoe v. Virginia*, 129 S. Ct. 2858 (2009). After full briefing and oral argument, however, the Court issued a terse *per curiam* opinion vacating and remanding the case for reconsideration in light of *Melendez-Diaz*. *See Briscoe v. Virginia*, 130 S. Ct. 1316, 1316 (2010).

Before *Melendez-Diaz*, states' procedural rules governing confrontation of forensic analysts varied widely. For an authoritative survey explaining why most are facially unconstitutional under *Crawford*, see Pamela R. Metzger, *Cheating the Constitution*, 59 VAND. L. REV. 475 (2006). Cf. Jennifer B. Sokoler, Note, *Between Substance and Procedure: A Role for States' Interests in the Scope of the Confrontation Clause*, 110 COLUM. L. REV. 161 (2010) (proposing a framework for assessing the constitutionality of states' procedural rules post-*Melendez-Diaz* that balances the defendant's right to confrontation with states' interests).

156. *Melendez-Diaz*, 129 S. Ct. at 2540 n.10.

157. *Id.* at 2532 n.1.

158. *Id.* (quoting *United States v. Lott*, 854 F.2d 244, 250 (7th Cir. 1988)).

159. *See id.*

160. *Id.* at 2542.

results or decline to exercise their confrontation rights, and in some states, *Melendez-Diaz* will not require a change in practice. Still, the decision will surely result in a sizable increase in court appearances by forensic analysts, simply because prosecutors use forensic analyses so frequently.¹⁶¹ Moreover, the Court may not have held that the prosecution must call *everyone* whose testimony may be relevant to authentication or identification, but “what testimony *is* introduced must (if the defendant objects) be introduced live.”¹⁶² Existing practice in many jurisdictions may not conform to this standard.

Yet on the other hand, the outlook is not so bleak as the dissent would have us believe. The dissent overlooks—and the majority does not discuss—a fundamental limitation on the reach of *Melendez-Diaz*: like the Confrontation Clause, it applies only to testimonial hearsay.¹⁶³ *Melendez-Diaz* matters only when the prosecution offers a forensic analyst’s *testimonial* statement into evidence *for its truth*. While all sworn drug certificates are necessarily testimonial under *Melendez-Diaz*, forensic analysts produce, and prosecutors introduce, many other forms of documentary evidence embodying and supporting forensic analyses, some of which may not be testimonial. Moreover, when one forensic analyst’s work product emerges in the courtroom only as part of the factual basis for a testifying expert’s opinion, *Melendez-Diaz* may not apply. Unpacking each of these considerations will provide a more nuanced picture of the costs *Melendez-Diaz* will impose on the criminal justice system.

a. Testimonial Statements under *Melendez-Diaz*

Although the Court’s conclusion in *Melendez-Diaz* relies on *Crawford*, the term “testimonial” carries different meanings in the two decisions.¹⁶⁴ In light of Justice Thomas’s concurrence, only formal statements are testimonial under *Melendez-Diaz*.¹⁶⁵ Even thus circumscribed, the decision may affect many categories of forensic evidence. I discuss three of them here: forensic analysts’ unsworn

161. See COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCI. CMTY. ET AL., NAT’L RESEARCH COUNCIL OF THE NAT’L ACADEMIES, STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 86 (2009) [hereinafter, NRC REPORT] (“Forensic science experts and evidence are routinely used in the service of the criminal justice system.”).

162. *Melendez-Diaz*, 129 S. Ct. at 2532 n.1.

163. *Davis v. Washington*, 547 U.S. 813, 823-24 (2006).

164. See *supra* Part II.D.

165. See *id.*

reports, equipment calibration and maintenance records, and chain-of-custody documents.

b. Forensic Analysts' Unsworn Reports

Prosecutors increasingly rely on a wide array¹⁶⁶ of forensic disciplines to sway jurors conditioned by the media to expect forensic evidence.¹⁶⁷ In a given case, a prosecutor may offer live testimony describing a forensic analysis and its conclusions, a forensic analyst's report, or both. *Melendez-Diaz* potentially comes into play only when live testimony is omitted altogether, or when the live witness is not the report's author. Under *Melendez-Diaz*, a report is testimonial if it is, in effect if not in name, a sworn affidavit; but some unsworn reports might conceivably satisfy Justice Thomas's formality requirement.¹⁶⁸

To meet that criterion, unsworn reports must resemble "formalized testimonial materials" such as affidavits, depositions, and prior testimony, or bear "indicia of formality" akin to the ritual of informing a suspect of his *Miranda* rights.¹⁶⁹ Justice Thomas categorizes affidavits and depositions as testimonial because they "are, by their very nature, taken through a formalized process."¹⁷⁰ He has not specifically identified what makes the process "formalized" in his view, but logic suggests two possibilities. Depositions, for example, are structured in that they follow specific, established procedures, but deponents also swear an oath at the outset, conferring a degree of solemnity to the proceedings. Regardless of which characteristic Justice Thomas has in mind, they both convey to the deponent the gravity of the occasion and the importance of speaking truthfully, just as administering *Miranda* warnings puts a suspect on notice that serious consequences may follow from his subsequent statements. For Justice Thomas, a formalized statement seems to be one made under circumstances that prompt the

166. See generally NRC REPORT, *supra* note 161, at 127-72 (describing some of the "major" forensic disciplines).

167. See *infra* note 340.

168. At least one commentator has reasoned that Justice Thomas would have joined the majority in *Melendez-Diaz* even had the drug certificate not included a formal oath. See Bennett L. Gershman, *Confronting Scientific Reports Under Crawford v. Washington*, 29 PACE L. REV. 479, 495 (2009). Cf. *Crawford v. Washington*, 541 U.S. 36, 52 n.3 (2004) ("We find it implausible that a provision which conceded trial by sworn *ex parte* affidavit thought trial by *unsworn ex parte* affidavit perfectly OK.").

169. See *Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2543 (2009) (Thomas, J., concurring).

170. *Davis v. Washington*, 547 U.S. 836-37 (2006) (Thomas, J., concurring in the judgment in part and dissenting in part).

speaker to soberly consider his words and that incentivize him to tell the truth.

When might an unsworn report fit the bill? Suppose, for example, that a forensic laboratory requires its analysts to write reports using standardized forms and assigns supervisors to review the reports for accuracy and completeness. The use of forms would constrain the content of analysts' statements, pressing them to construct answers to specific questions (as at a deposition), and the review procedures would encourage rigor and thoroughness. Unsworn forensic reports produced according to these or similar procedures might qualify as formalized testimonial materials.

One lower-court decision applying *Melendez-Diaz* suggests two further limitations. In *People v. Brown*, the New York Court of Appeals concluded that a private laboratory's unsworn report—consisting of “machine-generated raw data, graphs and charts” reflecting the DNA characteristics of a male specimen extracted from a rape kit—was non-testimonial.¹⁷¹ Two of the court's rationales for this conclusion highlight the limits of *Melendez-Diaz*.

First, the report consisted only of machine-generated information, not subjective conclusions or analyses.¹⁷² As several courts have held, machines cannot testify, and machine-generated data do not constitute the testimonial statements of the machine's operator.¹⁷³ The laboratory technicians in *Brown* undoubtedly took *actions*, such as preparing samples and triggering chemical reactions, that affected the ultimate report, but they did not make *statements*. And only statements implicate

171. 918 N.E.2d 927, 928-33 (N.Y. 2009).

172. *Id.* at 931-32. The prosecution called, and Brown was able to cross-examine, the forensic biologist who actually analyzed the raw data in the lab report, compared it to Brown's DNA profile, and concluded that the two likely shared the same origin. *See id.* at 931.

173. *See, e.g.*, *United States v. Moon*, 512 F.3d 359, 362 (7th Cir. 2008) (“[T]he Confrontation Clause does not forbid the use of raw data produced by scientific instruments, though the interpretation of those data may be testimonial.”); *United States v. Washington*, 498 F.3d 225, 230 (4th Cir. 2007) (“The raw data generated by the diagnostic machines are the ‘statements’ of the machines themselves, not their operators.”), *cert. denied*, 129 S. Ct. 2856 (2009). *But cf.* *State v. Bullcoming* 226 P.3d 1, 4-6, 9 (N.M. 2010) (holding that a laboratory report including, inter alia, unsworn certifications and the results of blood-alcohol measurements conducted with a gas chromatograph, was *testimonial* because it was formalized, had been made for the purpose of proving past facts, and had been offered to prove an essential element of the prosecution's case, but deeming the technician who wrote the report “a mere scrivener” of output from the gas chromatograph machine, which was “Defendant's true ‘accuser’”).

the Confrontation Clause.¹⁷⁴ Where unsworn forensic reports consist wholly of machine-generated data, *Melendez-Diaz* will not apply.

Second, the laboratory that generated the report in *Brown* was independent of law enforcement.¹⁷⁵ Unlike government-operated labs, commercial laboratories analyze samples for a variety of clients, such as individuals seeking to confirm paternity or to ascertain whether they share genetic markers for hereditary diseases.¹⁷⁶ Thus, when an analyst prepares his report, he may not know the client's identity or motive for requesting the test. In contrast, many public crime laboratories perform forensic analyses primarily (or solely) to facilitate the identification and prosecution of criminals. Thus, whereas an objective state crime lab employee "would reasonably . . . believe that [his report] would be available for use at a later trial,"¹⁷⁷ the same cannot necessarily be said of analysts at private labs. As a result, their reports may often be nontestimonial.¹⁷⁸

Along with Justice Thomas's concurrence, these distinctions between public and private laboratories, and between human observations and machine-generated data, may place many unsworn forensic reports outside the scope of *Melendez-Diaz*.

c. Equipment Calibration & Maintenance Records

When a prosecutor relies on measurements or tests to make his case, he may wish to demonstrate their reliability—or to refute the defendant's charges of inaccuracy—by showing that the equipment used to conduct them had been properly maintained and calibrated. Rather than locate and subpoena the maintenance technician, however, the prosecutor might simply introduce written records. After *Melendez-Diaz*, are such records testimonial? In dicta, the *Melendez-Diaz* Court declared that "it is not the case[] that anyone whose testimony may be relevant in establishing . . . the accuracy of the testing device[] must appear in person as part of the prosecution's case," and that "documents prepared in the regular course of equipment maintenance may well

174. *Davis*, 547 U.S. at 823 (explaining that the Clause is concerned only with testimonial hearsay); FED. R. EVID. 801 (defining hearsay as out-of-court statements offered for the truth of what they assert).

175. *Brown*, 918 N.E.2d at 932.

176. See Fenner, *supra* note 114, at 62.

177. See *Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2532 (2009) (quoting *Crawford v. Washington*, 541 U.S. 36, 52 (2004)).

178. This rationale applies equally to calibration and maintenance records for private laboratories' equipment.

qualify as nontestimonial records.”¹⁷⁹ The Court ultimately left the question open, however, and lower courts have now begun to wrestle with it.

The vast majority of courts considering this issue have found maintenance and calibration records to be nontestimonial.¹⁸⁰ Some have read the dicta quoted in the previous paragraph as carving out an exception for these records.¹⁸¹ Others have reasoned that such records contain only “neutral” information used to prove “collateral facts” that are outside the Sixth Amendment, that calibration records “do not pertain to any particular defendant or specific case,” and that calibrating technicians “do not know which certificates, if any, will be used in litigation.”¹⁸²

Two New York trial courts have held that breathalyzer maintenance and calibration records are testimonial.¹⁸³ In these cases, because the challenged records took the form of sworn certificates, and because they had been “made under circumstances which would lead an objective witness reasonably to believe [they] would be available for use later at trial,” the courts found them indistinguishable, for constitutional purposes, from the affidavit in *Melendez-Diaz*.¹⁸⁴ In *People v. Carreira*, the court acknowledged its minority position but could not escape the conclusion that the calibration records had been “prepared expressly for use in litigation.”¹⁸⁵ That calibration and maintenance records prove only collateral facts was irrelevant because *Crawford* does not “discriminate between . . . direct and indirect evidence.”¹⁸⁶ And given that law enforcement personnel create the records for use by other law enforcement personnel, they could hardly be characterized as

179. *Melendez-Diaz*, 129 S. Ct. at 2532 n.1.

180. See, e.g., *United States v. Bacas*, 662 F. Supp. 2d 481, 484-86 (E.D. Va. 2009) (tuning forks); *United States v. Forstell*, 656 F. Supp. 2d 578, 580-81 (E.D. Va. 2009) (radar gun, tuning forks, and Intoxilyzer); *State v. Fitzwater*, 227 P.3d 520, 540 (Haw. 2010) (speedometer); *People v. DiBari*, 26 Misc. 3d 1220(A), 2010 WL 432361, at *4 (N.Y. Just. Ct. Feb. 8, 2010) (Intoxilyzer); *People v. Harvey*, 26 Misc. 3d 1218(A), 2010 WL 376935, at *3 (N.Y. Just. Ct. Feb. 4, 2010); *People v. Kelly*, 26 Misc.3d 1205(A), 2009 WL 5183779, at *4 (N.Y. City Crim. Ct. Dec. 22, 2009) (Intoxilyzer); *State v. Bergin*, 217 P.3d 1087, 1088-90 (Or. Ct. App. 2009) (Intoxilyzer).

181. See, e.g., *Forstell*, 656 F. Supp. 2d at 581; *Fitzwater*, 227 P.3d at 540; *DiBari*, 2010 WL 432361, at *3.

182. *Bacas*, 662 F. Supp. 2d at 485; accord *Bergin*, 217 P.3d at 1089-90 (also noting that challenged Intoxilyzer calibration certificate was unsworn).

183. *People v. Carreira*, 893 N.Y.S.2d 844, 846-47 (City Ct. 2010) (Intoxilyzer); *People v. Heyanka*, 886 N.Y.S.2d 801, 802 (Dist. Ct. 2009) (Intoxilyzer).

184. See *Carreira*, 893 N.Y.S.2d at 846; *Heyanka*, 886 N.Y.S.2d at 802.

185. See 893 N.Y.S.2d at 847.

186. *Id.* at 848.

“neutral.”¹⁸⁷ Indeed, state law mandated breathalyzer machine certification “precisely because evidence produced using them will end up in court (most likely criminal court) and the People want to ensure their accuracy for prosecutorial purposes.”¹⁸⁸ “But for the need to prove DWI in court, these procedures and records would not exist.”¹⁸⁹

Test result admissibility is the *raison d'être* of breathalyzer calibration records, but *Carreira's* analysis fails to account for a distinctive feature of these records, and one on which some courts have relied, post-*Melendez-Diaz*, in holding them nontestimonial.¹⁹⁰ That is, breathalyzer calibration records are created for a general prosecutorial purpose, but not for the prosecution of any particular offense or defendant.¹⁹¹ Both *Crawford* and *Melendez-Diaz* speak broadly of affidavits and of statements “made under circumstances which would lead an objective witness reasonably to believe” they “would be available for use at a later trial.”¹⁹² Neither opinion, on its face, suggests that an affidavit is nontestimonial unless sworn out in a specific case, or that the objective witness must anticipate a statement's use in a particular trial for it to be testimonial. Thus, to rely on this distinction to exempt breathalyzer calibration records from the Confrontation Clause, one must read a proviso into *Crawford*.¹⁹³

Such a proviso might well square with the text of the Confrontation Clause. The Clause guarantees a defendant's right “to be confronted with the witnesses against him.”¹⁹⁴ The phrase “witnesses against him” could refer to all whose statements are used against the defendant at trial, or it could refer to those who bore testimony against *him*—this defendant. In the latter case, breathalyzer calibration records would fall outside the Clause. For example, consider a calibration record, introduced at trial against DWI defendant Dan, and created by technician

187. *See id.*

188. *Id.* at 847.

189. *Id.* at 848.

190. *See supra* note 182.

191. This argument had gained currency before *Melendez-Diaz*, when courts almost uniformly concluded that breathalyzer calibration records are nontestimonial. *See Mnookin, supra* note 19 at 846-48.

192. *See Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2531-32 (2009); *Crawford v. Washington*, 541 U.S. 36, 51-52 (2004).

193. Before *Melendez-Diaz*, at least one commentator proposed that *Crawford* should be modified in this fashion. *See Mnookin, supra* note 19, at 849. *Cf. Fenner, supra* note 114, at 75 (examining “whether the Confrontation Clause's primary-purpose test requires a primary purpose related to a particular crime, series of crimes, or criminal enterprise” in the context of forensic reports).

194. *See* U.S. CONST. amend. IV.

Tom months before Dan's offense. Tom's statements have been used against Dan, but when he made them, Tom was not, in any ordinary sense of the words, a "witness against" Dan.¹⁹⁵

For now, however, *Melendez-Diaz* is the law of the land. While many courts have placed great stock in that decision's dicta, the Court stopped short of saying that equipment calibration and maintenance records are nontestimonial. It may not "be the case[] that anyone whose testimony may be relevant in establishing the . . . accuracy of the testing device must" testify, but "what testimony *is* introduced must . . . be introduced live."¹⁹⁶ Stated differently, nothing obliges a prosecutor to establish a testing device's accuracy, but if he does so, using testimony, that testimony must be live. And whatever the *Melendez-Diaz* Court may have said in *dicta*, its *holding* compels the conclusion that—at least with respect to breathalyzers and their ilk—maintenance and calibration records constitute testimony.

d. Chain of Custody

Under most jurisdictions' rules, the proponent of physical or documentary evidence must offer supporting evidence sufficient to sustain a finding that the item is what the proponent claims it to be.¹⁹⁷ To the extent that prosecutors have in the past met this burden through sworn certifications, they must now present live testimony.¹⁹⁸

For example, before *Melendez-Diaz*, a prosecutor might have introduced a handgun found at a crime scene through the testimony of the investigating officer who initially seized the gun, or through that of the ballistics expert who ultimately performed tests on it. Even assuming that both of these end-point witnesses testify, various law enforcement personnel will likely have handled the weapon in the interim. To prove that the tested gun was the same gun seized at the crime scene, the prosecutor might introduce a chain-of-custody form, signed or initialed by the intermediate handlers, and recording the dates and times of each transfer among them. This form might also

195. Of course, "him" should not be construed too literally. As Mnookin suggests, a statement made for the purpose of "investigating a specific criminal act" before police have identified a suspect should not be treated differently from a statement offered to inculpate a particular individual. See Mnookin, *supra* note 19, at 849. In both instances, the witness should reasonably anticipate that his statement will be used in a particular trial.

196. *Melendez-Diaz*, 129 S. Ct. at 2532 n.1.

197. See FED. R. EVID. 901(a).

198. An exception to this rule may exist for certifications from public records custodians. See *supra* notes 37-51 and accompanying text..

incorporate preprinted language to the effect that, by signing, each signatory affirms that he received and/or relinquished custody of the specified item at the dates and times provided, and that he possessed the item continuously and without altering it during the intervening period. The prosecutor could thus present an unbroken chain of custody to the jury. But, thanks to the preprinted language, this chain-of-custody form looks an awful lot like an affidavit, and post-*Melendez-Diaz*, the prosecutor cannot introduce it unless the defendant has an opportunity to cross-examine each and every signatory.

Removing the preprinted language might not change the outcome. A law enforcement officer who signs a chain-of-custody form would reasonably expect the document to later be used in a criminal prosecution. Such forms exist principally due to the requirement that trial evidence be authenticated. And depending on the nature of the form and the circumstances surrounding its completion—if, for example, officers receive extensive training on the forms and their purpose and know that supervisors and prosecutors will review the forms to ensure that all periods of time are properly accounted for—even Justice Thomas might agree that removal of the oath would not render the document non-testimonial.¹⁹⁹

Melendez-Diaz thus forces prosecutors to confront a new dilemma in establishing chain of custody. While the threshold for admission—evidence sufficient to support a finding that the item passed from crime scene to courtroom without alteration²⁰⁰—is low, the threshold of juror persuasion may be higher. Yet, coordinating with additional witnesses will burden the prosecutor, and their testimony will consume more of the court's and jurors' time. Prosecutors must carefully weigh these conflicting incentives when deciding “what steps in the chain of custody are so crucial as to require evidence.”²⁰¹

At first blush, the effects of implementing this rule appear sweeping, but they will likely prove minimal. Law enforcement can adapt by eliminating unnecessary intermediate links in the chain of custody. And in the courtroom, excluding standardized forms that exhaustively establish the chain will not necessarily lead jurors to systematically doubt the provenance of evidence. Prosecutors may

199. See *supra* pp. 34-35.

200. See, e.g., *United States v. Mendel*, 746 F.2d 155, 167 (2d Cir. 1984) (quoting *United States v. Howard-Arias*, 629 F.2d 363, 366 (4th Cir. 1982) (“The ultimate question is whether the authentication testimony is sufficiently complete so as to convince the court of the improbability that the original item had been exchanged with another or otherwise tampered with.”)).

201. See *Melendez-Diaz*, 129 S. Ct. at 2532 n.1.

choose to present one or two additional live witnesses where the chain of custody is particularly attenuated, or to rebut allegations of evidence tampering. In most cases, however, experts and fact witnesses whom the prosecution would have called anyway will establish the chain with sufficient completeness to satisfy jurors.²⁰²

e. Evidence Used “Not For its Truth”

Crawford confirms that the Confrontation Clause “does not bar the use of testimonial statements for purposes other than establishing the truth of the matter asserted,”²⁰³ and *Melendez-Diaz* does not purport to alter that rule. Thus, *Melendez-Diaz* does not preclude a forensic report’s admission if the prosecution offers it for a non-hearsay purpose, such as illustrating the factual basis for a testifying expert’s opinion.

Under the Federal Rules of Evidence, an expert witness may rely on otherwise inadmissible evidence in forming the opinion to which he will testify, so long as that evidence is of the sort on which experts in his field typically rest their professional judgments.²⁰⁴ Most states have adopted similar rules.²⁰⁵ But may the expert then disclose the basis for his opinion on the stand, even if that information would otherwise be excluded? On one hand, disclosure enables jurors to evaluate the expert’s reasoning and thereby assists them in determining how much credibility and weight to give the expert’s opinion.²⁰⁶ Yet on the other hand, putting evidence before the jury for this supposedly limited purpose poses the risk that jurors will use that evidence for its truth, as well. Indeed, jurors must evaluate an expert’s sources in order to

202. The dissent contends that under the Court’s holding, when a defendant “challenges the procedures for a secure chain of custody,” the prosecution must call, in its case-in-chief, “each person who is in the chain of custody—and who had an undoubted opportunity to taint or tamper with the evidence.” *Id.* at 2549 (Kennedy, J., dissenting). This contention thoroughly misconstrues the Court’s holding. As a baseline, prosecutors *must* satisfy the standard for admissibility, but the rules of evidence, not *Melendez-Diaz*, dictate this requirement. *See* FED. R. EVID. 901(a). Beyond that low threshold, whether to establish the chain of custody in greater detail is within a prosecutor’s discretion. *See Melendez-Diaz*, 129 S. Ct. at 2532 n.1. If the defendant alleges that evidence was contaminated or tampered with, the prosecutor can choose to rebut those allegations, but *Melendez-Diaz* does not require that he do so. Instead, *Melendez-Diaz* simply restricts the means by which prosecutors can prove chain-of-custody, both in meeting the standard for admissibility and in establishing the chain with greater certainty: unless *Crawford*’s requirements are met, they cannot use testimonial hearsay. *See id.* Contrary to the dissent’s assertion, the decision does not “control[] who[m] the prosecution must call,” but rather, *how* it may present their testimony. *See id.* at 2549 (Kennedy, J., dissenting).

203. *Crawford v. Washington*, 541 U.S. 36, 59 n.9 (2004).

204. *See* FED. R. EVID. 703 & advisory committee’s note.

205. Mnookin, *supra* note 19, at 802.

206. *Id.*

rationality evaluate his reasoning, and doing so “will inevitably involve a judgment about the likelihood that the sources themselves are valid and worthy of reliance.”²⁰⁷ In light of these competing considerations, evidence rules subject disclosure to a balancing test. In federal court and a few states, the probative value of disclosure must substantially outweigh the risk of unfair prejudice to the defendant.²⁰⁸ In most states, however, the rules strongly favor disclosure, allowing it unless the risk substantially outweighs the reward.²⁰⁹

After *Crawford*, some courts held that when another witness's testimonial statements form the factual basis of an expert's opinion, the Confrontation Clause prohibits those statements' disclosure to the jury.²¹⁰ Other courts, however, allowed expert witnesses to disclose others' forensic analyses on the stand and even admitted absent analysts' reports on the theory that, even if this evidence was testimonial, it was not hearsay.²¹¹

This split of authority persists post-*Melendez-Diaz*. Courts in Illinois and Indiana have upheld “surrogate” expert testimony regarding the content of forensic reports under the not-for-its-truth rationale.²¹² But other courts have held that the Confrontation Clause forbids the admission of one forensic analyst's testimonial statements through the in-court testimony of another.²¹³ Still other courts have taken a more nuanced approach, differentiating between an expert who merely parrots

207. *Id.* at 816.

208. See FED. R. EVID. 703; Mnookin, *supra* note 19, at 804.

209. See Mnookin, *supra* note 19, at 804.

210. See, e.g., *United States v. Mejia*, 545 F.3d 179, 198-99 (2d Cir. 2008); *Roberts v. United States*, 916 A.2d 922, 937-39 (D.C. 2007); *People v. Goldstein*, 843 N.E.2d 727, 732-34 (N.Y. 2005).

211. See, e.g., *State v. Tucker*, 160 P.3d 177, 193-94 (Ariz. 2007); *State v. Delaney*, 613 S.E.2d 699, 700-01 (N.C. Ct. App. 2005); *State v. Barton*, 709 N.W.2d 93, 95-98 (Wis. Ct. App. 2005).

212. See, e.g., *People v. Lovejoy*, 919 N.E.2d 843, 867-70 (Ill. 2009); *Pendergrass v. State*, 889 N.E.2d 861, 869 (Ind. Ct. App. 2008) (holding that admission of absent forensic analyst's reports did not violate defendant's confrontation right because reports were not admitted for their truth, but to provide context for testifying expert's opinion), *vacated by*, 913 N.E.2d 703, 707-09 (Ind. 2009) (holding that admission of absent forensic analysts' reports did not violate defendant's confrontation right because opportunity to cross-examine non-authoring experts satisfied the right, adding that reports were not hearsay because they were admitted as sources on which expert relied), *cert. denied*, 2010 WL 197668 (2010). See also *People v. Barba*, No. B185940, 2010 WL 571950, at *9-10 (Cal. Ct. App. Feb. 19, 2010); *People v. Rutterschmidt*, 98 Cal. Rptr. 3d 390, 410-13 (Ct. App. 2009), *review granted and superseded by*, 220 P.3d 239 (Cal. 2009).

213. See, e.g., *Commonwealth v. Avila*, 912 N.E.2d 1014, 1027-29 (Mass. 2009); *Wood v. State*, 299 S.W.3d 200, 207-14 (Tex. Ct. App. 2009). See also Steven N. Yermish, *Melendez-Diaz and the Application of Crawford in the Lab*, CHAMPION, Aug. 2009, at 28, 31 (asserting that “*Melendez-Diaz* confirms the position that an expert cannot testify about lab test reports without confrontation of the person who did the underlying analysis”).

another's opinions and one who cites others' factual findings to support his own conclusions.²¹⁴ These analyses lack uniformity, but they illustrate a broader point: even after *Melendez-Diaz*, some prosecutors can still put non-testifying forensic analysts' work product before the jury, albeit ostensibly for a limited, non-hearsay purpose.

This practice plainly conforms to the letter of *Crawford*, but whether it comports with the spirit of that decision is another matter altogether. *Crawford* sought to uncouple Confrontation Clause jurisprudence from the rules of evidence.²¹⁵ In overturning the rule that statements falling within "firmly-rooted" hearsay exceptions were exempt from confrontation, the Court declared that "[w]here testimonial statements are involved," the Framers did not "mean[] to leave the Sixth Amendment's protection to the vagaries of the rules of evidence."²¹⁶ Yet it is the rules of evidence that allow admission of testimonial statements through expert witnesses under the fiction that jurors will not consider them for their truth. Knowledge of the facts on which an expert based his opinion enables jurors to better assess the expert's testimony, but it does so only by allowing them to judge whether the expert relied on sound sources.²¹⁷ "To make rational use of this evidence, a factfinder must first assess the likelihood that it is worth relying upon"²¹⁸—i.e., whether it is true. And once jurors have considered the truth of factual-basis evidence, it strains credulity to suggest that they will simply ignore that evidence when addressing the substantive question of guilt or innocence.

In short, the "not-for-its-truth" rationale is an intellectually disingenuous means to circumvent *Crawford*, and I do not discuss it here in order to advocate its adoption. Unless and until the Supreme Court closes this loophole, however, courts will remain free to admit testimonial forensic analyses through expert witness testimony, and this

214. See, e.g., *Rector v. State*, 681 S.E.2d 157, 160 (Ga. 2009); *State v. Locklear*, 681 S.E.2d 293, 304-05 (N.C. 2009); *State v. Lui*, 221 P.3d 948, 950-52, 955-58 (Wash. Ct. App. 2009). See generally *Vann v. State*, 229 P.3d 197 (Alaska Ct. App. 2010) (collecting cases and thoroughly analyzing whether this "conduit limitation" serves the purposes of the Confrontation Clause).

215. *Pendergrass v. Indiana*, No. 09-866, 2010 WL 271330, at *30 (Jan. 19, 2010) (denying certiorari); see also *People v. Dungo*, 98 Cal. Rptr. 3d 702, 713 n.14 (Ct. App. 2009) ("Where testimonial hearsay is involved, the Confrontation Clause trumps the rules of evidence."), *rev. granted and superseded by*, 220 P.3d 240 (Cal. 2009).

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

217. See Mnookin, *supra* note 19, at 816.

218. *Id.*; accord Julie A. Seaman, *Triangulating Testimonial Hearsay: The Constitutional Boundaries of Expert Opinion Testimony*, 96 GEO. L.J. 828, 855-56 (2008) ("[I]t is not logically possible for a jury to use [factual-basis evidence] to assess the weight of the expert's opinion other than by considering [its] truth.").

practice may operate as a significant check on the practical costs of *Melendez-Diaz*.

* * * * *

What does this analysis tell us about those costs? First, Justice Thomas's "formality" requirement will limit the decision's applicability to unsworn forensic reports. Second, to the extent that reports consist of machine-generated, raw data, they will likely be unaffected, and the same goes for unsworn reports prepared by private, commercial laboratories. Third, breathalyzer calibration records fall squarely within *Melendez-Diaz*'s holding, but relying on dicta in the majority opinion, most courts have concluded otherwise. Fourth, much chain-of-custody evidence should likewise qualify as testimonial under *Melendez-Diaz*, though in practice this may result only in the exclusion of some standardized chain-of-custody forms. And finally, because the decision applies only to hearsay, it does not foreclose the admission of non-testifying analysts' work product as the factual basis for a testifying expert's opinion.

In sum, *Melendez-Diaz* has the potential to affect a tremendous number of criminal cases, but mostly at the margins. Drug cases aside, anecdotal evidence suggests that prosecutors rarely rely on hearsay alone to prove an essential element of an offense beyond a reasonable doubt. Forensic analysts' reports frequently supplement other evidence, so their exclusion would harm, but not hamstring, the prosecution's case. Similarly, if prosecutors cannot prove *every* link in the chain of custody for real evidence, jurors will not automatically doubt the items' authenticity. And in terms of its persuasive effect on jurors, admission of an analyst's report as factual-basis evidence, and not for its truth, will likely prove a distinction without a difference.

Still, *Melendez-Diaz* surely means that more forensic analysts must take the witness stand. Even when the substance of an analyst's report is essentially uncontested—as in a drug case, where the defense is not that the drugs aren't drugs—defendants will likely demand confrontation because doing so presents no drawbacks. The prosecution must secure the analyst's attendance and conduct a lengthy direct examination that may bore or annoy the jury. Defense counsel need only prepare for a perfunctory cross-examination while hoping for a mistrial or a directed verdict should the analyst fail to appear. Defense attorneys who consistently engage in such gamesmanship may irritate judges with busy calendars (not to mention the prosecutors they face), but judges can hardly fault the defendants for exercising their constitutional rights.

When a defendant demands confrontation of a forensic analyst, this should rarely prove to be a showstopper.²¹⁹ The dissent's fear that forensic analysts will often prove unable to "make it to the courthouse in time"²²⁰ is simply unwarranted. Analysts may, on occasion, fall ill, have personal or professional commitments that conflict with trial, or "be unable to travel because of inclement weather."²²¹ But the same can be said of all other prosecution witnesses. Forensic analysts—many of whom are public employees—will likely prove more reliable, and easier for prosecutors to communicate with, than lay witnesses. And while calling analysts to testify in court may draw them away from important public duties, and although they may occasionally be called to testify in more than one case on the same day, the same can be said of police officers. Police officers manage to balance their investigatory duties with regular court appearances. Forensic analysts can—and will—learn to do the same.

B. *Benefits*

Implementing *Melendez-Diaz* will impose costs on government and the legal system, but ensuring that defendants consistently have the opportunity to cross-examine forensic analysts will yield countervailing benefits. The *Melendez-Diaz* dissent's contrary assertion rests on several false premises, and the majority's brief riposte merely hints at the potential value of testing forensic analyses "in the crucible of cross-

219. In a very few cases, forensic analysts will be genuinely unavailable. Suppose, for example, that a medical examiner conducts an autopsy on a murder victim but dies long before police identify a suspect. See Mnookin, *supra* note 19, at 851. Under *Melendez-Diaz*, the examiner's report may well be testimonial, and a new autopsy is, of course, impossible. See *id.* at 851-52 (arguing that in such a scenario, the autopsy results are testimonial under *Crawford* and must be entirely excluded, thereby unfairly rewarding the suspect for evading capture for so long); Carolyn Zabrycki, Comment, *Toward a Definition of "Testimonial": How Autopsy Reports Do Not Embody the Qualities of a Testimonial Statement*, 96 CALIF. L. REV. 1093, 1115 (2008) (arguing that a rule under which autopsy reports are testimonial would "effectively function[] as a statute of limitations for murder").

Yet if the original examiner videotaped the autopsy process or took extensive photographs and measurements, a second medical examiner could review these materials as well as the deceased examiner's report. It seems plausible that photographs of bruise patterns, raw data from a toxicology screening, or other nontestimonial documentation could enable the second examiner to form entirely independent opinions. Leaving aside the not-for-its-truth rationale for admission of the first examiner's report, the second examiner could convey his opinion (and perhaps some of its factual basis) without disclosing any testimonial statements. Even in this extreme hypothetical, *Melendez-Diaz* does not definitively foreclose the admission of crucial forensic evidence.

220. *Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2550 (2009) (Kennedy, J., dissenting).

221. See *id.*

examination.”²²² Confrontation’s fundamental purpose is “to ensure reliability of evidence,”²²³ which in turn serves the truth-seeking function of criminal trials. Hence, to measure the potential benefits of *Melendez-Diaz*, one must consider whether, and how, cross-examination of forensic analysts will aid jurors in evaluating the reliability of forensic evidence. In this section, I aim to answer those questions, framing my analysis as a response to four of the *Melendez-Diaz* dissent’s arguments.

1. Cross-examination can expose errors in forensic conclusions and flaws in the underlying forensic method.

The dissent argues that cross-examination of forensic analysts will prove valueless because it will not “detect errors in scientific tests”; and that the defense should instead conduct a new test, or where a new test is impossible, call its own expert.²²⁴ As an initial matter, these proposed alternatives reflect wishful thinking. “Some forensic analyses, such as autopsies and breathalyzer tests, cannot be repeated, and the specimens used for other analyses have often been lost or degraded.”²²⁵ And it is hardly plausible that courts will approve funding for indigent defendants to re-test a sample or retain an expert in every case in which the prosecution offers forensic evidence. Indeed, the cost of doing so might well exceed the cost of securing live testimony from the analyst who conducted the original test.

More fundamentally, the dissent’s contention that cross-examination cannot undermine the substance of forensic analyses is flat-out wrong. As the majority acknowledges, recent exoneration statistics demonstrate that “invalid forensic testimony” is a genuine, systemic problem²²⁶—one that inquiry into forensic analysts’ methodologies may ameliorate.²²⁷ Defense counsel might explore, and the jury might benefit from hearing, how very little *science* lies behind most “forensic

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

223. *Id.*

224. *Melendez-Diaz*, 129 S. Ct. at 2547 (Kennedy, J., dissenting).

225. *Id.* at 2536 n.5.

226. See *id.* at 2537.

227. See, e.g., *id.* at 2537 (noting that many forensic methodologies, including those followed by the laboratory analysts in *Melendez-Diaz*, “require[] the exercise of judgment and present[] a risk of error that might be explored on cross-examination”); *Leading Cases*, 123 HARV. L. REV. 202, 210 (2009) (arguing that “the defendant has an interest in cross-examining a technician not just on the conduct of a particular test but on the methodology in general”); Burke, *supra* note 1, at 16 (noting “the defendant’s interest in cross-examining a technician not just on implementation of one particular test, but rather on the methodology employed generally”).

sciences.”²²⁸ DNA analysis represents the gold standard among forensic disciplines. Its courtroom application “is a fortuitous by-product” of rigorous research by scientists in academic and commercial laboratories.²²⁹ Its ability to individuate—to reliably associate an unknown sample to a particular person, to the exclusion of all others—rests on theoretically and empirically sound biological explanations.²³⁰ Its methodology minimizes “the chance of two different people matching,” and its error rates have been explored and documented.²³¹ “[T]he laboratory procedures are well specified,” and “there are clear and repeatable standards for analysis.”²³² In sum, DNA analysis is scientific. It is objective, it rests on a validated methodology, empirical tests have measured its accuracy, and analysts follow regular protocols. Few other forensic disciplines share these characteristics, and whatever else they may be called, these disciplines cannot fairly be called “sciences.”²³³

228. “The law’s greatest dilemma in its heavy reliance on forensic science . . . concerns the question of whether—and to what extent—there is *science* in any given ‘forensic science’ discipline.” See NRC REPORT, *supra* note 161, at 87, 107-08. For many forensic disciplines, the answer would seem to be no. See, e.g., Simon A. Cole, *Where the Rubber Meets the Road: Thinking About Expert Evidence as Expert Testimony*, 52 VILL. L. REV. 803, 808 (2007) (“Very little, if any, of what is called ‘forensic science’ consists of the sort of open-ended basic research that is classically the object of the philosophy of science.”); J. Herbie DiFonzo & Ruth C. Stern, *Devil in a White Coat: the Temptation of Forensic Evidence in the Age of CSI*, 41 NEW ENG. L. REV. 503, 520 (2007) (“At its core . . . forensic testing does not have an image problem; it has a science problem. . . . [I]f forensic analysis is unable to achieve and document levels of validity and reliability, perhaps it should stop calling itself science.”). According to the NRC Report:

Although some of the techniques used by the forensic science disciplines—such as DNA analysis, serology, forensic pathology, toxicology, chemical analysis, and digital and multimedia forensics—are built on solid bases of theory and research, many other techniques have been developed heuristically. That is, they are based on observation, experience, and reasoning without an underlying scientific theory, experiments designed to test the uncertainties and reliability of the method, or sufficient data that are collected and analyzed scientifically.

NRC REPORT, *supra* note 161, at 128.

229. See NRC REPORT, *supra* note 161, at 133; Erin Murphy, *The New Forensics: Criminal Justice, False Certainty, and the Second Generation of Scientific Evidence*, 95 CALIF. L. REV. 721, 730-31, 749 (2007). Murphy cautions, however, that despite DNA’s general scientific robustness, its forensic application “lack[s] commercial or research analogs.” *Id.* at 749.

230. See NRC REPORT, *supra* note 161, at 133.

231. See *id.*

232. See *id.*

233. See *United States v. Glynn*, 578 F. Supp. 2d 567, 570 (S.D.N.Y. 2008).

a. Subjectivity

Many forensic disciplines—including analysis of latent fingerprints, shoeprints, tire tracks, toolmarks,²³⁴ and bitemarks—involve pattern comparisons. But “[f]ew, if any, . . . have objective standards for deciding whether two patterns match. That determination is left to the judgment of each examiner.”²³⁵ Fingerprint analysis, for example, entails visual comparison of an unknown print associated with a crime to the known print of a particular suspect or to a print retrieved from a database.²³⁶ A “match” reflects the individual examiner’s conclusion, “based on his or her experience, that sufficient quantity and quality of . . . detail is in agreement.”²³⁷ There is no core set of characteristics that must agree, and no minimum number of details that must align, for an examiner to reach this conclusion.²³⁸ Hence, one examiner’s analysis may differ from that of his colleague—they may reach entirely different conclusions, or the same conclusion for entirely different reasons—and “experienced examiners do not necessarily agree with even their own past conclusions when the examination is presented in a different context some time later.”²³⁹

One might reasonably assume that when a forensic analyst’s conclusion rests on a subjective judgment, the prosecution will call that same analyst to testify, and the defendant will have an opportunity to cross-examine him. This assumption would be false. Before *Melendez-Diaz*, statutes in various jurisdictions authorized prosecutors to introduce forensic certificates, without *any* live testimony, to “prove the results of DNA tests, microscopic hair analyses, fingerprint identifications, coroners’ reports, ballistics tests, and a wide range of other tests conducted by a crime laboratory.”²⁴⁰ And even where prosecutors did offer live testimony, some undoubtedly chose to present a courtroom-savvy expert rather than the public crime-lab employee who conducted the analysis.

234. “Toolmarks” are impressions “generated when a hard object (tool) comes into contact with a relatively softer object.” NRC REPORT, *supra* note 161, at 150.

235. Michael J. Saks & Jonathan J. Koehler, *The Individualization Fallacy in Forensic Science Evidence*, 61 VAND. L. REV. 199, 200 (2008).

236. NRC REPORT, *supra* note 161, at 138.

237. *See id.*

238. *See id.* at 139; Saks & Koehler, *supra* note 235, at 200.

239. NRC REPORT, *supra* note 161, at 139; *see also* Saks & Koehler, *supra* note 235, at 201 (describing the study).

240. Metzger, *supra* note 155, at 478.

Melendez-Diaz forecloses the former avenue for introducing an analyst's testimony, and it ought to foreclose the latter as well.²⁴¹ In such cases, cross-examination of the original analyst will prove invaluable, as neither a sheet of paper nor a surrogate can fully illuminate the basis for another person's subjective conclusion. Moreover, cross-examination can reveal to the jury—who might well have assumed otherwise—that the conclusion *is* subjective. This fact is surely relevant to a rational factfinder's assessment of the conclusion's reliability and weight.

b. Validity

Methodological validity is a threshold question for scientific disciplines. At a very basic level, does the method actually work? Is it feasible to answer *this* question about *this* initial data by following *this* process? Scientists confirm a method's validity for a particular purpose through validation studies.²⁴² Such a study “begin[s] with a clear hypothesis (e.g., ‘new method X can reliably associate biological evidence with its source’)” and then tests it through an unbiased experiment designed to produce data potentially supporting or refuting the hypothesis.²⁴³ Publication of such studies in peer-reviewed journals then enables “experts in the field [to] review, question, and check the repeatability of the results.”²⁴⁴

For the vast majority of forensic-science disciplines, methodological validity remains unverified.²⁴⁵ For example, while “it seems plausible that a careful comparison of two [fingerprints] can accurately discern whether or not they had a common source,” no empirical study has demonstrated that fingerprint analysts' methodology can reliably associate prints from the same source.²⁴⁶ Furthermore, like many other forensic-science methodologies, latent fingerprint analysis is

241. See *supra* Part III.A.3.b.

242. See NRC REPORT, *supra* note 161, at 113.

243. See *id.*

244. *Id.* at 114.

245. Craig M. Cooley, *The CSI Effect: Its Impact and Potential Concerns*, 41 NEW ENG. L. REV. 471, 497 (2007) [hereinafter, Cooley, *CSI Effect*] (“[F]orensic science is and has been premised on almost no research for more than a century.”). When validation studies have been conducted, some have discredited once-vaunted forensic disciplines, such as paraffin and gunshot residue testing. See *id.* at 497-98. Proponents of both methodologies claimed they could reliably determine whether a person had recently fired a gun. *Id.* at 497-98.

246. See NRC REPORT, *supra* note 161, at 142-43. See also *id.* at 154, 158, 167, 172 (pointing to an absence or dearth of validation studies in the fields of firearm, bitemark, and toolmark analysis, microscopic hair analysis, and forensic document examination).

premised on the idea that “no two sets of markings left by distinct objects can be indistinguishably alike.”²⁴⁷ Is this core uniqueness principle true? Biological explanations exist for individual differences in DNA,²⁴⁸ but the same cannot be said of fingerprints, let alone shoeprints. Personal experience cannot, by itself, prove the principle’s validity.²⁴⁹ Yet because most forensic-science disciplines have not bothered to scrutinize it, scant empirical evidence supporting (or refuting) the uniqueness hypothesis exists.²⁵⁰

In the latent fingerprint analysis field, “[s]ome scientific evidence supports the presumption that [prints] are unique to each person and persist unchanged throughout a lifetime.”²⁵¹ Even if that evidence were conclusive, however, uniqueness and persistence would be insufficient to validate fingerprint analysts’ methods.²⁵²

Uniqueness does not guarantee that prints from two different people are always sufficiently different that they cannot be confused, or that two impressions made by the same finger will also be sufficiently similar to be discerned as coming from the same source. The impression left by a given finger will differ every time, because of inevitable variations in pressure, which change the degree of contact between each part of the ridge structure and the impression medium. None of these variabilities—of features across a population of fingers or of repeated impressions left by the same finger—has been characterized, quantified, or compared.²⁵³

That so many forensic disciplines rely on unvalidated methods does not necessarily mean that forensic evidence is unreliable bunk, but a rational fact-finder would surely take this information into account in weighing forensic evidence. When the prosecution introduces a forensic analyst’s conclusions or data, jurors will likely assume that the

247. See Saks & Koehler, *supra* note 235, at 209. Bitemark, handwriting, shoeprint, tiremark, and other forms of pattern analysis likewise endeavor to match an imprint left at the scene to a specific person or object. See *id.* at 206.

248. NRC REPORT, *supra* note 161, at 133.

249. See Saks & Koehler, *supra* note 235, at 212 (citing the famous “all swans are white” hypothesis: regardless of how many white swans one encounters, the sighting of a single black swan would disprove the hypothesis).

250. *Id.* at 210.

251. See NRC REPORT, *supra* note 161, at 143-44.

252. See *id.* at 144.

253. *Id.* See also *id.* at 149 (noting absence of such population studies to support shoeprint and tiremark analysis); *id.* at 154-55 (noting dearth of support for uniqueness presumption in firearm and toolmark analysis); *id.* at 157-58 (describing flawed population study to support microscopic hair analysis); *id.* at 174 (noting absence of thorough population study to establish the uniqueness of bite marks).

underlying method does what it claims to do; otherwise, why would the judge admit it?²⁵⁴ An opportunity to cross-examine the analyst will enable defense counsel to challenge this assumption. Jurors may also be surprised to learn, for example, that while latent fingerprint analysts operate on the premise that no two individuals can leave identical prints, they don't know for sure and haven't bothered to confirm their assumption. Such knowledge—gained from cross-examination of a fingerprint analyst—will aid jurors in deciding how much weight to give that analyst's conclusions.

c. Accuracy

All scientific methodologies are subject to various sources of error.²⁵⁵ Even when a method works, it will not produce accurate results 100 percent of the time. Thus, “[a] key task for . . . the analyst applying a scientific method to conduct a particular analysis[] is to identify as many sources of error as possible, to control or to eliminate as many as possible, and to estimate the magnitude of remaining errors so that the conclusions drawn . . . are valid.”²⁵⁶ Some errors will necessarily remain, and ascertaining a methodology's error rate “requires rigorously developed and conducted scientific studies.”²⁵⁷ Scientists seek to document error rates in order to account for them when stating conclusions.²⁵⁸

“Unlike most scientific communities, [however,] the forensic science community does not openly” pursue detection and measurement of error rates.²⁵⁹ In theory, a methodology that seeks to individuate evidence from an unknown source to a particular suspect can yield false positives and false negatives.²⁶⁰ Yet the error rates for many forensic

254. The existing rules governing admissibility of forensic evidence have failed to ensure that only evidence supported by a valid methodology gets to the jury. *See generally* NRC REPORT, *supra* note 161, at 85-110 (discussing existing legal regime and identifying systemic features that have allowed preemptive judicial certification of forensic methodologies). *See also* Murphy, *supra* note 229, at 755-74 (arguing that the criminal justice system is structurally incapable of distinguishing reliable from unreliable forensic evidence).

255. *See* NRC REPORT, *supra* note 161, at 116.

256. *Id.*

257. *Id.* at 122.

258. *See id.* at 116-18.

259. *See* Craig M. Cooley, *Reforming the Forensic Science Community to Avert the Ultimate Injustice*, 15 STAN. L. & POL'Y REV. 381, 393 (2004) [hereinafter, Cooley, *Reforming the Forensic Science Community*].

260. *See* NRC REPORT, *supra* note 161, at 117-20.

disciplines are unknown.²⁶¹ In the field of toolmark analysis, for example, “no statistical foundation for estimation of error rates exists.”²⁶² Analysts in forensic disciplines for which error rates have not been studied often claim (implausibly) that their techniques are infallible.²⁶³ When error rates have been examined, results have varied. For example, studies have determined that over 97% of paint samples “could be differentiated based on microscopic examinations coupled with solubility and microchemical testing.”²⁶⁴ In contrast, a recent study of microscopic hair analysis revealed a 12.5% false positive rate.²⁶⁵

Cross-examination of a forensic analyst concerning a method's error rate has an obvious value for the defense, and for the jury. A bare certificate, or a black-and-white conclusion in a report admitted through another witness, presents a façade of absolute certainty. In reality, though, the analyst's techniques will sometimes produce the wrong answer, even when executed perfectly. How frequently that happens—or, as is more likely, that the analyst *has no idea* how often it happens—should logically enter into a rational juror's assessment of the conclusion's reliability.

d. Regularity

Whether a forensic analyst's conclusion derives from the application of regularized protocols also bears on its reliability. Do well-accepted standards and procedures exist such that each analyst follows the same process, in the same way, every time? For some forensic-science disciplines, such as controlled-substance analysis, government-sponsored working groups have devised such standards.²⁶⁶ Still, “[i]t is questionable whether all of the [recommended protocols] . . . would be acceptable in a scientific sense, if one's goal were to identify and classify a completely unknown substance.”²⁶⁷ Although some tests or combinations thereof can reliably identify unknown

261. Cooley, *Reforming the Forensic Science Community*, *supra* note 259, at 397; accord DiFonzo & Stern, *supra* note 228, at 522.

262. NRC REPORT, *supra* note 161, at 154.

263. Cooley, *Reforming the Forensic Science Community*, *supra* note 259, at 393.

264. See NRC REPORT, *supra* note 161, at 170.

265. See *id.* at 160-61. That study subjected eighty pairs of hairs that FBI examiners had “associated” through microscopic analysis to mitochondrial DNA testing. See *id.* Nine pairs had originated from different sources. See *id.* at 161. Earlier studies had produced fewer false positives but suffered from methodological and statistical flaws. See *id.* at 157-58.

266. See *id.* at 135-36.

267. *Id.* at 136.

substances, the working group guidelines do not sufficiently explain which tests should be used for which tasks.²⁶⁸

For other disciplines, no overarching guidelines encourage procedural regularity. A toolmark analysts' professional group has proposed a threshold for association of a particular tool with a particular mark, but it has not identified the characteristics that examiners should look for or the process they should follow in comparing the tool and mark.²⁶⁹ Similarly, although a bitmark examiners' professional organization has issued guidelines for reporting bitmark comparisons, no standards exist "for the type, quality, and number of individual characteristics required to indicate that a bite mark has reached a threshold of evidentiary value."²⁷⁰

As with subjectivity, validity, and accuracy, whether an analyst's conclusion rests on regular procedures and standards regularly applied or an ad hoc examination of the evidence would, and should, influence a rational juror's assessment of the conclusion's reliability. Certificates typically present an analyst's conclusions without explaining how he reached them,²⁷¹ and while a surrogate expert can describe how *he* would have conducted an analysis, he may not know what the testing analyst actually did. Cross-examination of the analyst, himself, however, can elicit this valuable information for the jury.

2. Cross-examination can prompt forensic analysts to retract, qualify or clarify their conclusions.

The dissent insists that cross-examination of forensic analysts will prove a pointless formalism because "[i]t is not plausible that a laboratory analyst will retract his or her prior conclusions on catching sight of the defendant the result condemns."²⁷² This may be true of an honest analyst, the majority concedes, but "the same cannot be said of the fraudulent analyst."²⁷³ Furthermore, while outright fraud may be a relative rarity, confrontation may also combat two equally pernicious but far more common forensic-science phenomena: overclaiming and non-standardized, ambiguous terminology.

268. *See id.*

269. *Id.*

270. *Id.* at 176.

271. *See id.* at 186 ("The norm is to have no description of the methods of procedures used . . .").

272. *See Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2548 (2009) (Kennedy, J., dissenting).

273. *See id.* at 2536 (majority opinion).

a. Fraud

Intentional fraud by forensic analysts is the exception, not the rule,²⁷⁴ but when it occurs, it unfailingly grabs headlines.²⁷⁵ Dishonest forensic analysts have reported results for tests they did not perform, concealed exculpatory results, fabricated evidence, and given false testimony.²⁷⁶ Other commentators have documented these scandals at length.²⁷⁷ It suffices to state that forensic fraud has tainted hundreds of cases and resulted in numerous wrongful convictions,²⁷⁸ and that further instances undoubtedly have yet to be uncovered.

The risk of fraud is perhaps the most compelling policy reason for recognizing a right to confront forensic analysts. Cross-examination aims to unmask the false witness,²⁷⁹ and like any other witness, a forensic analyst may lie in a pretrial statement. Experience and common sense confirm that forensic analysts' and laboratory technicians' honesty cannot simply be taken for granted. When an analyst commits fraud, a defendant has little hope of exposing it if the analyst's written report is introduced either on its own or through another expert's testimony.²⁸⁰

274. NRC REPORT, *supra* note 161, at 45.

275. See, e.g., Mary Flood, *HPD Crime Lab Case Goes to the Jury, \$35 Million at Stake for Wrongfully Convicted Man*, HOUSTON CHRON., June 24, 2009, at B-3; Robert C. Herguth, *Report Slams 80s Police Lab*, CHI. SUN-TIMES, Jan. 14, 2001, at 5; Jay Rey, *Chemist Admits to Falsifying Lab Report; Officials Discount Impact on Cases*, BUFFALO NEWS, Dec. 28, 2009, at B1; Ben Schmitt & Joe Swickard, *Detroit: Troubled Crime Lab Shuttered; State Police Audit Results 'Appalling'*, Wayne County Prosecutor Declares, DETROIT FREE PRESS, Sept. 26, 2008, at 1; Kelly Thornton, *Police Lab Accused of Sloppy Work, False Data*, SAN DIEGO UNION-TRIB., May 24, 1997, at A-1.

276. See Cooley, *Reforming the Forensic Science Community*, *supra* note 259, at 401.

277. Craig Cooley, for one, describes several notorious examples. See *id.* at 401-08.

278. For instance, West Virginia State Police lab analyst Fred Zain's practice of falsifying evidence threw more than 100 convictions into doubt, and at least ten of those convictions have since been overturned. See NRC REPORT, *supra* note 161, at 44. The Innocence Project has catalogued dozens of wrongful convictions based on intentional and unintentional laboratory errors. Innocence Project, *Wrongful Convictions Involving Unvalidated or Improper Forensic Science that Were Later Overturned through DNA Testing*, http://www.innocenceproject.org/docs/DNA_Exonerations_Forensic_Science.pdf (last visited Aug. 11, 2010).

279. Indeed, Sir Walter Raleigh (unsuccessfully) sought to confront his accuser because Raleigh believed he would recant his lies if compelled to face the one they condemned. See *Crawford v. Washington*, 541 U.S. 36, 44 (2004).

280. Under the Federal Rules of Evidence, hearsay declarants are subject to impeachment to the same extent as live witnesses. See FED. R. EVID. 806. The common impeachment techniques, however, all require that the defendant know of specific statements or conduct by the analyst that reflect poorly on the analyst's credibility, or that the analyst have a poor reputation for truthfulness. See generally Fred Warren Bennett, *How to Administer the "Big Hurt" in a Criminal Case: the Life and Times of Federal Rule of Evidence 806*, 44 CATH. U. L. REV. 1135, 1141-63 (1995) (analyzing and providing examples of how defense counsel might impeach a hearsay declarant).

But as with any other witness, an analyst may retreat from a deliberate fabrication when forced—thanks to *Melendez-Diaz*—to defend it under oath in the courtroom.²⁸¹

b. Overclaiming

With far greater frequency than outright fraud, forensic analysts engage in overclaiming, exaggerating their conclusions' probative value.²⁸² Anecdotes abound. Although “no empirical data exist on the frequency of hair characteristics,” one microscopic hair analyst testified that “the particular reddish-yellow hue of [the defendant's] hair and the crime scene hair were found in ‘about 5 percent of the population.’”²⁸³ And in a federal trial, a firearms examiner implausibly claimed that he could match six spent shell casings to a gun recovered more than a year later, “to the exclusion of every other firearm in the world.”²⁸⁴

Baseless individualization claims like the latter one account for many instances of overclaiming.²⁸⁵ As explained above, in no forensic-science discipline other than DNA analysis has empirical research confirmed the uniqueness proposition that underpins individualization

using each of nine traditional methods). Even if the defendant has somehow acquired this knowledge, a foundation witness or an expert who reviewed the analyst's report may not have even met the analyst, and thus would be unable to confirm his statements or conduct. The defendant would have to resort to extrinsic evidence, which might not be admissible. *See id.* at 1154-56 (noting that courts generally limit prior bad-acts impeachment to intrinsic evidence but that commentators have advocated allowing extrinsic evidence for impeachment of hearsay declarants).

281. *See Melendez-Diaz v. Massachusetts*, 129 S. Ct. at 2537 (citing *Coy v. Iowa*, 487 U.S. 1012, 1019 (1988)).

282. *See Cole*, *supra* note 228, at 817.

283. Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Testimony and Wrongful Convictions*, 95 VA. L. REV. 1, 9 (2009). *See also* NRC REPORT, *supra* note 161, at 160 (noting that “several members of the committee have experienced courtroom cases in which, despite the lack of a statistical foundation, microscopic hair examiners have made probabilistic claims based on their experience”).

284. *United States v. Green*, 405 F. Supp. 2d 104, 107 (D. Mass. 2005).

285. *See Saks & Koehler*, *supra* note 235, at 206 (noting that many toolmark, latent fingerprint, bitemark, handwriting, shoeprint and tiremark analysts, among others, make unsupportable individualization claims); Dawn McQuiston-Surrett & Michael J. Saks, *Communicating Opinion Evidence in the Forensic Identification Sciences: Accuracy and Impact*, 59 HASTINGS L.J. 1159, 1159-60 (2008) (“With the principal exception of DNA typing, virtually all areas of forensic identification lack empirically and statistically meaningful measures of the probability that questioned crime-scene marks and known exemplars share a common origin. Examiners are, at present, unable to compute random match probabilities; instead, they assume that the pool of candidates in the population, which can match as well or better than the known suspect, equals precisely one. So, if they find two markings to be indistinguishably alike, they assume that they ‘share a common origin’ ‘to the exclusion of all others in the world’ and that they have therefore ‘identified the source.’”).

claims.²⁸⁶ Yet overclaiming is pervasive. It “has long been identified as a problem for microscopic hair comparison,”²⁸⁷ a field in which “the inability to individuate is recognized” but where analysts continue to profess having achieved it.²⁸⁸ It is “institutionalized” among latent fingerprint analysts, whose professional guidelines mandate that they make individualization conclusions even though “such claims are obviously unsustainable.”²⁸⁹

The prevalence of overclaiming supports affording defendants a right to cross-examine forensic analysts. When an analyst’s inflated claims are introduced without his testimony, defense counsel can attempt to cast doubt on their accuracy by questioning the expert who repeats them in court (if there is one) or through extrinsic evidence (if it is admissible). He cannot, however, prompt the analyst to qualify or recant his inflated claims—or to obstinately maintain them despite revelation of their shaky foundations, thereby diminishing his appearance of objectivity. These ends can only be achieved on cross-examination of the analyst himself.

c. Terminology

Even when a forensic analyst endeavors to report his findings without exaggeration, his word choice may convey a misleading impression of their probative value. In some forensic-science disciplines, terminology varies among practitioners, so a testifying expert may interpret a conclusion in an analyst’s report very differently from how the analyst intended it. Among shoeprint analysts, for example, a government-sponsored working group recommends the use of particular terms to indicate particular degrees of certainty in matching a crime-scene print to a known exemplar,²⁹⁰ but use of these recommended terms is not mandatory.²⁹¹ Similarly, the American Board of Forensic Odontologists (ABFO) has “issued guidelines for reporting bite mark comparisons, including the use of terminology for conclusion levels, but there is no incentive or requirement that these guidelines be

286. *See supra* pp. 51-53.

287. Cole, *supra* note 228, at 819.

288. Saks & Koehler, *supra* note 235, at 206.

289. Cole, *supra* note 228, at 820-21. *See also* NRC REPORT, *supra* note 161, at 141-42 (noting that because population statistics for fingerprint characteristics do not exist, “the friction ridge community actively discourages its members from testifying in terms of the probability of a match,” leading examiners to use the language of absolute certainty).

290. *See* NRC REPORT, *supra* note 161, at 148.

291. *See id.* at 149-50.

used in the criminal justice system.”²⁹² In other disciplines, such as paint analysis, no guidelines for report wording presently exist.²⁹³

Ambiguous terminology can lead one expert to misread the certainty of another’s conclusion, but jurors are even more likely to be misled. ABFO’s recommended terminology is illustrative. AFBO standards offer four levels of certainty, from “reasonable scientific certainty,” which indicates a certain individualization with no reasonable probability of error, down to “match,” which indicates general similarity, but no more than for a large percentage of the population.²⁹⁴ In a survey of 183 undergraduate students, “jurors” interpreted “reasonable scientific certainty” as indicating 70.7% certainty, and “match” as indicating 86% certainty, reversing the terms’ order and assigning a very high level of certainty to a term intended to convey only general similarity.²⁹⁵ As the study authors conclude, “[f]orensic expert witnesses cannot simply adopt a term, define for themselves what they wish it to mean, and expect judges and juries to understand what they mean by it.”²⁹⁶

Terminology “can have a profound effect on how the trier of fact . . . perceives and evaluates evidence.”²⁹⁷ Cross-examination—and only cross-examination—can overcome linguistic ambiguities. The jury or another expert who testifies in court can easily misinterpret a written certificate or report that, for example, states a “match” without elaboration. If permitted to cross-examine the analyst who prepared the report, however, defense counsel can compel him to clarify his meaning, possibly giving the jury an entirely different understanding of the certainty of the analyst’s conclusion.

3. Forensic analysts are not immune from bias.

The dissent insists that forensic analysts will not deviate from their conclusions on cross-examination because they are disinterested neutrals,²⁹⁸ yet the majority suggests two reasons to believe the reverse. First, many forensic laboratories are administered by or closely affiliated with law enforcement agencies, and the need to answer particular

292. *Id.* at 175.

293. *See id.* at 169.

294. McQuiston-Surrett & Saks, *supra* note 285, at 1161-62.

295. *Id.* at 1162.

296. *Id.* at 1163.

297. NRC REPORT, *supra* note 161, at 185.

298. *See Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2548 (2009) (Kennedy, J., dissenting).

questions in particular criminal cases drives much of their work.²⁹⁹ Second, law enforcement officials who request forensic analyses may subtly (or not so subtly) influence analysts' conclusions.³⁰⁰

a. Law Enforcement Affiliation

With the exception of DNA analysis, most forensic-science techniques were developed for the specific purpose of solving crimes, and they “rarely find analogues in academic or commercial settings.”³⁰¹ “[T]he government not only creates forensic science, but also almost exclusively executes forensic procedures.”³⁰² In the majority of forensic laboratories, the laboratory supervisor reports to the head of a law enforcement agency.³⁰³ Law enforcement controls the laboratory's budget, and administratively, analysts work for the police.³⁰⁴ This relationship imposes “[c]ultural pressures” on forensic analysts to advance the law enforcement mission.³⁰⁵ In essence, analysts and technicians in public laboratories are service providers, with law enforcement as their principal or even sole client.³⁰⁶ They may come to “view themselves not as neutral investigators, but as ‘police in lab coats,’ part of the police [effort] to convict the suspect.”³⁰⁷ In some forensic fields, analysts *are* police in lab coats: “the vast majority of firearms and fingerprint examiners . . . are sworn law enforcement officers.”³⁰⁸

Forensic analysts' law enforcement affiliation creates an alarming potential for bias. If a police officer ultimately signs off on an analyst's performance evaluation or determines whether he will receive a pay raise, the analyst has a strong incentive to keep that officer happy. A written report cannot disclose the organizational details that give rise to this incentive, but a canny defense counsel will bring them out on cross-

299. *See id.* at 2536 (majority opinion).

300. *See id.*

301. *See* Murphy, *supra* note 229, at 745-46.

302. *Id.* at 746.

303. NRC REPORT, *supra* note 161, at 183.

304. *See id.* at 183-84.

305. *See id.* at 184.

306. *See* Murphy, *supra* note 229, at 748 (arguing that “[f]orensic scientists often feel the pressure to produce results that will please their central and even sole client, the government”); Cooley, *Reforming the Forensic Science Community*, *supra* note 259, at 398 (arguing that forensic analysts' service-provider role discourages self-criticism so long as the client is pleased).

307. *See* DiFonzo & Stern, *supra* note 228, at 515.

308. Cooley, *CSI Effect*, *supra* note 245, at 481; *accord* NRC REPORT, *supra* note 161, at 136 (“In some agencies, fingerprint examiners are also required to respond to crime scenes and can be sworn officers who also perform police officer/detective duties”).

examination. The analyst will almost certainly profess his operational independence and insist that he is an unbiased neutral.³⁰⁹ Cognizant of the analyst's relationship to law enforcement, the jury may then judge whether his claims of neutrality—and by extension, his conclusions—are credible.

b. Cognitive Bias

Various cognitive biases influence human judgments in everyday life,³¹⁰ and analysts cannot simply leave them at the laboratory door. Cross-examination may prove ineffectual at exposing many such biases because their effect is primarily subconscious, yet one form of cognitive bias can be uncovered in the courtroom. How a question is framed or the context in which data are presented can affect a person's answer to that question or the conclusion he reaches from those data.³¹¹ For example, an eyewitness called to view a line-up may assume that the perpetrator must be among those presented and, unless cautioned, will choose the "best" of the available alternatives.³¹² In the forensic-science arena, context bias can arise when an analyst is aware, even subconsciously, that law enforcement expects or desires a particular outcome.³¹³ Indeed, police officers often communicate their expectations to analysts directly. Requests for forensic testing typically include a narrative that explains the requester's theory of events and details inculpatory information about the suspect, thereby framing the analyst's work as an effort to confirm the theory.³¹⁴ Such information

309. See DiFonzo & Stern, *supra* note 228, at 515 (quoting high-ranking officials in public forensic laboratories as insisting that they hold no pro-prosecution bias).

310. NRC REPORT, *supra* note 161, at 122. These influences include the desire to please others; the tendency to become more confident in a preliminary conclusion over time, and to thus ignore new and contradictory information; the tendency to rely too heavily on a single piece of information, often among the first encountered, when making decisions; the tendency to ignore base-rate statistics in assessing the probative value of information; and the tendency to see patterns that do not exist. See *id.* at 122-24.

311. *Id.* at 122.

312. *Id.* at 122-23.

313. See Cooley, *CSI Effect*, *supra* note 245, at 487. Forensic analysts' practices may compound this problem. If an analyst compares evidence found at a crime-scene only to an exemplar from a suspect and not to a pool of samples, this predisposes the analyst to identify similarities between the two. See NRC REPORT, *supra* note 161, at 123. Forensic odontologists, in particular, typically compare a bite mark only to "dental casts of an individual or individuals of interest" and rarely make comparisons to "models from other individuals." *Id.* at 174.

314. See DiFonzo & Stern, *supra* note 228, at 516-17; Cooley, *CSI Effect*, *supra* note 245, at 488. In one Texas case, for example, police requesting DNA tests in a homicide investigation provided a detailed memorandum naming the child victim and caregiver-suspect, and explaining the

can alter an analyst's conclusions. In a series of studies, researchers Dror and Charlton found that when contextual information was introduced, experienced fingerprint examiners reached different conclusions on reexamination of fingerprint pairs they had previously analyzed.³¹⁵

Cross-examination cannot reveal, definitively, whether context bias affected a forensic analyst's judgment, but counsel can at least inquire about whether police officers provided contextual information to the analyst. Jurors may learn that the analyst considered only the defendant as a possible source of biological material found at the crime scene; that officers provided the analyst with a detailed theory of the case before the analyst concluded that evidence inculpated the defendant; or that the analyst performed his work in a neutral vacuum. Whatever information is unearthed about the context in which the analyst reached his conclusions, it will better enable the jury to evaluate the reliability of those conclusions.

4. Forensic analysts will recall information relevant to the particular test or defendant.

The dissent asserts that cross-examination of forensic analysts will prove fruitless because the analyst "will not remember [having conducted] a particular test or the link it had to the defendant."³¹⁶ As argued above, cross-examination concerning an analyst's methodology—a subject on which his memory is unlikely to fail—will aid the jury in evaluating the reliability of an individual test result. Moreover, as with any expert witness, "an analyst's lack of proper training or deficiency in judgment may be disclosed in cross-examination."³¹⁷ An analyst will not suffer from lack of memory as to his education, training, and performance on proficiency tests—all of

investigating officer's theory of how the child's death had occurred. *See Cuadros-Fernandez v. State*, 316 S.W.3d 645, 655 (Tex. App. 2009).

315. *See* NRC REPORT, *supra* note 161, at 123 (describing study in which information such as "suspect confessed to the crime" was provided along with instructions accompanying prints, and in which examiners reached different conclusions in 6 of 24 examinations); Saks & Koehler, *supra* note 235, at 201 (describing two studies, one in which 4 of 5 experts who had previously matched prints reached different conclusions after learning the prints came from different people, and one in which contextual information induced 4 of 6 examiners to reach different conclusions about at least 1 of 8 pairs of prints they had previously matched).

316. *See Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2548 (2009) (Kennedy, J., dissenting).

317. *Id.* at 2537 (majority opinion).

which will inform a rational assessment of his conclusions in a particular case.

a. Education

Most forensic laboratories require that new hires in most disciplines possess at least a bachelor's degree, if not a higher degree, though an associate degree may be acceptable for firearms, document, and fingerprint analysts.³¹⁸ Still, 96% of forensic analysts hold only bachelor's or associate degrees,³¹⁹ and “the vast majority of firearms and fingerprint examiners do not . . . possess an undergraduate degree of any kind.”³²⁰

Most laboratories also require that applicants hold degrees in forensic science or a natural science, and “[o]ver the years, most crime laboratory hires have been and continue to be graduates with degrees in chemistry or biology.”³²¹ “It is the exception and not the norm,” however, “when a forensic practitioner holds a graduate degree—especially a doctorate degree—in a natural or physical science.”³²² A degree in forensic science suffices for employment at most laboratories,³²³ yet no nationwide standards exist for forensic-science programs.³²⁴ Their curricula “range from rigorous scientific coursework . . . to little more than criminal justice degrees with an internship.”³²⁵ Indeed, “it is possible to earn a degree called ‘Masters in Forensic Science’ without ever having set foot in a laboratory or even having taken a core curriculum of hard science classes.”³²⁶ Similarly, although conclusions in most forensic disciplines rest on a statistical basis, few forensic-science curricula include even a single statistics course.³²⁷

When a forensic analyst's “scientific” conclusion is introduced into evidence, the extent of that analyst's education in science (and statistics)

318. NRC REPORT, *supra* note 161, at 220-21.

319. DiFonzo & Stern, *supra* note 228, at 522. *See also* Murphy, *supra* note 229, at 746 (noting that “technicians who hold no more than an undergraduate degree staff many police crime laboratories”).

320. Cooley, *CSI Effect*, *supra* note 245, at 481.

321. NRC REPORT, *supra* note 161, at 221. Explosives and paint analysts, in particular, typically have extensive science backgrounds. *Id.* at 168, 170.

322. Cooley, *CSI Effect*, *supra* note 245, at 482.

323. NRC REPORT, *supra* note 161, at 223.

324. *Id.*

325. *Id.*

326. Cooley, *CSI Effect*, *supra* note 245, at 482 (quoting KEITH INMAN & NORAH RUDIN, PRINCIPLES AND PRACTICE OF CRIMINALISTICS: THE PROFESSION OF FORENSIC SCIENCE 303-04 (2001)).

327. Cooley, *Reforming the Forensic Science Community*, *supra* note 259, at 428.

is plainly relevant to the conclusion's reliability. The odds are slim that a written certificate or report will describe the author's education, and an expert witness who bases his opinion on the report is unlikely to know this information. Only cross-examination of the analyst can provide these valuable details to the jury.

b. Training

Many laboratory accreditation and individual certification programs require that analysts receive discipline-specific training and pass a competency test before working independently, and that they satisfy continuing education requirements.³²⁸ But “[t]here is no uniformity in the certification of forensic practitioners Indeed, most jurisdictions do not require forensic practitioners to be certified, and most forensic disciplines have no mandatory certification programs.”³²⁹ Even where certification is required, minimum requirements may not include “an understanding of the scientific basis of the examinations . . . [or] the use of a scientific method.”³³⁰ Training of latent fingerprint examiners, for example, varies widely, and “not all agencies require [them] to achieve and maintain certification.”³³¹

Similarly, “accreditation of crime laboratories is not required in most jurisdictions.”³³² A 2005 survey of publicly-funded crime laboratories found that 81% had achieved accreditation, with state-operated laboratories (91%) scoring far higher than their county (67%) or municipal (62%) counterparts.³³³ Still, many forensic entities—in particular, latent fingerprint examination units—operate independently from crime laboratories, and these units do not, and are not required to, participate in accreditation programs.³³⁴

As with education, a forensic analyst's training and certification status, as well as the accreditation status of the laboratory or other facility for which he works, are topics relevant to the credibility of his conclusions and on which failure of memory is unlikely. And as with

328. See NRC REPORT, *supra* note 161, at 231.

329. *Id.* at 6.

330. *Id.* at 147-48 (discussing shoeprint and tiremark analysis).

331. *Id.* at 137.

332. *Id.* at 6.

333. *Id.* at 199-200. *But cf.* DiFonzo & Stern, *supra* note 228, at 518 (reporting that as of February 2007, only 330 of more than 1000 crime laboratories throughout the United States had achieved accreditation).

334. See NRC REPORT, *supra* note 161, at 200.

education, only cross-examination of the analyst himself will provide comprehensive information on these subjects to the jury.

c. Proficiency

As of 2002, 274 of 351 publicly-funded forensic laboratories engaged in proficiency testing, but almost all used “declared” tests, in which the analyst knows he is being tested.³³⁵ Externally-designed, closed tests using “realistic case samples” (which allow for performance comparisons across laboratories, and in which the analyst does not know he is being evaluated) “are virtually nonexistent,”³³⁶ and laboratories seldom publish their results.³³⁷

Whether an analyst has undergone recent proficiency tests—and if so, how they were designed, and how he performed on them—would inform a rational factfinder’s reliability assessment of the analyst’s conclusions. This information is particularly crucial in the many disciplines that involve subjectivity or in which analysts rely principally on their experience. If an analyst concludes that a crime scene fingerprint and the defendant’s print so resemble one another that they could not have originated from different sources, this conclusion’s reliability depends heavily on that analyst’s judgment. And the quality of that judgment can be evaluated only based on how often he’s right. In most real-world scenarios, one cannot know with certainty whether a “match” conclusion was correct. So, the analyst’s proficiency must be judged, if at all, by how he performs when analyzing exemplars known (to a test administrator, not the analyst) to originate from the same source or from different sources. As with education and training, affording the defendant an opportunity to cross-examine the analyst is the surest way to get this information before the jury.

* * * * *

In sum, cross-examination of forensic analysts will *not* be pointless. On the contrary, it can make invaluable contributions to jurors’ ability to rationally evaluate forensic evidence.

First, cross-examination can expose forensic analyses as subjective and/or based on unvalidated methodologies with unknown accuracy rates and without standardized protocols. Objectivity, validity, accuracy, and regularity are all fundamental characteristics of science—and

335. *Id.* at 207-08.

336. Saks & Kohler, *supra* note 235, at 202.

337. Murphy, *supra* note 229, at 747.

science has a talismanic effect on juries. Expert evidence can be particularly powerful.³³⁸ When labeled as “science,” it can assume an aura of “mystic infallibility.”³³⁹ Popular culture, particularly television programs that glorify forensic science and present it as an infallible crime-solving tool, reinforces jurors’ instinctive trust in “science.”³⁴⁰ Accordingly, jurors tend to overestimate the probative value of forensic evidence, “putting greater weight on such evidence than its statistical value warrants.”³⁴¹ In reality, however, most forensic-science disciplines are not very scientific. Exposure of their flaws through cross-examination will enable the jury to assess forensic evidence more comprehensively, and perhaps more importantly, it may dispel the illusion that such evidence is, in fact, science.

Second, cross-examination may prompt a forensic analyst to retract, qualify, or modify his conclusions. Scholars and the mainstream media have extensively documented instances of fraud in the forensic sciences, and like any other dishonest witness, a forensic analyst may recant when forced to defend his conclusions in the “crucible of cross-examination.” Moreover, while fraud remains a relative rarity, exaggerated and ambiguous conclusions are all too common. When an analyst succumbs to overclaiming, cross-examination can prompt him to qualify his conclusions, revealing the uncertainty of his individualization claim or that a stated population statistic is merely an educated guess. And when an analyst frames his conclusion in ambiguous terms, cross-examination can compel him to clarify his meaning for the jury. For example, this

338. See, e.g., *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 595 (1993); *United States v. Frazier*, 387 F.3d 1244, 1263 (11th Cir. 2004).

339. *United States v. Addison*, 498 F.2d 741, 744 (D.C. Cir. 1974). See also Saby Ghoshray, *Untangling the CSI Effect In Criminal Jurisprudence: Circumstantial Evidence, Reasonable Doubt, and Jury Manipulation*, 41 NEW ENG. L. REV. 533, 547-53 (2007) (theorizing that reliance on supposedly objective, scientific evidence reduces jurors’ cognitive stress and enables them to reach verdicts more easily).

340. See generally Tom R. Tyler, *Viewing CSI and the Threshold of Guilt: Managing Truth and Justice in Reality and Fiction*, 115 YALE L.J. 1050 (2006) (examining the “CSI Effect,” a phenomenon by which the television program CSI is said to influence jury decision-making); Michael Mann, *The “CSI Effect”: Better Jurors Through Television and Science?*, 24 BUFF. PUB. INT. L.J. 211 (2006) (also examining the “CSI Effect,” and discussing other media and cultural influences that condition jurors to implicitly trust in science).

341. Tyler, *supra* note 340, at 1063; accord DiFonzo & Stern, *supra* note 228, at 527-28; *Leading Cases*, *supra* note 227, at 208-09. *But cf.* Wendy Brickell, *Is It the CSI Effect, or Do We Just Distrust Juries?*, 23 CRIMINAL JUSTICE 11, 16-17 (2008) (arguing that multiple empirical studies have debunked the notion that jurors instinctively defer to expert witnesses); Dale A. Nance & Scott B. Morris, *Juror Understanding of DNA Evidence: An Empirical Assessment of Presentation Formats for Trace Evidence with a Relatively Small Random-Match Probability*, 34 J. LEGAL STUD. 395, 400-01, 418-19 (2005) (reporting results of empirical study and concluding that participants had undervalued DNA match statistics relative to Bayesian norms).

may reveal that by “match,” the analyst intended to imply only some similarity, not an individualization, or that by “probable,” he meant only more likely than not. Thus, cross-examination can leave the jury with a deeper, and perhaps very different, understanding of the analyst’s conclusions.

Third, although “far removed” from the defendant and the crime,³⁴² a forensic analyst is no more immune from bias than any other witness. His law enforcement affiliation may give him an indirect interest in the outcome of his analysis, and contextual information may have skewed his conclusions. Exposing the facts giving rise to bias, actual or apparent, is one fundamental purpose of cross-examination, and it can fulfill this purpose just as effectively with forensic analysts as with percipient witnesses.

Finally, forensic analysts should have no trouble recalling the details of their education, training, and performance on proficiency tests, all of which are relevant to each individual case in which they render conclusions. Whether the analyst holds a Ph.D in chemistry or an associate’s degree in criminal justice may profoundly affect the jury’s trust in his expertise. Likewise, whether the analyst holds a professional certification, whether he works at an accredited facility, and whether he regularly undergoes and performs well on proficiency tests will all contribute to how a rational factfinder weighs that analyst’s conclusions.

Melendez-Diaz has made possible cross-examination and consequent education of the jury on all of these subjects. Thus, *Melendez-Diaz* promises to greatly enhance the reliability of verdicts based on forensic evidence.

IV. CONCLUSION

Melendez-Diaz v. Massachusetts foreshadows the end of an ambitious originalist experiment within constitutional criminal procedure. Constitutional law typically advances by increments. Against the backdrop of 200 years of jurisprudence, both stare decisis and deference to the political branches ensure that only on exceedingly rare occasions will the Court wipe the slate clean and start anew in interpreting a constitutional provision. Yet in *Crawford*, the Court did just that, announcing a simple and elegant rule that would, in theory, both constrain judicial discretion and honor the Framers’ intent.

342. See *Melendez-Diaz v. Massachusetts*, 129 S. Ct. 2527, 2548 (2009) (Kennedy J., dissenting).

In *Melendez-Diaz*, that theoretically appealing rule collided with reality. The Court carried *Crawford* to its logical conclusion, albeit one that even some of its initial supporters had evidently failed to foresee. That conclusion's real-world ramifications so alarmed four members of the Court that they implicitly repudiated *Crawford*, leaving it with the unqualified support of only four—now, two—Justices. Regardless of where Justices Sotomayor and Kagan stand on the issue, no five members of the Court now agree on which hearsay statements implicate the Confrontation Clause. *Melendez-Diaz* thus marks the end of *Crawford*'s advance.

Although the basic *Crawford* rule now lacks majority support, the Court has not overruled it. Thus, the “testimonial statements” doctrine lives on, but *Crawford*'s simple and elegant rule seems destined to grow ever more complicated and unwieldy. Suppose that the two newest Justices share their predecessors' views, and that those who silently joined the *Melendez-Diaz* majority and dissent wholeheartedly agree with the ideas advanced in those opinions. If so, then in a future case, the Court would find a hearsay statement to implicate the Confrontation Clause only if it is testimonial under *Crawford* and *Davis*, and only if either the declarant is a conventional witness, or the statement bears sufficient indicia of formality. Although the Court has defined none of these concepts—testimonial statements, indicia of formality, and conventional witnesses—with any precision, this “testimonial-plus” rule would likely prove easier for lower courts to apply than the alternative. That is, if the three-way split evinced by *Melendez-Diaz* does not adequately capture the diversity of opinion on the Court as to which hearsay statements trigger the confrontation right, then the future likely holds only a muddle of fact-bound decisions. The *Crawford* Court sought to impose certainty and predictability on an area of constitutional law previously characterized by boundless judicial discretion. Ironically, the future direction of the Court's jurisprudence in that area is now anything but certain.

Melendez-Diaz may thus herald *Crawford*'s demise, but at the same time, it represents *Crawford*'s zenith. *Crawford* itself profoundly changed criminal practice. *Melendez-Diaz* will almost certainly do the same. Before, the vast majority of jurisdictions authorized prosecutors to introduce forensic analyses through sworn certificates. Now, in most cases, if the defendant objects (as he very likely will), prosecutors must present live testimony or else forego use of highly persuasive forensic evidence.

In the short run, implementing this rule will impose tremendous costs on the criminal justice system. Thanks to several inherent limitations on the decision's scope, *Melendez-Diaz* will not affect all forensic evidence. Yet because prosecutors rely on such evidence in so very many cases, demand for forensic analysts' live testimony will still increase dramatically. Early empirical evidence supports this conclusion. As one recent essay reports, subpoenas to forensic analysts in Virginia criminal trials jumped from a monthly average of 528 in the nine months before *Melendez-Diaz* to 1885 in July, the month directly after the decision issued; 1737 in August; 1631 in September; and 1441 in October.³⁴³ These numbers reflect the experience of only one state over a very brief period, but they are staggering. Public crime laboratories already face backlogs. *Melendez-Diaz* will magnify this problem as analysts struggle to balance their laboratory duties with trial schedules. Additionally, in most jurisdictions budgetary constraints will preclude hiring additional staff to cope with these new demands.

Over time, however, government and governmental actors will adapt, as they have to the Court's past constitutional criminal procedure decisions. The downward trend in defendants' subpoenas to Virginia forensic analysts illustrates this point. The aforementioned essay's authors posit that prosecutors' gradual acceptance of—and submission to—defendants' increased leverage in plea negotiations may account for the decline in subpoenas from their July peak.³⁴⁴ Just as prosecutors will adapt to the new regime, so, too, will public crime laboratories. They will devise and adopt new procedures and organizational structures to facilitate analysts' availability and readiness for in-court testimony, and if necessary, they will shift or obtain funds to hire additional personnel. The criminal justice system will eventually reach a new equilibrium, at which more forensic analysts take the stand and the average plea agreement is a bit more favorable to the defendant. *Melendez-Diaz* will impose costs, but it does not spell the end of either forensic evidence or criminal prosecutions.

Moreover, the decision's costs are not without corresponding benefits. Forensic evidence is a ubiquitous feature of criminal trials. As with any other type of evidence, we expect jurors to rationally assess its probative value before applying it to their verdict. Yet, we have long asked them to make these assessments without any foundation. As a general matter, jurors tend to overestimate the probative value of

343. Murphy & Brown, *supra* note 124, at 98.

344. *See id.*

forensic evidence, treating it as inherently credible, objective “science.” Yet most forensic sciences involve very little science and only very rarely are their practitioners truly scientists. Instead, inadequately-educated technicians of unknown competence populate many forensic disciplines, applying unvalidated methodologies with unknown error rates and irregular procedures to reach subjective conclusions. Further, while many forensic analysts may not be scientists, they are all human, and like all others, they may lie, exaggerate, communicate their ideas unclearly, or harbor bias. And yet, before *Melendez-Diaz*, many jurisdictions authorized prosecutors to introduce analysts’ bare conclusions through sworn certificates without any accompanying live testimony. One could hardly expect jurors to rationally evaluate forensic evidence in such an information vacuum.

Melendez-Diaz promises to change this situation for the better. Cross-examination of forensic analysts can yield a wealth of valuable information for the jury, enabling them to do more than simply take forensic conclusions at face value. Jurors may have an opportunity to do what their job requires: to examine the various circumstances surrounding a piece of evidence, weigh those circumstances, and conclude whether and how much to rely on the evidence in deciding the ultimate question of guilt or innocence. Enhancing the reliability of the evidence on which a verdict rests will enhance the reliability of the verdict itself. Cross-examination of forensic analysts will serve the truth-seeking function of criminal trials and fundamental fairness.

Of course, cross-examination’s value in a particular trial depends on defense counsel’s effectiveness. *Melendez-Diaz* guarantees only that a defendant may demand live testimony from a forensic analyst. He need not do so, and if he does, defense counsel may fail to elicit relevant information about the analyst’s methods and qualifications. Many crime-lab horror stories have emerged through independent investigations, not when forensic analysts admitted to fraud or incompetence under withering cross-examination.³⁴⁵ Moreover, giving jurors the requisite information to thoroughly and rationally evaluate the reliability of forensic evidence does not ensure that they will use it.³⁴⁶

345. See Jennifer E. Laurin, *Melendez-Diaz v. Massachusetts, Rodriguez v. City of Houston, and Remedial Rationing*, 109 COLUM. L. REV. SIDEBAR 82, 87 (2009) (citing several examples).

346. At least with respect to DNA, some empirical research suggests that information elicited on cross-examination of forensic analysts has little to no effect on jurors’ decisions. See Nance & Morris, *supra* note 341, at 433-35 (2005) (finding that informing jurors of a DNA laboratory’s error rate through cross-examination of a DNA analyst had no statistically significant effect on jurors’ willingness to convict, and theorizing that jurors rationally discount DNA match probabilities based on an assumed risk of lab error). Cf. Shari Seidman Diamond et. al., *Juror Reactions to Attorneys at*

Nevertheless, if reliable verdicts based on reliable evidence are the goal of criminal trials, then *Melendez-Diaz* is a welcome step in the right direction.

Trial, 87 J. CRIM. L. & CRIMINOLOGY 17 (1996) (finding that strong cross-examination of prosecution psychiatrist had an immediate, positive effect on jurors' perceptions of defense counsel but no effect on their ultimate verdict or verdict confidence measures); Margaret Bull Kovera et. al., *Expert Testimony in Child Sexual Abuse Cases: Effects of Expert Evidence Type and Cross-Examination*, 18 LAW & HUM. BEHAV. 653 (1994) (finding that cross-examination of prosecution expert on child sexual abuse accommodation syndrome had no significant effect on jurors' reliability assessments).