

A NEW WAVE OF POLICE INTERROGATION? “BRAIN
FINGERPRINTING,” THE CONSTITUTIONAL PRIVILEGE AGAINST
SELF-INCRIMINATION, AND HEARSAY JURISPRUDENCE

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“Technological progress has merely provided us with more efficient
means for going backwards.” — Aldous Huxley

I. INTRODUCTION

Throughout the history of the criminal justice system, numerous technological innovations have signaled landmark changes in how authorities conduct investigations. From fingerprinting to DNA testing, these one-time technological marvels turned police investigation staples have shaped the way that justice is conceptualized in America, as well as the way in which society interacts and is influenced by law enforcement. One such new technology carries with it an emerging potential to revolutionize the investigatory landscape: Brain Fingerprinting (“BF”). The future of police investigations may very well be under construction in Seattle, Washington, where Dr. Lawrence A. Farwell has created Brain Fingerprinting Laboratories (“BFL”), a privately held company created to pursue the study and application of BF.¹

BF testing, in a nutshell, is an examination designed to determine if particular information is familiar to a test subject in a specific context (such as that of a crime).² Essentially, a BF test asks a suspect’s brain if it is familiar with a particular place, time, or action, and does so using brain monitoring technology that is nearly impossible to deceive.³ BF has been called “a perfect example of a technology at the tipping point—making its way from the lab into our culture,”⁴ and “an intriguing, novel, scientific venture that is inching toward the doors of courtrooms everywhere.”⁵ Although BF may “sound[] like

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1. Brain Fingerprinting Laboratories, About Brain Fingerprinting Laboratories, <http://brainwavescience.com/about-bfl.php> (last visited Nov. 15, 2006).

2. See *infra* Part III.A.1.

3. *Id.*

4. Interview by washingtonpost.com with Dr. Lawrence Farwell and Jared Lipworthy, Producer, PBS online (May 5, 2004) (transcript available through Lexis/Nexis; search washingtonpost.com database) [hereinafter *PBS I*].

5. Andre A. Moenssens, *Brain Fingerprinting—Can It Be Used to Detect the Innocence of Persons Charged with a Crime?*, 70 UMKC L. REV. 891, 920 (2002).

something straight out of a science-fiction movie,”⁶ it is part of a growing trend of technological innovations that are rapidly coming to the forefront in today’s heightened level of security. As one commentator has explained, “These aren’t cinematic gadgets from a James Bond set. They are real-world technologies that were on display for members of Congress [recently], as lawmakers consider[ed] new steps to beef up security at airports, border crossings, and other facilities around the country.”⁷

Along with its technological innovations, BF raises some thorny constitutional questions. Among the most significant constitutional issues are the Fifth Amendment’s privilege against self-incrimination (“privilege”),⁸ which even strong supporters of the BF technology concede is problematic in the context of BF testing,⁹ as well as how BF test results are viewed under current rules regarding the admissibility of hearsay.

Although BF is a relatively underutilized technology in the field of criminal justice, these constitutional issues are rapidly rising to the forefront of the legal consciousness in America. Former FBI agent Drew Richardson, Vice President of Forensic Operations for BFL,¹⁰ has offered his prediction of the future of BF testing:

I envision that over the next 10–20 years police officers and investigators throughout the world will be trained as part of their regular law-enforcement education to record the elements of a crime scene for use in BF tests. . . . Up to 70% of major crimes would be appropriate someday for BF technology. Conventional fingerprinting and DNA is only available in 1% of cases.¹¹

This Note aims to probe further into the implications of such a vision becoming a reality. Part II will outline the history of BF testing, the privilege against self-incrimination, and the rules regulating the admission of hearsay. Next, Part III will analyze BF testing under current legal precedent and demonstrate both its testimonial nature and the scope of its judicial inadmissibility. Specifically, this Note will first attempt to answer the question of whether a compulsory BF test, issued against a suspect’s will, would violate that suspect’s constitutional privilege against self-incrimination.¹² This Note

6. Rita Sherrow, *PBS Documentary Explores “Brain Fingerprinting,” Uses State Inmate as Case Study*, THE TULSA WORLD (OKLAHOMA), May 4, 2004, at D3.

7. Deirdre Shesgreen, *Congress Is Looking at High-Tech Hardware Designed to Thwart Terrorists*, ST. LOUIS POST-DISPATCH, Oct. 21, 2001, at B5.

8. U.S. CONST. amend. V.

9. *PBS I*, *supra* note 4. (interview with Dr. Michael Epstein) (“I think that there are significant constitutional questions with brain fingerprint[ing] that may one day have to be sorted out—assuming it becomes more widely accepted in the scientific community. Key among them is Fifth Amendment rights. I can’t really foresee a time when a person could be compelled to take a [BF] test. Even though it is promoted as non-testimonial, the courts would have to decide whether your brainwaves are like physical evidence (fingerprints, DNA, etc.). My uneducated guess is that compulsory brain fingerprints are more the stuff of science fiction than reality.”).

10. Brain Fingerprinting Laboratories, Drew Bio, <http://brainwavescience.com/DrewBio.php> (last visited Nov. 15, 2006).

11. Marina Murphy, *Infallible Witness*, CHEMISTRY & INDUSTRY, Mar. 15, 2004, at 10.

12. Although not a lawyer himself, Dr. Farwell has gone on record as stating his belief that BF is “non-

will also examine whether BF test results of one suspect would be admissible in legal proceedings against a second suspect under current hearsay jurisprudence. Finally, Part IV will recommend certain judicial and legislative actions, and Part V will provide some concluding thoughts.

II. BACKGROUND

A. *What Is Brain Fingerprinting?*

BF was born out of the work Dr. Farwell did at the University of Illinois from the mid 1980s through the early 1990s with his mentor Dr. Emanuel Dochin.¹³ While the BF test itself is in its infancy, the technology behind BF builds upon well-established scientific principles that have been in development for over forty years.¹⁴ The underlying technology behind the BF test—the monitoring of brain wave impulses—began with the advent of the EEG, and has since focused on more specific impulse analysis.¹⁵ A BF test, in short, is a procedure by which an individual is hooked up to a sensory headset and subjected to numerous stimuli, which are then flashed on a computer monitor.¹⁶ In the context of the particular examination questions, these stimuli will either be familiar to the subject or unfamiliar, and the electric response of the subject's brain will indicate accordingly on a subconscious and uncontrollable level.¹⁷

1. *The Methodology of the BF Test*

There are four phases of using BF in a criminal case: investigation, interviewing, scientific testing, and adjudication.¹⁸

a. Investigation

Initially, the investigation process consists of the test administrator (or a designee) determining the salient features of the crime, which are used to make “probes,” or bits of information that would seem innocuous to someone who did not commit the crime under investigation, but which would be present in

invasive” and “non-testimonial.” *PBS Innovation: Brain Fingerprinting* (PBS television Broadcast May 4, 2004) [hereinafter *PBS II*], transcript available at http://www.pbs.org/wnet/innovation/transcript_episode8.html. This Note will argue otherwise.

13. Moenssens, *supra* note 5, at 892.

14. *Id.*

15. *Id.* at 893 (“As early as 1875 research have [sic] known that the brain functioned by emitting electrical impulses, but it was not until the development of the electroencephalograph (EEG) that the waves could first be observed. . . . It was not until the advent of computers that it became possible to sort out specific wave components on an EEG and relate the waves to specific stimuli.”).

16. Moenssens, *supra* note 5, at 896–97.

17. *Id.*

18. Lawrence A. Farwell, *The Role of Brain Fingerprinting in Criminal Proceedings*, <http://brainwavescience.com/Role%20of%20BF%20in%20Criminal.php> (last visited Nov. 15, 2006) [hereinafter Farwell I].

the mind of the culprit.¹⁹ This is research-intensive, especially in cases that have been highly publicized and where details have been widely disseminated—in such cases, the test administrator must find rather obscure information that has not been made public and that is unknown to an innocent test subject (through trial, interrogation, or by some other manner).²⁰ To an innocent person who does not have knowledge of the crime, probes would be indistinguishable from other irrelevant (stimuli which the test administrator knows that the subject has no knowledge of) and would therefore elicit no physiological response.²¹ The test administrator must be careful to select probes in such a manner that someone who does not know about the crime would find them as equally plausible as the irrelevant chosen.²² Probes selected in cases where BF testing has been employed in the past have included the material used to bind a victim's hands,²³ what was printed on a victim's t-shirt,²⁴ and the landscape that the perpetrator of an offense ran through while leaving the scene of the crime.²⁵

b. Interviewing

Once these probes have been collected and prepared, and prior to the operation of the BF test itself, the test administrator interviews the subject.²⁶ This interview is an attempt to determine exactly what the subject knows, so as to discover any innocuous, non-criminal explanation as to why he or she would have knowledge of certain information relevant to the investigation,²⁷ or if such stimuli are significant to the subject for reasons that are independent of the crime at issue.²⁸ Any such probes will thereafter be removed from the test.²⁹ Aside from helping authorities to sharpen their probe into the crimes that they are investigating,³⁰ the interview serves as a baseline for the test administrator to ensure that the subject has knowledge of the control stimuli (“targets”) that will be shown to him or her.³¹

19. *PBS I*, *supra* note 4.

20. Farwell I, *supra* note 18.

21. Moenssens, *supra* note 5, at 897.

22. *PBS II*, *supra* note 12.

23. Brain Fingerprinting Laboratories, Brain Fingerprinting Testing Helps Bring a Serial Killer to Justice, <http://brainwavescience.com/GrinderSummary.php> (last visited Oct. 20, 2006) [hereinafter Brain Fingerprinting Laboratories, Helps to Bring].

24. Clint Witchalls, *Could Brain Fingerprinting Help Free the Innocent?*, THE HINDU, Mar. 26, 2004.

25. *60 Minutes: Brain Fingerprinting; Using Brain Waves to Help Determine Whether a Person Is Innocent or Guilty of a Crime* (CBS television broadcast Dec. 10, 2000) (transcript available at www.lexisnexis.com) [hereinafter *CBS I*].

26. *48 Hours: To Tell the Truth* (CBS television broadcast June 14, 2002) (transcript available at www.lexisnexis.com) [hereinafter *CBS II*].

27. *PBS II*, *supra* note 12.

28. Farwell I, *supra* note 18.

29. *Id.*

30. *Id.*

31. *Id.*

c. Testing

After the interview and prior to the administration of the test itself, the test administrator selects targets (stimuli which the test administrator, through the interview process, knows that the subject has knowledge of) and irrelevants.³² BF tests are comprised of approximately one-sixth targets, one-sixth probes, and two-thirds irrelevant stimuli.³³

Subjects are then fitted with a sensory headband that is connected to an EEG, which in turn digitizes brain wave activity and feeds it into a computer.³⁴ Subjects are then shown a series of pictures and words on a computer monitor, and the sensory headset tracks their responses.³⁵ As each image is shown, the subject clicks a mouse button to advance to the next stimuli, so as to keep his or her attention on the test itself.³⁶ The key to proper administration of the test is for the administrator to present each item in context and to identify exactly the category of the stimuli (e.g., “one of the following is the murder weapon. . .”).³⁷

The subject’s brain wave responses are then analyzed. The test looks for a specific response called a P300: a positive electric voltage that is present 300 milliseconds after a subject is exposed to a stimulus with which he or she is familiar.³⁸ A MERMER—short for “Memory and Encoding Related Multifaceted Electroencephalographic Response”³⁹—will be present in cases where the subject recognizes a stimulus (including targets and potentially some or all probes), and will be absent where they do not (including irrelevants and potentially some or all probes).⁴⁰ The resulting finding of “information present” or “information absent” thus represents a scientific determination of whether the subject has knowledge of the probe stimuli tested.⁴¹ Because the exact brain response of each subject will differ slightly, the individual response

32. *PBS II*, *supra* note 12.

33. Lawrence A. Farwell & Drew C. Richardson, *Detection of FBI Agents Using Brain Fingerprinting Technology: A New Paradigm for Psychophysiological Detection of Concealed Information*, <http://brainwavescience.com/FBIStudy.php> (last visited Nov. 15, 2006).

34. Moenssens, *supra* note 5, at 896.

35. *Id.*

36. *PBS II*, *supra* note 12.

37. Farwell I, *supra* note 18 (“For example, the subject is told, ‘In this test, you will see several items, one of which is the murder weapon.’ Then several different stimuli are presented, including the murder weapon (e.g. ‘baseball bat’) and several options that would be equally plausible for an innocent person not familiar with the crime (e.g. ‘broom handle’). We all have some familiarity with baseball bats and broom handles, but *in the context of the murder in which the baseball bat was the murder weapon* [sic] ‘baseball bat’ will be significant for the perpetrator and not for an innocent suspect who does not know what the murder weapon was.”).

38. Brandon Spun, *Medical Detection of False Witness*, *INSIGHT ON THE NEWS*, Feb. 4, 2002, at 24.

39. Beth Dalbey, *Brain Fingerprinting Testing*, *FAIRFIELD LEDGER*, Aug. 17, 1999, *available at* <http://brainwavescience.com/FairfieldLedger.php>. *See also* Murphy, *supra* note 11 (“A MERMER is a part of the brainwave observed in response to familiar information. When the brain recognizes something, the memory centers are stimulated. The neurons fire synchronously, eliciting characteristic changes in brain activity. It is these changes, which can be measured using [sic] electrodes, that investigators look for when trying to determine whether someone recognizes a particular piece of information.”).

40. Farwell & Richardson, *supra* note 33.

41. *PBS I*, *supra* note 4.

of the particular subject being tested to the targets and irrelevants presented will be used as a baseline for comparison.⁴²

d. Adjudication

As previously noted, BF has potential applications in a vast array of criminal cases. A BF result of “information present,” however, is not the same as a judicial finding of guilt.⁴³ Likewise, a result of “information absent” is not the same as a judicial finding of innocence.⁴⁴ The judge and jury must weigh the BF test results along with all the other evidence in any given case in rendering their verdict or judgment.⁴⁵ This will usually entail “educating” a judge and/or jury about BF testing,⁴⁶ although in the future this need would presumably decrease as the use of BF became more widespread in the judicial system.

2. *The Scientific Validity of BF*

Although possessing limited legal exposure thus far in its fledgling existence, BF does have a significant amount of scientific research behind its claims and processes. The P300 electrical brain wave response is “widely known and accepted in the scientific community and there have been hundreds of studies conducted and articles published on it over the past thirty plus years.”⁴⁷ Dr. Farwell himself has published a scientific analysis of BF testing in a peer-edited journal,⁴⁸ and claims a 100% accuracy rate for the BF test in that study and three others conducted “on a contract for a[n unspecified] U.S. intelligence agency.”⁴⁹ In approximately 200 total tests to date, BFL claims that there have been no false positives or false negatives in instances where a determination of “information present” or “information absent” was made.⁵⁰ Although claiming “neither a 100 percent accuracy rate nor a zero percent error rate [because] [s]uch a claim . . . is scientifically indefensible,” Dr. Farwell asserts that BF has “high statistical confidence levels for each determination.”⁵¹ Even critics of BF testing concede that it is probable that additional research will strengthen the scientific methodology behind BF

42. Farwell & Richardson, *supra* note 33.

43. PBS, Ask The Experts: The Expert's Answers to Your Questions, Dr. Lawrence A. Farwell http://www.pbs.org/wnet/innovation/experts_qa8.html (last visited Nov. 15, 2006) [hereinafter Farwell II].

44. *Id.*

45. *Id.*

46. *Good Morning America: Brain Fingerprinting: New Technology Provides Advanced Lie-Detector Test* (ABC television broadcast Mar. 9, 2004) (transcript available through www.lexis.com) [hereinafter *ABC*].

47. Brain Fingerprinting Laboratories, Interview with Dr. Lawrence Farwell: Frequently Asked Questions About Brain Fingerprinting Testing, <http://brainwavescience.com/FreqAskedQuestions.php> (last visited Nov. 15, 2006) [hereinafter Farwell Interview].

48. Lawrence A. Farwell & Sharon S. Smith, *Using Brain MERMER Testing to Detect Knowledge Despite Efforts to Conceal*, 46 J. FORENSIC SCI. 135 (2001).

49. Farwell Interview, *supra* note 47.

50. *Id.* See also *PBS I*, *supra* note 4.

51. Moenssens, *supra* note 5, at 899.

testing.⁵²

3. *Some Criticisms of BF*

Critics of BF testing have leveled several different objections to the process of and the science behind BF. One common line of criticism deals with the mental capacity of individuals to retain information either during the alleged commission of the crime or prior to the test itself.⁵³ In other words, what if people are intoxicated, under the influence of narcotics, under extreme emotional distress, or so forth? William Iacono, professor of psychology at the University of Minnesota, argues that “[w]e don’t know enough of how memories are formed during crimes.”⁵⁴ Dr. Farwell contends that such a concern is unfounded, as the brain is always recording information regardless of whether we realize it.⁵⁵ He has noted that in one particular instance, a BF test subject “was on alcohol and drugs, and in a highly emotionally-charged state at the time of the murder of [the victim in that case].”⁵⁶ Despite being on anti-psychotic drugs at the time of his BF test, the results were “excellent.”⁵⁷

Next, some critics may suggest that individuals could attempt to be deliberately deceptive and “beat” the BF test. However, as supporters of the test note, BF testing is separate and distinct from other tests which can be “beaten,” such as the polygraph: BF test subjects are not read questions, and their responses to the questions are not evaluated for their truth or falsity, but rather merely for the presence of certain information in their brain.⁵⁸ Further, BF cannot be “beaten” or “fooled by relaxed, well-prepared criminals.”⁵⁹

Self-deception or deception of others has no effect on [BF] testing. A person who has convinced himself that he is innocent still knows the salient features of the crime, and an innocent suspect still does not know the salient features of the crime (except the ones he has been told). [BF] testing detects this difference in what is stored in the brain.⁶⁰

Because the BF test is objective and measures a brain response at the moment of recognition, it is equally effective when given to a normal mentally stable individual as it is when given to a sociopath, hardened criminal or pathological liar.⁶¹

One other objection to the BF test process is that bias could potentially find its way into the test and the test results through the decision process

52. *Id.* at 906.

53. Sara Solovitch, *Mind Reader*, LEGAL AFFAIRS, <http://www.legalaffairs.org/printfriendly.msp?id=664> (last visited Nov. 15, 2006).

54. *Id.*

55. *ABC*, *supra* note 46.

56. Farwell II, *supra* note 43.

57. *Id.*

58. Moenssens, *supra* note 5, at 899.

59. Witchalls, *supra* note 24.

60. Farwell II, *supra* note 43.

61. *PBS I*, *supra* note 4.

exercised by the test administrator in selecting the specific stimuli. As Emanuel Dochin has noted, “[a]n investigator, not science, makes the decision” of what stimuli are chosen for the test.⁶² Dr. Farwell and BFL counter that, although the test administrator must have some training in the basics of the science and the operation of the technology, bias is impossible to insert into the process because the determination of “information present” or “information absent” is made by scientific machinery and not by a person.⁶³

Further, some critics have argued that BF raises troubling questions regarding civil liberties. One such commentator has stated that “[o]f the panoply of proposed ‘guilty-knowledge tests,’ [BF] is perhaps the most harrowing for its menace to civil liberties.”⁶⁴ Dr. Farwell, however, has responded by stating that BF “serves the cause of human rights by giving an innocent individual the means to scientifically prove his or her innocence,”⁶⁵ and that it would be a “human rights violation to deny access to [BF] testing to anyone who is accused of a crime” and continues to claim his or her are innocence.⁶⁶

Finally, Dr. Farwell dismisses many of the criticisms of BF as sour grapes:

[T]here are always those whose status or finances depend on the old ways of doing things, and these people often oppose progress because they see it as a threat. [BF] technology is no exception.

Fortunately, science always moves forward, not backward, and the truth always wins in the end.⁶⁷

In the end, “even [Dr.] Farwell’s harshest critics concede that BF could one day prove useful.”⁶⁸ Although some have dismissed BF as being “junk science,” Senator Charles Grassley, who has previously requested that the General Accountability Office (“GAO”) specifically study the feasibility of various governmental law enforcement authorities using BF technology in the future,⁶⁹ has responded to such assertions by comparing them to other scientific technologies: “you could have raised the same questions about fingerprinting 50, 60, 100 years ago. Within the last 20 years you could have

62. Spun, *supra* note 38, at 25.

63. Brain Fingerprinting Laboratories, Research and Summary Information, <http://brainwavescience.com/research.php> (last visited Nov. 15, 2006) (“The entire [BF] system is under computer control, including presentation of the stimuli, recording of electrical brain activity, a mathematical data analysis algorithm that compares the response to the three types of stimuli and produces a determination of ‘information present’ or ‘information absent,’ and a statistical confidence level for this determination. At no time during the analysis do biases and interpretations by the person giving the test affect the presentation or the results of the stimulus presentation.”).

64. Wrye Sententia, Letter to the Editor, *Brain Fingerprinting Poses Latest Threat to Civil Liberties*, INSIGHT ON THE NEWS, Mar. 11, 2002, at 3.

65. Dalbey, *supra* note 39.

66. Farwell Interview, *supra* note 47.

67. *Id.*

68. *CBS II*, *supra* note 26.

69. GOVERNMENT ACCOUNTABILITY OFFICE, INVESTIGATIVE TECHNIQUES – FEDERAL AGENCY VIEWS ON THE POTENTIAL APPLICATION OF “BRAIN FINGERPRINTING”: REPORT TO THE HONORABLE CHARLES E. GRASSLEY, U.S. SENATE (2001) [hereinafter GAO REPORT].

raised the same issue about DNA. But the scientific process takes care of all this, as far as I am concerned.”⁷⁰

4. *The History of BF Use in the Judicial System*

BF testing “is available now, and is being used in this country and also abroad by police, government agencies, attorneys, and private individuals.”⁷¹ Perhaps the most notable case in which BF testing has been employed to date is that of Terry Harrington.⁷² Harrington was tried and convicted of murder in Iowa courts and turned to BF for proof of his innocence on appeal.⁷³ Harrington’s BF test results, which conclusively proved central information related to the crime was “not present” in Harrington’s brain, were used to confront a key prosecution witness at trial. After being confronted with the test results, the witness recanted his testimony and admitted that he lied at Harrington’s trial.⁷⁴ Although BFL is quick to claim that the BF test was “ruled admissible” in the Iowa court system as a byproduct of Harrington’s appeal,⁷⁵ the reviewing Iowa appellate courts did not rely or focus on the BF test in granting Harrington a new trial, nor did they reach any conclusions about the test itself and its legal admissibility.⁷⁶ With respect to such admissibility, one commentator has suggested that BF testing would not meet the old *Frye* test of “general acceptance,”⁷⁷ which is still used in many state courts.⁷⁸ The same commentator, however, has opined that a trial court’s determination that BF passes the *Daubert* test for admissibility would stand up on a potential appeal.⁷⁹

Another case in which BF was introduced as evidence on appeal but ultimately rejected was that of Jimmy Ray Slaughter.⁸⁰ In his appeal, Slaughter attempted to use BF test results to argue that he should be given another trial.⁸¹ The Oklahoma courts which heard his appeal, however, ruled on two occasions that BF was not adequately supported by scientific fact, and

70. *CBS I*, *supra* note 25.

71. *PBS I*, *supra* note 4.

72. *Harrington v. State*, 659 N.W.2d 509, 516 (Iowa 2003).

73. *Iowa Supreme Court Reverses Harrington Murder Conviction after 24 Years; Brain Fingerprinting Test Supports Innocence*, PR NEWSWIRE, Feb. 26, 2003, available at <http://www.highbeam.com/doc.aspx?DOCID=1G1:98113046&fab=lib> [hereinafter *Iowa Supreme Court*].

74. *Id.* See also Brain Fingerprinting Laboratories, Brain Fingerprinting Testing Helps to Exonerate Man Falsely Convicted of Murder, <http://brainwavescience.com/HarringtonSummary.php> (last visited Nov. 15, 2006) [hereinafter Brain Fingerprinting Laboratories, Helps to Exonerate].

75. Brain Fingerprinting Laboratories, Brain Fingerprinting Testing Ruled Admissible in Court, <http://brainwavescience.com/Ruled%20Admissable.php> (last visited Nov. 15, 2006) [hereinafter Brain Fingerprinting Laboratories, Ruled Admissible].

76. *Harrington*, 659 N.W.2d at 525 (granting Harrington a new trial on the basis of due process violations).

77. *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923), *overruled by* *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993).

78. Moenssens, *supra* note 5, at 918.

79. *Id.* at 920.

80. *Slaughter v. State*, 108 P.3d 1052 (Okla. Crim. App., 2005) [hereinafter *Slaughter II*]; *Slaughter v. State*, 105 P.3d 832 (Okla. Crim. App., 2005) [hereinafter *Slaughter I*].

81. *Slaughter II*, 108 P.3d at 1054; *Slaughter I*, 105 P.3d at 834.

Slaughter's BF test results were furthermore procedurally barred from admission on appeal.⁸²

Most recently, a defendant requested that he be examined via BF testing in a habeas corpus petition in the District Court for the Southern District of New York following his guilty plea.⁸³ The reviewing court, noting that the defendant would have to demonstrate that BF testing would have assisted the development of his legal claims, denied his request for discovery.⁸⁴ The court did, however, leave the door open to the possibility that such a showing could be made in the future, and the denial of the defendant's motion was made without prejudice.⁸⁵

Contemporary use of BF testing has not been restricted to the trial setting, however. As an example of a trend that will presumably grow by leaps and bounds, the Alexandria Police Department in Virginia recently used BF test results to internally clear an officer who was accused of multiple felony counts.⁸⁶ BF has also been employed by the Macon County, Missouri police force to confirm that they had caught a murderer who had offered "several different, contradictory accounts of the crime" for fifteen years after the crime.⁸⁷ In that particular instance, BF testing was "instrumental" in obtaining a confession and guilty plea from suspect James B. Grinder.⁸⁸ Dr. Farwell has been notably cryptic about the extent to which BF is currently being employed in law enforcement circles across the country: "[t]here are a number of other examples [of the application of BF], some of which I can talk about and some I cannot."⁸⁹

5. Future Applications of BF

Even in its relative infancy, BF is poised to explode into and beyond the legal arena. Dr. Farwell recently opened a "training center" for BF aimed at training BF test administrators and will employ up to 300 people.⁹⁰ As far back as mid-2003, there was a waiting list of approximately 400 requests for BF tests.⁹¹

Foremost among potential applications proposed by supporters of BF is

82. *Slaughter II*, 108 P.3d at 1055; *Slaughter I*, 105 P.3d at 834-35. One commentator notes that this may be due, in some part, to Dr. Farwell's patenting of the methodology for BF and reluctance to share what he considers "proprietary methodology." Moenssens, *supra* note 5, at 917-18.

83. *Lebron v. Sanders*, No. 02 Civ. 6327 (RPP), 2005 WL 3534794, at *1 (S.D.N.Y. Dec. 23, 2005). Lebron also requested other physical and mental examinations of "himself and several third parties." *Id.*

84. *Id.* at *2.

85. *Id.*

86. Tod W. Burke, *Brain "Fingerprinting": Latest Tool for Law Enforcement*, LAW & ORDER, June 1999, at 28-31, available at <http://brainwavescience.com/LawandOrder.php>.

87. Brain Fingerprinting Laboratories, *Helps to Bring*, *supra* note 23. See also *PBS I*, *supra* note 4.

88. *Iowa Supreme Court*, *supra* note 73.

89. *PBS I*, *supra* note 4.

90. Andy Vuong, *Colorado May Ride Brain Wave of the Future: Controversial "Fingerprint" Company Considers Placing Training Center Here*, DENV. POST, Apr. 29, 2004, at A1.

91. Dave DeWitte, *Firm Touts Brain Wave Technology in Fight on Crime*, THE GAZETTE (Cedar Rapids, Iowa), June 6, 2003.

its use in the criminal justice system. Dr. Farwell has suggested that BF can be used to accomplish everything in the judicial system from identifying terrorists, members of gangs, and obtaining criminal and intelligence information,⁹² to exonerating the innocent,⁹³ to discovering criminal espionage and terrorist plots.⁹⁴ Dr. Farwell has also observed that BF can provide authorities with “cost effective approaches to investigations,”⁹⁵ allowing them to focus their efforts on the suspects who “actually” committed crimes, and thus increase rates of convictions.⁹⁶ “Knowing that such an accurate and scientific technique [as BF] is available,” he concludes, “may also prove to be an effective deterrent [to the commission of future crimes].”⁹⁷

As the Supreme Court itself has noted, “[m]odern community living requires modern scientific methods of crime detection lest the public go unprotected.”⁹⁸ BFL has estimated that BF testing could be applicable in approximately sixty to seventy percent of major crimes (contrasted with only 1% for fingerprinting),⁹⁹ and could save up to ten to twenty percent of overall costs of the criminal justice system by avoiding the prosecution of innocent individuals and freeing up governmental resources.¹⁰⁰ Supporters of BF testing have made it abundantly clear that BF should be seen as an asset for both sides of the criminal justice system.¹⁰¹ “In every case in the future when someone is arrested,” Dr. Farwell envisions, “they’re going to say, ‘Look, I’m innocent, . . . [d]on’t tell me anything about the crime. Give me a brain fingerprint test!’”¹⁰²

The application of BF testing is not by any means restricted to the criminal justice sphere. BFL is already in negotiations to collaborate with Eli Lilly to use BF testing to speed market research for drugs treating certain brain disorders, such as Alzheimer’s disease.¹⁰³ Dr. Farwell and BFL have also suggested that BF testing could be used by advertising agencies and companies to find out what specific information people retain from advertising, what type

92. Burke, *supra* note 86.

93. *Id.*

94. *Id.*

95. *Id.*

96. Farwell Interview, *supra* note 47.

97. *Id.*

98. *Breithaupt v. Abram*, 352 U.S. 432, 439 (1957).

99. Brain Fingerprinting Laboratories, A New Paradigm in Criminal Justice, <http://brainwavescience.com/criminal-justice.php> (last visited Nov. 15, 2006). The only instances that BFL cites as ones where BF testing would clearly not apply are when, for example, there has been a disappearance and no one knows if any crime has been committed, or in situations where “everyone agrees on what happened, but there is disagreement as to the intent of the parties.” *Id.*

100. DeWitte, *supra* note 91.

101. See *id.* The president of BFL, Ernest Robson III, has made it clear that the organization wants BF to “be understood to be an unbiased and scientific tool that can be used by either side to help prove innocence or guilt.” *Id.*

102. Solovitch, *supra* note 53.

103. Murphy, *supra* note 11, at 12 (noting that BF is particularly helpful in research regarding “gamma secretase inhibitors”). See also Brain Fingerprinting Laboratories, Medical Applications, <http://brainwavescience.com/medical.php> (last visited Nov. 15, 2006) (“Research has now demonstrated that analysis of the P300 brainwave can show dementia onset and progression. . . . [BFL] is now developing diagnostic and monitoring systems for Alzheimer’s using this exciting new technology.”).

of media is most effective for a particular advertising campaign, how effective a branding strategy is, and so forth.¹⁰⁴

The arena where BF testing is perhaps most likely to be employed in the future, however, is counterterrorism efforts. Dr. Farwell has advocated using BF testing to interrogate potential members of terrorist “sleeper cells” to determine if they have memories regarding terrorist training camps or manuals.¹⁰⁵ As a basis for this potential application, BFL’s website asserts that “[o]ne fundamental difference between a terrorist and an innocent suspect is that the terrorist has detailed knowledge of terrorist activities and an innocent person does not. A terrorist has either committed a crime, received training in terrorism or worked with others in planning terrorist attacks.”¹⁰⁶ Although one could easily imagine a situation in which this would not be true—if a “sleeper agent” had never attended a training camp and had read no manual, but rather just had some contact with planning authorities, for example—BF testing could nonetheless at least theoretically aid in the so-called “war on terror.”

As noted *supra*, at least one U.S. Senator has displayed significant interest in having the federal government and law enforcement agencies (through the GAO) study the feasibility of using BF testing in their day-to-day work.¹⁰⁷ As a result of that inquiry, however, every federal agency contacted by the GAO (including the Central Intelligence Agency (“CIA”), Department of Defense, Secret Service, and the Federal Bureau of Investigation (“FBI”)) stated that it did not anticipate making use of the BF testing technology—or at least not as of the date of the survey in 2001.¹⁰⁸ Most agencies justified their lack of enthusiasm for the BF technology by explaining that they were primarily interested in employee screening, and BF was an inadequate substitute for the polygraph in that regard.¹⁰⁹ Regardless of the interest that various government agencies have in the technology, one thing is certain: wherever BF testing is utilized, the stakes are very high.¹¹⁰

B. *The Landscape of the Privilege Against Self-Incrimination*

Although once falsely conceptualized as deriving from English legal theory, the constitutional privilege against self-incrimination is now well-

104. Brain Fingerprinting Laboratories, Advertising Applications, <http://brainwavescience.com/advertising.php> (last visited Nov. 15, 2006).

105. Murphy, *supra* note 11, at 12; *see also* Spun, *supra* note 38, at 24 (“Try this scenario: [alleged ‘20th hijacker’] Zacarias Moussaoui is led out of a dark cell into a silent room at an undisclosed location. An electrode headset is fitted to his skull while his lawyer watches disapprovingly. After nearly an hour of flicking switches and flashing lights, the procedure concludes. An investigator reviews the results and determines exactly what role Moussaoui played in the Sept. 11 terrorist attacks. You cannot hide your memories from the machine.”).

106. Brain Fingerprinting Applications, Counterterrorism Applications, <http://brainwavescience.com/counterterrorism.php> (last visited Nov. 15, 2006).

107. *See supra* notes 69–70 and accompanying text.

108. GAO REPORT, *supra* note 69, at 8.

109. *Id.*

110. *PBS II*, *supra* note 12.

rooted in both American society and legal tradition.¹¹¹ As one commentator has noted,

the true origins of the common law privilege [against self-incrimination] are to be found not in the high politics of the English revolutions, but in the rise of adversary criminal procedure at the end of the eighteenth century. The privilege against self-incrimination at common law was the work of defense counsel.¹¹²

It is generally accepted that the primary reason the privilege was created was to “put an end to the practice of employing the legal process to extract from a person’s lips an admission of his guilt.”¹¹³

In the American judicial system, determining whether acts implicate the privilege against self-incrimination turns in part on whether courts have viewed the particular acts in question as “testimonial.”¹¹⁴ Only a small portion of the entire universe of hearsay is clearly testimonial in nature and thus would be unconstitutionally admitted into evidence when compelled and incriminating: confessions obtained as a result of the use of so-called “truth serum,”¹¹⁵ affidavits,¹¹⁶ and prior testimony, to name a few examples.¹¹⁷

Contrast acts that are clearly testimonial in nature with acts that have been held by courts not to be testimonial and thus not implicate the privilege. Most of the latter group can be classified as acts that the police or prosecutor have compelled suspects to do for identification purposes: place their shoe in a footprint,¹¹⁸ present their body for examination (for scars, wounds, or other marks),¹¹⁹ change their clothes or appearance to match the description of a perpetrator of a crime,¹²⁰ place them in view of the jury,¹²¹ submit to having their photograph taken,¹²² provide a blood sample for comparison purposes,¹²³ or have their fingerprints taken.¹²⁴

Some acts fall into an ever-growing gray area of being neither clearly

111. John H. Langbein, *The Historical Origins of the Privilege Against Self-Incrimination at Common Law*, 92 MICH. L. REV. 1047, 1047 (1994).

112. *Id.*

113. Fred E. Inbau, *Self-Incrimination — What Can an Accused Person Be Compelled to Do?*, 89 J. CRIM. L. & CRIMINOLOGY 1329, 1331–32 (1999).

114. *See generally*, Schmerber v. California, 384 U.S. 757 (1966) (holding that the taking of defendant’s blood over his objection for analysis did not violate his privilege against self-incrimination).

115. Inbau, *supra* note 113, at 1357.

116. Crawford v. Washington, 514 U.S. 36, 51 (2004).

117. *Id.*

118. Inbau, *supra* note 113, at 1333–35.

119. *Id.* at 1335; *see also* O’Brien v. State, 25 N.E. 137 (Ind. 1890) (holding that a suspect may even be physically restrained in order to accomplish such an examination).

120. United States v. Wade, 388 U.S. 218, 221 (1967) (holding that it did not offend the privilege to require a suspect in a bank robbing prosecution to place strips of tape on his face in a lineup in order to imitate the robber); Inbau, *supra* note 113, at 1338–40.

121. Inbau, *supra* note 113, at 1341–42.

122. *Id.* at 1345–46.

123. Schmerber v. California, 384 U.S. 757, 765 (1966).

124. Inbau, *supra* note 113, at 1345 (“Although there are relatively few decisions concerning compulsory fingerprinting, it is reasonable to presume that the admissibility of such evidence is already established.”). The general acceptance of fingerprinting as reliable, admissible evidence in the judicial system today may have played a large role in Dr. Farwell’s decision to label his new technology “Brain Fingerprinting.”

testimonial nor clearly non-testimonial. Although once considered in this category, requiring a suspect to produce a handwriting sample or voice sample are two examples of acts which are now generally regarded as being non-testimonial in nature.¹²⁵ Some commentators, however, have argued that lie detector tests (although historically excluded under admissible evidence standards) would not violate the privilege because the evidence being offered is not the statement of the suspects, but rather their physical and psychological reactions to questions.¹²⁶

Finally, the Supreme Court has held that two criteria must be satisfied in order for an individual to make a claim under the privilege against self-incrimination: first, the individual must be forced to testify as a “witness” against him or herself; and second, the evidence must be used against the suspect after the initiation of criminal legal proceedings.¹²⁷ Thus, even if the police coerced a confession or other information from a suspect, the suspect’s constitutional privilege against self-incrimination would not be implicated as long as the results of the test were not used in a later prosecution of the suspect.¹²⁸ This could have very significant consequences for the usage of BF testing in the homeland security context, as U.S. operatives could simply use BF testing as a screening tool for potential terrorists whom they had no plans of prosecuting.¹²⁹ One would certainly think that this sort of practice would become more common in a post-9/11 world.¹³⁰

C. Crawford, the Confrontation Clause, and Current Hearsay Jurisprudence

Prior to its landmark 2004 decision in *Crawford v. Washington*,¹³¹ the Supreme Court had promulgated a rather confusing jurisprudence to determine the admissibility of testimony or evidence that had not been subject to cross-examination.¹³² The Court’s pre-*Crawford* jurisprudence is best captured in its decision in *Ohio v. Roberts*,¹³³ when it held hearsay admissible only when it displays an “adequate ‘indicia of reliability.’”¹³⁴

As the Supreme Court confirmed in *Crawford*, “the Clause’s ultimate goal is to ensure [the] reliability of evidence.”¹³⁵ Such a goal, however, is “a procedural rather than a substantive guarantee. It commands, not that evidence

125. *Id.* at 1349–50.

126. *Id.* at 1356.

127. George M. Dery, *Lying Eyes: Constitutional Implications of New Thermal Imaging Lie Detection Technology*, 31 AM. J. CRIM. L. 217, 242 (2004).

128. *Id.*

129. Dr. Farwell himself has advocated this process. See *supra* notes 105–06 and accompanying text.

130. See Dery, *supra* note 127, at 249.

131. 541 U.S. 36 (2004).

132. It is generally accepted that the “bedrock” principle of the Sixth Amendment’s Confrontation Clause—the right to confront one’s accusers—dates back to Roman times. *Id.* at 43. The contemporary American right can be traced to English common law, which rejected private examination of witnesses by judicial officers in favor of live in-court testimony that can be subjected to cross-examination. *Id.*

133. 448 U.S. 56 (1980).

134. *Id.* at 66.

135. *Crawford*, 541 U.S. at 61.

be reliable, but that reliability be assessed in a particular manner: by testing in the crucible of cross-examination.”¹³⁶ The Court, responding to what it saw as a “fundamental failure on [its] part” to provide adequate instruction to lower courts in applying the Confrontation Clause’s requirement of confrontation,¹³⁷ crafted a new framework for analyzing disputed hearsay.

To begin, the Court directs the judicial officer to determine if the hearsay at issue is “testimonial” in nature.¹³⁸ Although the Court in *Crawford* chose to save for another day an exact definition of the term,¹³⁹ it did introduce several possible formulations, including “*ex parte* in-court testimony or its functional equivalent,”¹⁴⁰ custodial examinations,¹⁴¹ prior testimony that the defendant was unable to cross-examine,¹⁴² and other pretrial statements that the declarant would “reasonably expect to be used prosecutorially.”¹⁴³ Hearsay that is not testimonial in nature is not covered by the *Crawford* decision, and its admissibility would be governed by relevant state law.¹⁴⁴

Once the hearsay in question has been classified as testimonial, the *Crawford* decision mandates that it be suppressed from admission into evidence unless the declarant is unavailable to testify and there was a prior opportunity for cross-examination of the declarant.¹⁴⁵ As one commentator has noted, the determination of whether the declarant is “unavailable” will almost certainly track pre-*Crawford* Confrontation Clause jurisprudence.¹⁴⁶ This would include a narrow set of circumstances of such “unavailability,” such as when the witness is ill, dead, incompetent, or cannot be located.¹⁴⁷ If the witness is available and the government has not made a good faith effort to procure the witness at trial, any testimonial hearsay from that witness will be inadmissible at trial under *Crawford*.¹⁴⁸

III. ANALYSIS: THE TESTIMONIAL NATURE OF BRAIN FINGERPRINTING

Assuming that Dr. Farwell’s vision comes to fruition and BF testing becomes prevalent in the judicial system, the question still remains: if an inventive prosecutor attempted to obtain a warrant to conduct a BF test on an unwilling subject, could a court issue such a warrant without violating the suspect’s constitutional privilege against self-incrimination?¹⁴⁹ In addition,

136. *Id.*

137. *Id.* at 67.

138. *See id.* at 51–52.

139. *Id.* at 52.

140. *Id.* at 51.

141. *Id.*

142. *Id.*

143. *Id.*

144. *Id.* at 68.

145. *Id.*

146. Jerome C. Latimer, *Confrontation After Crawford: The Decision’s Impact on How Hearsay is Analyzed Under the Confrontation Clause*, 36 SETON HALL L. REV. 327, 345–46 (2006).

147. *Id.*

148. *Crawford*, 541 U.S. at 59.

149. For the purposes of this Note, it is assumed that it would be possible to force a suspect to undergo

even if BF testing is found not to violate the privilege against self-incrimination, would the admission of BF testing results against a non-tested party violate current hearsay jurisprudence?

A. *BF Testing and the Privilege Against Self-Incrimination*

As this Note has previously discussed, the Supreme Court has adopted a “testimonial capacities” doctrine for determining when the privilege is implicated.¹⁵⁰ The Court has repeatedly considered four factors when determining whether a practice is testimonial in nature: (1) whether the practice “enlists the mind” of the subject; (2) how the practice “compares to paradigms of real and testimonial evidence;” (3) how the practice adheres to the values and principles behind the Fifth Amendment; and (4) what implications banning the practice will have on law enforcement practices and procedures.¹⁵¹ An examination of BF testing through each of these four lenses yields a clearer picture of the testimonial nature of the BF process.

1. *How BF “Enlists” the Subject’s Mind*

In order to better ascertain whether the subject’s mind has been enlisted in the practice at hand, the Supreme Court has analogized the job of legal analysts to one of determining whether the subject is “being compelled to reveal the combination to [a] wall safe” (testimonial), or “being forced to surrender a key to a strongbox containing incriminating documents” (not testimonial).¹⁵² Although at first glance it may appear as though the subject of a BF test is only being asked to reveal the contents of his most precious “strongbox”—his mind—the reality is more complicated. Because of the highly contextual nature of BF testing, a BF test is not seeking to discover if a subject has knowledge of a knife, or a room, or a t-shirt *per se*, but if those items make

BF testing against his or her will through physical restraint. Even if such were not possible, the analysis provided in Part III will nonetheless be relevant in the very near future. See Malcom Ritter, *Brain Scans May Be Used as Lie Detectors*, ABC NEWS.COM, Jan. 28, 2006, <http://abcnews.go.com/Technology/wireStory?id=1552760> (noting that two businesses, Cephos Corporation and No Lie MRI Inc., plan on making fMRI tests, which use the same basic technology as BF tests, commercially available by the end of 2006). See also Caryn Tamber, *Brave Neuro World*, THE DAILY RECORD (Baltimore), Dec. 20, 2005, available at http://www.findarticles.com/p/articles/mi_qn4183/is_20051230/ai_n15982193 (noting that the Advanced Science and Technology Adjudication Resource Center in Massachusetts, a “program through which two dozen Maryland judges learn about science so that they can handle scientifically complex cases,” is starting to educate participating judges in the science of fMRI, the technology underlying the BF testing in anticipation of it being used in upcoming cases); No Lie MRI, Inc. Home Page, <http://www.noliemri.com> (last visited Nov. 15, 2006); Cephos Corporation Home Page, <http://www.cephoscorp.com> (last visited Nov. 15, 2006). Furthermore, one can imagine technology being developed in the future that involves a non-visual trigger—such as smell or sound—that would be much more difficult for a suspect to deliberately ignore. In such a case, the same legal issues would likely apply as are discussed in this Note.

150. See *supra* Part II.B.

151. Emily Rebekkah Hanks, *Body Language: Should Physical Responses to Interrogation Be Admissible Under Miranda?*, 11 VA. J. SOC. POL’Y & L. 89 (2003).

152. *Doe v. United States*, 487 U.S. 201, 210 n.9 (1988) (quoting *Doe*, 487 U.S. at 219 (Stevens, J., dissenting)).

sense to the subject in the context of the murder weapon, location, or the clothing of the victim.¹⁵³ It is not merely the information that is relevant, but rather the way in which the presence or absence of that information interacts with the prompts provided by the BF test administrator.¹⁵⁴

“Physical reactions to custodial interrogation . . . reveal the contents of an individual’s mind,” as one commentator has concluded.¹⁵⁵ “The responses are used for their content—what they say about the [subject’s] knowledge at the time of the arrest. . . . In this way, physical responses to interrogation are distinguishable from line-ups, blood tests, and exemplars.”¹⁵⁶ Although some have suggested that it would be “hard to imagine a clearer example of governmental probing of the contents of an individual’s mind than when an official directly asks a person about his or her criminal intentions,”¹⁵⁷ BF testing presents such a scenario.

2. Comparing BF Testing to “Paradigms of Real and Testimonial Evidence”

When analyzing the separate categories of “real” and “testimonial” evidence, BF test results clearly fall into the latter group. BF testing is not like taking a photograph of a suspect, having a suspect’s body examined for physical peculiarities, or even like fingerprinting itself.¹⁵⁸ Although some may claim that BF testing is simply examining the brain as a physical component of the body (and is thus more like examining the body for scars, tattoos, etc.),¹⁵⁹ the way in which the Supreme Court has addressed a similar issue is illustrative. “A nod or head-shake,” the Court has held, “is as much a ‘testimonial’ or ‘communicative’ act . . . as are spoken words.”¹⁶⁰ In many significant ways, a finding of “information present” subsequent to a BF test is as though the brain is providing a “nod” to the test administrator (“yes, I do remember that”). That the psychological “nod” is not visible to the administrator and requires scientific technology to observe should not be constitutionally relevant to the calculus—the brain is still “testifying,” and the evidence being obtained is not merely “real” in character. “When interrogation is meant to produce certain reactions, whether they are willed reactions or not,” the Fifth Circuit has concluded, “the history and spirit of the Fifth Amendment is summoned to safeguard the rights of a defendant.”¹⁶¹

3. Placing BF Testing in the Context of the Values Behind the Fifth

153. *PBS I*, *supra* note 4.

154. *Id.*

155. Hanks, *supra* note 151, at 110.

156. *Id.*

157. Dery, *supra* note 127, at 247.

158. For a discussion of why BF should not be considered an offshoot of fingerprinting in any theoretical or constitutional sense see *supra* note 124.

159. Inbau, *supra* note 113, at 1335 (explaining that searching for the presence of physical marks on a suspect is a simple investigation, yielding a binary result: either the marks in question are present or they are not).

160. *Schmerber v. California*, 384 U.S. 757, 761 n.5 (1966).

161. *Gholson v. Estelle*, 675 F.2d 734, 741 (5th Cir. 1982).

Amendment

Historically, there have been two categories of rationales provided for the privilege against self-incrimination as embodied in the Fifth Amendment: systemic and individual.¹⁶² Systemic rationales are concerned with the way in which the privilege furthers the operation of the criminal justice system.¹⁶³ Foremost among these is the forestalling of government tyranny. Although there still is a significant place in the judicial system for BF testing as a tool for defendants to use in an effort to prove their innocence, it is a near-foregone conclusion that government tyranny would be forestalled to a greater extent if the government did not have the ability to coercively force suspects to undergo a BF test against their will.

Those who view the ultimate purpose of the criminal justice system as a search for the truth are likewise concerned with the privilege, noting that “[i]f the purpose of our criminal justice system is to penalize the guilty, then that purpose is served by making the truth-finding process more, not less, exacting.”¹⁶⁴ Such a concern, however, may only extend to the use of the privilege to seek out the truth, and not merely as a prophylactic protection for all defendants. Proponents of such a view could point to the high degree of accuracy of BF testing,¹⁶⁵ and claim that the search for truth in the judicial system should overcome any apprehensions we may have about the rights of suspects to be free of a coerced BF test.

Individual rationales for the privilege, on the other hand, deal with individual rights and privacy.¹⁶⁶ As an attempt to explain some of the Court’s rulings that have clearly permitted the infringement on individual privacy in some fashion, some commentators have suggested that perhaps the Court is most interested in protecting the “mental privacy” of individuals above all other considerations.¹⁶⁷ Indeed, “[i]f one has an expectation of privacy anywhere, it is likely to be in the contents of one’s own mind.”¹⁶⁸ BF testing is one of the most theoretically intrusive mechanisms possible for probing the contents of one’s consciousness and thought process. Conducted against the subject’s will, it is undoubtedly an intrusion into that subject’s mental privacy.

4. The Implications on Law Enforcement of Finding Non-Consensual BF Testing Unconstitutional

One of the reasons that Dr. Farwell created the BFL and employed

162. David Dolinko, *Is There a Rationale for the Privilege Against Self-Incrimination?*, 33 UCLA L. REV. 1063, 1065 (1986).

163. *Id.*

164. David G. Duggan, *Should Criminal Defendants Be Required to Produce Handwriting Exemplars?*, 91 ILL. B.J. 86, 90 (2003).

165. *See supra* Part II.A.2.

166. Dolinko, *supra* note 162, at 1066.

167. Ronald J. Allen & M. Kristin Mace, *The Self-Incrimination Clause Explained and Its Future Predicted*, 94 J. CRIM. L. & CRIMINOLOGY 243, 262 (2004).

168. Michael S. Pardo, *Disentangling the Fourth Amendment and the Self-Incrimination Clause*, 90 IOWA L. REV. 1857, 1879 (2005).

potentially hundreds of individuals stems from his strong belief in the wide range of applicability of the BF technology in the law enforcement community.¹⁶⁹ Even if Dr. Farwell is accurate in his predictions, however, it can scarcely be said that the law enforcement would suffer a hardship if BF testing were found to be unconstitutional if conducted against the subject's will. This is easily demonstrated, as only a very small number of law enforcement offices have employed BF technology to date, and the wheels of justice continue to turn.¹⁷⁰ Although some might claim that an opportunity such as BF testing to improve the efficiency of law enforcement to such a great extent should be afforded great consideration, the constitutional concerns raised thus far should weigh heavier in the calculus, given the established ability of law enforcement to pursue and prosecute suspects without the use of BF testing.

B. Hearsay Considerations

A likely hypothetical under which hearsay considerations would become an issue with BF testing is if the test results of one suspect were used in an attempt to prosecute another suspect, possibly a co-conspirator. In such an instance, would the BF test results of the first suspect be admissible as against the second suspect? If BF test results are found to be testimonial statements, they would only be admissible in such an instance if the individual making the statements was "unavailable" to testify and had previously been subject to cross examination on the test results.¹⁷¹ Alternatively, the test results could be admitted under any of the recognized exceptions to the general rule of hearsay inadmissibility.¹⁷²

1. Are BF Test Results "Statements"? By Whom?

The first consideration under the Court's current hearsay jurisprudence is whether responses to questions constitute "statements" by the individual being tested.¹⁷³ As previously noted, the BF test is properly seen not merely as an inventory of the mind's contents, but a contextual interrogation aimed at determining whether those contents are relevant in a specific framework.¹⁷⁴ Viewed in such a light, the responses of the test subject to the BF test are properly considered statements by the test subject.

169. *PBS I*, *supra* note 4 ("DNA and fingerprinting are applicable in only about 1% of cases. The brain is always there.").

170. *See supra* Part II.A.4. *See also supra* notes 9–10.

171. *Crawford v. Washington*, 541 U.S. 36, 68 (2004).

172. The two hearsay exceptions that parties would likely try to invoke are the business records exception, FED. R. EVID. 803(6), and the exception for statements against interest, FED. R. EVID. 804(b)(3) (assuming that the BF test results incriminated the test subject). This Note presumes that neither attempt would be successful and that, in order to be admissible, BF test results must satisfy the *Crawford* framework. *See supra* Part II.C.

173. *See* FED. R. EVID. 801 (defining a statement as either "an oral or written assertion" or "a nonverbal conduct of a person, if it is intended by the person as an assertion").

174. *See supra* Part III.A.

More important to the hearsay analysis, however, is whether the BF test *results* are to be considered statements of the test subject or of the test administrator. Even if the analysis of the BF test results is scientific in nature, the test itself is the functional equivalent of asking the brain of the test subject binary questions as to the details of any particular incident or crime.¹⁷⁵ Thus, BF test results, like the individual responses to each question in the BF test, are really a manifestation of statements made by the test subject.¹⁷⁶

2. Are BF Test Results “Testimonial”?

The next step under current hearsay jurisprudence is to determine whether BF test results are testimonial in nature.¹⁷⁷ Post-*Crawford*, lower courts have been very diligent in classifying statements made during police interrogation as testimonial.¹⁷⁸ Given such legal precedent, the question would then be whether a BF test conducted at the behest of the government would be similar enough in form to a police interrogation so as to be considered testimonial. At first glance, a BF test conducted by someone who is not a full-time government employee may appear to be a non-governmental interrogation, but as the Court made clear in *Crawford*, “[t]he involvement of government officers in the production of testimonial evidence presents the same risk [of unreliability], whether the officers are police or justices of the peace.”¹⁷⁹ By extension, scientists who are put on the government’s payroll, even on a case-by-case basis, to perform BF tests on subjects are functionally equivalent to the police for interrogation purposes.¹⁸⁰

One commentator has proposed an alternative approach to analyzing the testimonial nature of a statement: ask if the declarant believes that his or her statement “will contribute to a formal, decision-making process.”¹⁸¹ In such a rubric,

[t]he determinative question . . . should be whether the surrounding circumstances notified the declarant of the formal adjudicative *process* to which the statement will contribute, for a statement’s contribution to that process sits at the heart of its character as testimony—and of the need for confrontation if it is offered at trial.¹⁸²

Given this calculus, BF testing is almost certainly testimonial—it would be hard to imagine any subject who is strapped up to the BF machine and

175. See *supra* Part II.A.1.

176. *Id.* This Note assumes that BF test results would be analyzed by a reviewing court as statements of the test subject. If, on the other hand, a court found the results to be statements of the test administrator, then the discussion of hearsay jurisprudence would likely be irrelevant. See *supra* Part III.B. In such a case (barring some unforeseen event), test administrators would be able to appear at trial and subject themselves to cross-examination over the test results and therefore remove them from the rubric of *Crawford*. See *Crawford*, 541 U.S. at 53–54.

177. *Id.* at 51–52.

178. Latimer, *supra* note 146, at 370.

179. *Crawford*, 541 U.S. at 53.

180. *Id.*

181. Brooks Holland, *Testimonial Statements Under Crawford*, 71 BROOK. L. REV. 281, 285–287 (2005).

182. *Id.* at 287.

asked questions in a manner closely resembling a police interrogation would believe that the test results would be used in any way other than in a decision making process. Whatever that decision—whether or not to prosecute, what charges to bring, or whether or not to detain an individual further who is a suspected terrorist—it is clearly one of an inquisitorial nature.

3. *Issues of Cross-Examination*

If BF test results were to be found to be testimonial in nature for the purposes of hearsay jurisprudence, they would be inadmissible if the test subject had not been previously cross-examined as to the test results.¹⁸³ Therefore, even if the BF test results passed the three main prongs of the *Crawford* test, the government could not introduce them in a criminal proceeding unless the defendant had an opportunity to cross-examine the test subject at a prior time, such as at a preliminary hearing.¹⁸⁴

One possible response to this analysis by proponents of BF testing would be to point to BF's nearly nonexistent rate of error¹⁸⁵ and contend that the test's extremely high reliability should justify its admissibility in court. The *Crawford* Court has already disposed of this objection, however, noting that “[d]ispensing with confrontation because testimony is obviously reliable is akin to dispensing with jury trial because a defendant is obviously guilty. This is not what the Sixth Amendment prescribes.”¹⁸⁶ Thus, even though BF testing is highly accurate by nearly any scientific standard, such accuracy would not cure the Confrontation Clause problems inherent in admitting test results in a trial absent the ability to cross-examine the test subject themselves.

4. *Issues of Witness “Unavailability”*

The final element of the *Crawford* test, unavailability, would likely be satisfied in any hypothetical situation in which a prosecutor has compelled subject A to undergo a BF test, the results of which he or she later attempts to introduce in a criminal prosecution of subject B.¹⁸⁷ If subject A's BF test implicated both subject A and subject B in a crime, then subject A would almost certainly assert his or her privilege against self-incrimination and refuse to testify at subject B's trial (and thus be legally unavailable).

If, on the other hand, subject A's BF test did not implicate subject A in a crime but did implicate subject B in a crime, then subject A could be lawfully compelled to testify at subject B's trial and would not be able to assert the privilege as to the BF test results. This is not to say that subject B would otherwise be unable to assert the privilege,¹⁸⁸ or that he or she would not be

183. See *Crawford*, 541 U.S. at 68.

184. See *id.*

185. See *supra* Part II.A.2.

186. *Crawford*, 541 U.S. at 62.

187. *Id.* at 68.

188. If, for example, subject A did in fact have some involvement with subject B that subjected subject A

otherwise “unavailable.”¹⁸⁹ The most likely scenario, however, involves subject A being subpoenaed to testify, and thereafter subjected to cross-examination, at subject B’s trial, thereby removing subject B’s BF test results from the category of hearsay.

One wonders what the Supreme Court had in mind when, acknowledging its concern with permitting the pre-*Crawford* hearsay jurisprudence to continue, it noted that “[l]eaving the regulation of out-of-court statements to the law of evidence would render the Confrontation Clause powerless to prevent even the most flagrant inquisitorial practices.”¹⁹⁰ Although the Court was not considering BF testing at the time, one can hardly conceive of a more “flagrant[ly] inquisitorial practice”¹⁹¹ than strapping test subjects up to a machine against their will and interrogating them as to the details of a crime. BF test results should be considered testimonial hearsay and should not be admissible at trial unless test subjects are present and testify themselves.

IV. RECOMMENDATION

History suggests that the prominence of cutting edge technological innovation in investigatory procedures is not likely to subside in the near future.¹⁹² Given the likely future prominence of investigatory tools like BF, it is important for courts to clearly classify them as testimonial in light of both Fifth Amendment and hearsay jurisprudence. Alternatively, both Congress and state legislatures should seriously consider amending relevant evidentiary rules and regulations to make tests similar to BF inadmissible in court unless conducted with the consent of the test subject and offered into evidence by the test subject or a party with parallel legal interests. Only by being proactive can courts, Congress, and state legislatures avert a disturbing future where the government can pry into the minds of individuals against their will to further a criminal case (or other investigation) against them.

A. *Judicial Precedent*

The first line of defense in any effort to combat aggressive uses of technologies like BF is our judicial system. As discussed throughout this Note, the testimonial nature of the BF test results—in both a Fifth Amendment sense and hearsay sense—requires a finding that such results are inadmissible if the BF test in question is administered by an agent of the state against a subject’s will. The protections offered by the privilege against self-incrimination are of paramount importance, and in this instance they clearly point toward the

to potential criminal liability but was not brought out in the BF test, subject A’s privilege against self-incrimination could potentially come into play.

189. If subject A fled the jurisdiction, died, become seriously ill, or lost mental acuity, then they would likely not testify at subject B’s trial and would be considered legally “unavailable.” See *supra* notes 145–48 and accompanying text.

190. *Crawford*, 541 U.S. at 51.

191. *Id.*

192. See *supra* Part I.

inadmissibility of any evidence obtained from such BF tests. Prophylactic hearsay considerations are likewise an essential part of the American judicial system, and should be preserved by holding unconstitutional the admission of BF test results of a subject not before a tribunal unless the test subject testifies. In order to ensure that improper suggestions are not being made in criminal proceedings, courts should further hold that the refusal of any suspect to voluntarily submit to a BF test may not be offered into evidence by the prosecution in any trial.

It should be noted that although forcing defendants to take a BF test would violate their constitutional privilege against self-incrimination, BF testing can be a valuable tool for defendants to voluntarily use to prove their innocence. As such, judicial precedent should be crafted with an eye to these uses. Other non-legal uses for BF are also promising (advertising, drug development), and should likewise not be precluded as unconstitutional.

Although the Supreme Court is not likely to hear a case specifically involving BF testing in the immediate future, an opportunity to issue precedent on technologies that are similarly intrusive is probable in the coming sessions.¹⁹³ The Court should seize such an opening to solidify the rights of suspects in criminal and intelligence investigations under the Constitution and find coerced BF testing unconstitutional.

If courts start to find the admission of test results from coerced BF tests unconstitutional, the demand by government agencies for experts to conduct such testing for use in future prosecutions should decrease correspondingly. It will only take a handful of high-profile judicial decisions (or one in the case of the Supreme Court) to convince prosecutors across the country that it is not worth investing the time and energy involved in attempting to compel suspects to undergo BF testing, given that the admissibility of that testing would then be in significant doubt.

B. Legislative Considerations

Legislatures must also be proactive in regulating the appropriate uses of BF testing. Evidentiary rules should be amended to preclude the introduction of BF test results into evidence unless they are conducted with the consent of the test subject and are introduced by the subject or someone with identical legal interests. Aside from amending evidentiary rules, Congress should rewrite statutes governing intelligence-procuring agencies such as the CIA, FBI, and the National Security Agency to prohibit such agencies from using technologies like BF to interrogate suspected terrorists or criminals. Amending evidentiary rules alone will not be sufficient to protect the constitutional rights of individuals in a time when our intelligence agencies and military are sequestering “enemy combatants” in military bases stationed abroad in an effort to subvert the legal system. Although a ruling from the Supreme Court as to BF’s legal admissibility would have a great impact on the

193. See *supra* note 149.

course of day-to-day criminal prosecutions, legislative action has the greatest likelihood of preventing abuse of the BF technology at all levels of government.

V. CONCLUSION

One of the most common criticisms of BF testing involves the length of time and effort that would be required to obtain an adequate number of probes in cases where the judicial process has run its course to a greater extent.¹⁹⁴ Although there are few ways to circumvent this problem other than simply dedicating more manpower to the investigation and gathering of probes, this would presumably be a far less common problem if BF testing were employed more frequently in the judicial system, as authorities would know in advance to hold back certain details of the crime from public knowledge.

As noted previously, the use of BF testing carries with it a host of logistical issues: the test takes a fair amount of time to set up and conduct properly,¹⁹⁵ the test administrator must be trained to run the test and analyze the results effectively,¹⁹⁶ and details of the crime must be excluded from the public and suspects specifically in order to preserve valuable ground for probe stimuli.¹⁹⁷ Many issues will need to be considered as the use of BF increases, but the core question of how BF interacts with the rights of suspects will linger unanswered until acted upon by legislatures and courts.

Regardless of any logistical concerns as to the effective and efficient use of BF testing, our political and judicial leaders must acknowledge the gravity of the issues at stake. Unless legislatures and courts act quickly to head off potential abuse of these new scientific breakthroughs, we could face a grim future. BF testing represents a large leap in technological innovation that carries with it unanswered questions regarding the impact on civil and constitutional rights. With great power comes great responsibility,¹⁹⁸ and as the sun rises on a new age of technological innovation, the government should not be allowed to exploit that technology for coercive examination purposes. When all is said and done, BF testing may indeed turn out to be an invaluable tool in the fields of medicine and the law. It is only through a careful monitoring of the rights of our citizens, however, that we can maintain forward progress as a society rather than allow a fascination with new and exciting technologies to provide a more efficient way for those rights to deteriorate.

194. Mark Hansen, *Truth to Tell: Attorneys for a Murder Suspect Say Brain Fingerprinting Proves His Innocence*, 90 A.B.A.J. 18 (2004).

195. Moenssens, *supra* note 5, at 901.

196. *Id.*

197. *Id.* at 903.

198. Although not conclusively determined, this phrase is often attributed to Stan Lee, comic artist and creator of the character Spiderman.