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SJC-11674

COMMONWEALTH vs. EARL T. FULGIAM
(and thirteen companion cases¹).

Suffolk. October 11, 2016. - May 5, 2017.

Present: Gants, C.J., Botsford, Lenk, Hines, Lowy, & Budd, JJ.²

Homicide. Felony-Murder Rule. Robbery. Firearms. Cellular Telephone. Constitutional Law, Search and seizure, Probable cause. Search and Seizure, Warrant, Probable cause. Probable Cause. Evidence, Fingerprints, Expert opinion, Prior misconduct, Relevancy and materiality. Witness, Expert. Practice, Criminal, Capital case, Warrant.

Indictments found and returned in the Superior Court Department on December 21, 2011.

The cases were tried before Peter M. Lauriat, J.

Elizabeth Caddick for Earl T. Fulgiam.
Esther J. Horwich for Michael T. Corbin.
Zachary Hillman, Assistant District Attorney (John P. Pappas, Assistant District Attorney, also present) for the Commonwealth.

¹ Six against Earl T. Fulgiam and seven against Michael T. Corbin.

² Justice Botsford participated in the deliberation on this case prior to her retirement.

HINES, J. On July 25, 2011, armed intruders entered the apartment occupied by the victims, Kevin Thomas, Jr., and Billie Marie Kee, who were robbed and killed. In May, 2013, a Superior Court jury found the defendants, Earl T. Fulgiam and Michael T. Corbin, guilty as joint venturers of murder in the first degree of both victims based on the theories of deliberate premeditation, extreme atrocity or cruelty, and felony-murder with armed robbery as the predicate felony. The defendants also were convicted of unlawful possession of a firearm and unlawful possession of a large capacity feeding device.³ On appeal, the defendants assert error in the admission of (1) certain cellular telephone records in violation of their rights under art. 14 of the Massachusetts Declaration of Rights and the Fourth and Sixth Amendments to the United States Constitution; (2) fingerprint cards attributed to the defendants without proper authentication or reliability; and (3) expert testimony related to the fingerprint analysis. Corbin independently claims that repeated

³ The defendants' convictions of armed robbery of the victims were dismissed as duplicative and their convictions of unlawfully carrying a loaded firearm were filed with the defendants' consent. The defendants were sentenced to consecutive terms of life without the possibility of parole; from four to five years on the firearm convictions, to be served from and after the sentences for murder; and from nine to ten years on the unlawful possession of a large capacity feeding device convictions, to be served concurrent with the firearms convictions.

references to gang affiliation created a substantial likelihood of a miscarriage of justice. We affirm the convictions and decline to grant relief pursuant to G. L. c. 278, § 33E.

Background. We summarize the evidence as the jury could have found it, reserving additional facts for later discussion. On July 25, 2011, a couple who lived on the second floor of an apartment building on Hyde Park Avenue, in the Hyde Park section of Boston, awoke to the sound of gunshots at around 11:55 P.M. They heard between six and eight gunshots that the woman believed came from an apartment below. The couple looked out of their bedroom window, and saw six or seven men running out of the entrance to their building. The woman telephoned 911 at 11:57 P.M.⁴

The men split up. Some of them ran straight across Hyde Park Avenue. At that moment, a passenger in a vehicle approaching the victim's apartment building saw three men run in front of her vehicle; one of the men carried what looked like a white pillow case. The men got into a grey or silver sedan so quickly that a man's foot was hanging outside the vehicle as it sped away. None of the witnesses was able to give more than a general description of the men, except that one man was

⁴ This neighbor placed four cellular telephone calls to 911 that evening. Only the calls placed at 11:57 P.M. and 12:41 A.M. are relevant here.

heavysset;⁵ the witnesses could only guess at the race or ethnicity of the men they observed.

At 12:41 A.M. on July 26, 2011, Boston police responded to the scene and were directed to the victim's apartment. They found a large watch on the floor near the front entrance to the building. Kee, dressed in a bloody shirt and underwear, was found lying face down on the floor just inside the apartment. She had suffered four gunshot wounds and multiple stab wounds, and she was pronounced dead at the scene. Kee's cause of death was gunshot wounds to the torso and injuries to the lungs, ribs, and spine.

Thomas, dressed in a T-shirt, shorts, and socks, was found in the front bedroom, lying on his back over a pile of clothing; his legs were bound at the ankles with black wire. He had suffered seven gunshot wounds and four stab wounds to his body, and he was pronounced dead at the scene. Thomas's cause of death was gunshot wounds to the torso and neck.

The victims' apartment had been ransacked. Broken glass and blood were on the floor, clothes were strewn about, and the cabinets and drawers were open in the kitchen and bathroom. There were no signs of forced entry; the front door was ajar, with the lock intact, and the back doors were locked from the

⁵ Fulgiam's height and weight are listed on his State police fingerprint card as five feet, ten inches tall and 300 pounds.

inside. Although the officers observed no "land line" telephone in the apartment, they did not recover any cellular telephones. A curling iron with its cord cut and two knives with brownish-red stains were found near Kee's body. The curling iron cord matched the wire that was used to bind Thomas's ankles.

In the front bedroom, in a tall bureau, officers found a packet of photographs, two of which depicted Thomas with Fulgiam and Corbin, at Thomas's apartment, sitting on the couch in front of stacks of United States currency. Near Thomas's body officers found a black backpack with what appeared to be a bag of marijuana inside.

On July 27, 2011, a subsequent search of the basement revealed two plastic bags of what appeared to be "crack" cocaine, and two digital scales. Based on the all of the evidence that the police officers had found during their investigation, they surmised that the assailants were likely known to the victims and that the murders were likely the result of a drug robbery.

In the front yard, officers recovered a loaded nine millimeter semiautomatic pistol with a magazine and a loaded .38 caliber silver revolver. A diamond encrusted ring was found on Hyde Park Avenue.

John Golden, Thomas's best friend, testified that Thomas sold large amounts of marijuana and cocaine. On the day of the

murders, Golden saw approximately \$5,000 in the bureau. When Golden was shown the photograph depicting Thomas, Corbin, and Fulgiam with the bundles of cash, Golden estimated the amount to be between \$12,000 and \$13,000. Police were able to determine the date of the photograph as May 11, 2011. Golden also identified the watch and the ring that had been recovered as belonging to Thomas. Golden described Thomas as being "paranoid," so much so that he insisted that even trusted friends call before coming to his apartment.

On July 29, 2011, a latent print from the nine millimeter semiautomatic pistol recovered from the scene was "individualized," or matched, to Fulgiam. Thirteen spent nine millimeter shell casings, eight spent nine millimeter bullets, and four bullet fragments were recovered from the scene and from the victims. Analysis of the firearms revealed that the nine millimeter semiautomatic contained a magazine that held twenty rounds of ammunition; eight were recovered in the magazine. All of the bullets, bullet fragments, and shell casings had been fired from the nine millimeter semiautomatic pistol.

A detective learned that the victims' cellular telephones had not been recovered, so he requested and obtained traces on both. Thomas's cellular telephone records showed that a certain cellular telephone number was listed in Thomas's telephone records for July 25, 2011. Police learned that this telephone

had been stolen that afternoon between 4:30 P.M. and 5:30 P.M. The owner told police that he did not recognize Thomas's cellular telephone number or the number later identified as Fulgiam's cellular telephone number, both of which were listed in his call detail records for July 25, 2011. The Commonwealth issued administrative subpoenas for Fulgiam's cellular telephone call detail records and for a cellular telephone number ending in 2898, which was later connected to Corbin.⁶ The police discovered that Corbin and Thomas had been in contact, via short message service messages (text messages), or telephone calls, several times on July 25, 2011. Fulgiam and Corbin also had been in telephonic contact that day.

On August 8, 2011, two detectives interviewed Fulgiam at his home. At this time the police had not sought an arrest warrant for Fulgiam. Fulgiam told the detectives that he and Thomas had known one another since the early to mid-2000s, and that he knew Thomas very well. Fulgiam admitted that he and Thomas were in the drug business together and that he would meet

⁶ Fulgiam's call detail and subscriber information was originally obtained through an administrative subpoena, discussed infra, issued on August 4, 2011. On August 16, 2011, additional administrative subpoenas issued for both Fulgiam and Corbin's subscriber and call detail information. Both Fulgiam and Corbin's cellular telephone records information, including call detail information records, subscriber information, cell site location information (CSLI), and, for Corbin, the content of text messages, were subsequently obtained through a court order pursuant to 18 U.S.C. § 2703(d) (2006), also discussed infra.

with Thomas one or two times per month, at one of their homes to conduct business. He estimated that it had been about one month since he had last met with Thomas, but could not remember whether it had been at his home or at Thomas's home. He last communicated with Thomas via text message on July 17. Fulgiam had Thomas's cellular telephone number, and he stated that he changed his own cellular telephone number two weeks prior⁷ because a woman had been stalking him. Fulgiam was not aware of Thomas having disputes with anyone and noted that Thomas had a lot more money than he did. Fulgiam opined that whoever killed Thomas had to have been close to him.

The two detectives interviewed Corbin at his home on August 10, 2011. At that time, he was not under arrest. One of the detectives had previously been in telephonic contact with Corbin,⁸ who agreed to meet with the detectives. Corbin told the detectives that he had known Thomas since Corbin was thirteen years old. Corbin was equivocal about when his last communication with Thomas occurred; he first said it had been a

⁷ The murders occurred exactly two weeks before the day of Fulgiam's interview.

⁸ Corbin's cellular telephone account was not listed in his name, nor did the address given match where Corbin was living at the time of his interview with police. Corbin's cellular telephone service provider, Metro PCS, is an advance pay company which offers a plan providing thirty days of service for a monthly fee of forty dollars. The company does not conduct a credit check or verify customer's identification information.

month prior, but later said it could have been weeks or days before Thomas was killed. He stated that the last time he was in Thomas's apartment was on May 1, 2011, but that he had been in the apartment many times. Corbin mentioned that Thomas was not a showy guy, and that he had a watch and ring, but only wore them on the weekends. He also noted that Thomas was a smart and careful person and that one had to inform Thomas before coming to his home.

On September 14, 2011, police learned that fingerprint analysts had individualized to Corbin's right thumbprint a latent print found on the curling iron that had been recovered from the victim's home. On October 27, 2011, pursuant to a search warrant, detectives seized Corbin's cellular telephone ending with the number 2898 (2898 number) and discovered photographs of Fulgiam, as well as both Fulgiam and Thomas's numbers programmed into the contact list. That same day, the police obtained arrest warrants for Corbin and Fulgiam.

Discussion. 1. Admission of cellular telephone records.
a. Fulgiam's claim. On August 15, 2011, after a review of Thomas's cellular telephone records, the Commonwealth sought and received a court order, pursuant to 18 U.S.C. § 2703(d) (2006) (§ 2703[d] order), for the historical cell site location

information (CSLI)⁹ and other cellular telephone account information for several cellular telephone numbers that were in contact with Thomas's cellular telephone on July 25, 2011, the day of the murder. Under the authority of the § 2703(d) order, the Commonwealth obtained Fulgiam's CSLI for the period from July 20, 2011, through July 30, 2011.

A review of the CSLI associated with Fulgiam's cellular telephone number revealed that on the evening of July 25, 2011, Fulgiam's cellular telephone activated a cell tower located at an address which is located directly behind the victim's apartment, six times between 11:30 P.M. and 11:55 P.M. The last time Fulgiam's cellular telephone activated the cell tower at that location was the same time that the neighbors awoke to gunshots and two minutes before one of them telephoned 911 the first time.

Fulgiam argues that the Commonwealth improperly obtained the CSLI for his cellular telephone without probable cause and that, in any event, the application for the § 2703(d) order was

⁹ "[CSLI] 'refers to a cellular telephone service record or records that contain information identifying the base station towers and sectors that receive transmissions from a [cellular] telephone.'" Commonwealth v. Estabrook, 472 Mass. 852, 853 n.2 (2015), quoting Commonwealth v. Augustine, 467 Mass. 230, 231 n.1 (2014) (Augustine I), S.C., 470 Mass. 837 and 472 Mass. 448 (2015). "'Historical' CSLI refers to CSLI relating to and generated by cellular telephone use that has already occurred at the time of the order authorizing the disclosure of such data." Augustine I, supra.

insufficient to show that his CSLI would be "relevant and material to an ongoing criminal investigation."¹⁰ 18 U.S.C. § 2703(d). We disagree.

i. Standard of review. In Commonwealth v. Augustine, 467 Mass. 230, 232 (2014) (Augustine I), S.C., 470 Mass. 837 (2015), we concluded that government-compelled production of CSLI by cellular telephone service providers was a search in the

¹⁰ Fulgiam also argues that the Commonwealth relied on information obtained by an invalid administrative subpoena issued on August 4, 2011, pursuant to G. L. c. 271, § 17B, to support its August 15, 2011, application for a § 2703(d) order. We agree that this administrative subpoena was of questionable validity where it was signed on behalf of the assistant district attorney by an administrative assistant. Section 17B requires strict compliance with the provision that such administrative subpoenas are issued by attorneys general or district attorneys. See Commonwealth v. Feodoroff, 43 Mass. App. Ct. 725, 727 (1997) (common-law exception to § 17B's requirement, which allows assistant attorneys general and assistant district attorneys to sign such subpoenas). However, the information that the Commonwealth obtained pursuant to the August 4 subpoena did not prejudice Fulgiam. See id. at 728. By August 8, 2011, the police already had connected Fulgiam to his cellular telephone account when Fulgiam met with detectives and provided his cellular telephone number to them. Based on this knowledge, the police were able to connect Fulgiam's cellular telephone number to the stolen cellular telephone, as the police already had the call detail records for that account. The only information that the police were able to obtain through the August 4 subpoena that was not already in their possession was the fact that Fulgiam's cellular telephone had contact with Corbin's cellular telephone on July 25, 2011. However, even without the connection to Corbin, the Commonwealth's application for a § 2703(d) order contained sufficient facts showing that Fulgiam's cellular telephone information would be relevant and material to the ongoing criminal investigation. Consequently, the information the Commonwealth obtained from Fulgiam's cellular telephone account from the August 4 subpoena did not create a substantial likelihood of a miscarriage of justice.

constitutional sense, requiring a warrant under art. 14 of the Massachusetts Declaration of Rights. We determined, however, that the warrant requirement was a "new" rule applicable only to those cases where the defendant raised the warrant issue before or during the trial and the defendant's conviction was not final at the time that Augustine I was decided. See id. at 257.

Although Fulgiam's case was on direct appeal when Augustine I was decided, he did not challenge the sufficiency of the § 2703(d) order as a basis for access to his CSLI either before or during the trial. Therefore, we review to determine "whether the unobjected-to admission of the CSLI evidence that was obtained without a search warrant created a substantial likelihood of a miscarriage of justice." Commonwealth v. Broom, 474 Mass. 486, 493 (2016).

ii. Analysis. Because Fulgiam does not have the benefit of Augustine I, the Commonwealth only had to meet the standard set forth in § 2703(d) in order to obtain Fulgiam's CSLI. See Broom, 474 Mass. at 492. Section 2703(d) requires that an order "shall issue only if the governmental entity offers specific and articulable facts showing that there are reasonable grounds to believe that the contents of a wire or electronic communication, or the records or other information sought, are relevant and material to an ongoing criminal investigation." The Commonwealth met that burden.

The application recited the following facts that, taken together, established reasonable grounds to believe that Fulgiam's CSLI was "relevant and material" to the ongoing investigation into the Thomas and Kee murders. First, based on the review of Thomas's cellular telephone records, the police were aware that Thomas's cellular telephone was involved in an ongoing text message dialog with the stolen cellular telephone between 11:05 P.M. and 11:32 P.M. on the night of the murders and that the stolen cellular telephone was in contact with Fulgiam's cellular telephone twice that day. Fulgiam's last communication with the stolen cellular telephone was a text message sent at 11:37 P.M., at or near the time of the murders. At 11:57 P.M., shortly after this last contact between Fulgiam's cellular telephone and the stolen cellular telephone, the police received the first 911 call for a disturbance at the victims' apartment. Second, Fulgiam had admitted to police that he knew Thomas and that they were in the drug business together. Based on the affiant's training and experience, that business connection, the lack of forced entry into the apartment (suggesting that the victims knew the assailants), and the ransacked condition of the crime scene placed Fulgiam's cellular telephone records squarely within the realm of information "relevant and material" to the ongoing investigation into the murder of the victims. Thus, Fulgiam cannot demonstrate that

the § 2703(d) order was invalid and that as a consequence, the Commonwealth's access to his CSLI created a substantial likelihood of a miscarriage of justice. See Broom, 474 Mass. at 493.

b. Corbin's claims. Using the § 2703(d) order issued on August 15, the Commonwealth obtained Corbin's cellular telephone subscriber and call detail information, CSLI, and text messages for the period from July 20 through July 30, 2011. Corbin, like Fulgiam, did not challenge the Commonwealth's access to these records either before or during the trial. On appeal, however, Corbin argues that the Commonwealth's access to and use of these records at trial was unlawful on statutory and constitutional grounds, and that his trial counsel was constitutionally ineffective in failing to file a motion to suppress the records. More specifically, Corbin claims that (1) the application for the § 2703(d) order (§ 2703[d] application) failed to make the required showing that the records were "relevant and material" to an ongoing criminal investigation; and (2) the access to and use of the content of his text messages at trial was improper because the § 2703(d) application failed to establish probable cause to believe "that a particularly described offense has been, is being, or is about to be committed, and that [the content of the text messages being sought] will produce evidence of such offense or will aid in the apprehension of a person who

the applicant has probable cause to believe has committed, is committing, or is about to commit such offense" as required by 18 U.S.C. § 2703(a) and art 14.¹¹ Augustine I, 467 Mass. at 256, quoting Commonwealth v. Connolly, 454 Mass. 808, 825 (2009). These claims fail.

i. Standard of review. Where, as here, the defendant has been convicted of murder in the first degree, we review his claim of ineffective assistance of counsel to determine whether the alleged lapse created a "substantial likelihood of a miscarriage of justice," a standard more favorable to the defendant than the constitutional standard otherwise applied under Commonwealth v. Saferian, 366 Mass. 89, 96 (1974). Commonwealth v. Wright, 411 Mass. 678, 681-682 (1992), S.C., 469 Mass. 447 (2014). We focus more broadly on whether there was error and, if so, whether any such error "was likely to have influenced the jury's conclusion." Id. If the defendant's claim of ineffective assistance of counsel is based on the failure to file a motion to suppress, he must "show that the motion to suppress would have been successful, and that failing to bring such a motion . . . created a substantial likelihood of a miscarriage of justice." Commonwealth v. Banville, 457 Mass. 530, 534 (2010).

¹¹ Corbin does not challenge the use of his cellular telephone CSLI at trial.

If the failure to file a motion to suppress resulted from counsel's tactical decision not to do so, the defendant must demonstrate that this strategic choice was "manifestly unreasonable" when made (quotations and citation omitted). Commonwealth v. Kolenovic, 471 Mass. 664, 674 (2015). Here, however, the record is unclear as to whether counsel's decision was tactical, as the defendant did not file a motion for new trial on this ground, clarifying the record on trial counsel's reason for his choice.

ii. Likelihood of success on the motion to suppress.

Because the analysis of the likelihood of success on a motion to suppress the subscriber and call detail information is governed by a legal standard that is different from that applicable to text messages, we consider each category of information separately.

A. Subscriber and call detail information. To secure a § 2703(d) order allowing access to subscriber and call detail information, the application must establish "specific and articulable facts showing that there are reasonable grounds to believe that the [information sought is] relevant and material to an ongoing criminal investigation." 18 U.S.C. § 2703(d). Corbin argues that the Commonwealth's application was insufficient to meet this test. We disagree.

The § 2703(d) application, reciting a series of calls and text messages between Thomas and Corbin on the day of the murders,¹² was more than sufficient to establish that Corbin's subscriber and call detail information was "relevant and material" to the investigation into the murders of Thomas and Kee. Id. The application included information that (1) Thomas and Corbin personally knew one another; (2) there appeared to be no forced entry at the crime scene, suggesting the victims knew the assailants; (3) the crime scene had been ransacked and, based on the affiant's training and experience, the murders appeared to be a result of a drug robbery; (4) drug dealers tend to communicate via cellular telephone to coordinate drug purchases; and (5) on the day of the murders, Corbin's cellular telephone number had multiple telephonic communications, including text messages, with both Fulgiam and Thomas. Given these facts, a motion to suppress on this ground was demonstrably lacking in merit. Thus, Corbin has failed to meet his burden to establish that the failure to file a motion to suppress the use of the subscriber and call detail information created a substantial likelihood of a miscarriage of justice.

¹² After securing Thomas's cellular telephone records, the police focused their investigation on the calls to and from Thomas's cellular telephone. The Commonwealth had associated Corbin with his cellular telephone account prior to its § 2703(d) application and used such information in the application.

B. Text messages. Corbin argues that counsel was ineffective in failing to file a motion to suppress the content of the text messages where the Commonwealth obtained access without a warrant under 18 U.S.C. § 2073(a) and art. 14. We agree that, on both statutory and constitutional grounds, a warrant was required to obtain access to the content of Corbin's text messages and that a motion to suppress challenging the Commonwealth's access on these grounds likely would have been successful.

I. Warrant requirement for access under § 2703(a). Access to the "contents of wire or electronic communications in electronic storage" is governed by 18 U.S.C. § 2703(a), which provides that "[a] governmental entity may require the disclosure by a provider of electronic communication service^[13] of the contents of a wire or electronic communication, that is in electronic storage in an electronic communications system for one hundred and eighty days or less only pursuant to a warrant . . . (in the case of a State court, using State warrant procedures) by a court of competent jurisdiction" (emphases supplied). Because it is undisputed that Corbin's "electronic communications" (text messages) met the temporal requirement of

¹³ The Stored Communications Act, 18 U.S.C. §§ 2701-2712 (2006), defines an electronic communication service as "any service which provides users thereof the ability to send or receive wire or electronic communications." 18 U.S.C. § 2510(15) (2006). See 18 U.S.C. § 2711.

§ 2703(a), the dispositive issue is whether this content was held in "electronic storage" by "a provider of electronic communication service." Id.

The Commonwealth argues that the warrant requirement of § 2703(a) does not apply to Corbin because text messages are held by a provider of a "remote computing service"¹⁴ rather than an "electronic communication service" and that, as a consequence, access may be obtained without a warrant under § 2703(b). We reject the Commonwealth's argument because we agree with the defendant that the text messages at issue here were held by a provider of an "electronic communication service" for less than 180 days, which triggered the warrant requirement.¹⁵

¹⁴ A "remote computing service" is defined as "the provision to the public of computer storage or processing services by means of an electronic communications system." 18 U.S.C. § 2711(2) (2006). In practice, this phrase is understood to refer to the use of "remote computers [to] store extra files or process large amounts of data" by commercial customers. See Kerr, *A User's Guide to the Stored Communications Act, and a Legislator's Guide to Amending It*, 72 *Geo. Wash. L. Rev.* 1208, 1213-1214 (2004).

¹⁵ General Laws c. 271, § 17B, is the analog to 18 U.S.C. § 2703(a), which treats the government's access to the content of electronic communications in a different manner from noncontent information. Both laws demand a higher standard of proof, beyond "relevant and material to an ongoing criminal investigation," 18 U.S.C. § 2703(d), to access the content of electronic communications. Compare 18 U.S.C. § 2703(a) (allowing access to content of electronic communications stored in electronic communications service for 180 days or less only pursuant to warrant), with G. L. c. 271, § 17B (specifically

Although the Supreme Court has not defined "electronic communication service" as used in § 2703(a), we adopt the approach in Quon v. Arch Wireless Operating Co., 529 F.3d 892 (9th Cir. 2008), overruled on other grounds sub nom. City of Ontario, Cal. v. Quon, 560 U.S. 756 (2010), where the court's analysis focused on the actual services offered to the consumer to determine whether the entity is a provider of "electronic communication service" or "remote computing service." See id. at 900, 901. Relying on the plain language of the statute, the Quon court concluded that the definition of "electronic communications service" as "any service which provides users . . . the ability to send or receive wire or electronic communications[,]" 18 U.S.C. § 2510(15) (2006), applied "[o]n its face" to the text messaging service at issue in that case. Id. at 901. That same logic applies here to the text message service provided by Corbin's cellular telephone carrier.

This interpretation is consistent with the heightened protection for the content of electronic communications. In Riley v. California, 134 S. Ct. 2473 (2014), the United States Supreme Court held that police officers must secure a search warrant prior to searching a cellular telephone, as modern cellular telephones contain "vast quantities of [digital]

excluding access to content of electronic communications from statute).

personal information." Id. at 2485. See United States v. Warshak, 631 F.3d 266, 286 (6th Cir. 2010) (electronic mail messages "require[] strong protection under the Fourth Amendment; otherwise, the Fourth Amendment would prove an ineffective guardian of private communication, an essential purpose it has long been recognized to serve"). A search of the content of text messages implicates similar privacy interests. Just as the government may not intercept private telephone calls or written communications without a warrant, we conclude that the Commonwealth may not obtain the content of text messages without a warrant. See United States v. Jacobsen, 466 U.S. 109, 114 (1984) (warrantless searches of letters and other sealed packages is presumptively unreasonable); Katz v. United States, 389 U.S. 347, 361 (1967) (Harlan, J., concurring).

II. Warrant requirement under art. 14. Because the United States Supreme Court has yet to decide whether access to the content of text messages requires compliance with the warrant requirement of § 2703(a), we consider the issue under art. 14, as articulated in Augustine I. We conclude that a warrant was required to obtain access to the content of Corbin's text messages. Access to the content of a text message constitutes a search requiring a showing of probable cause which in this context means "probable cause to believe 'that the particularly described offense has been, is being, or is about to be

committed, and that [the text message content being sought] will produce evidence of such offense or will aid in the apprehension of a person who the applicant has probable cause to believe has committed, is committing, or is about to commit such offense.'" Augustine I, 467 Mass. at 256, quoting Connolly, 454 Mass. at 825.

A warrant with probable cause was required because Corbin had a reasonable expectation of privacy in the content of his text messages. "The measure of the defendant's [reasonable] expectation of privacy is (1) whether the defendant has manifested a subjective expectation of privacy in the object of the search, and (2) whether society is willing to recognize that expectation as reasonable." Commonwealth v. Montanez, 410 Mass. 290, 301 (1991). See Katz, 389 U.S. at 361 (Harlan, J., concurring). As the Commonwealth notes, the defendant did not file a motion for a new trial or a motion to suppress, and for that reason, the judge did not hold an evidentiary hearing to determine whether Corbin had a subjective expectation of privacy in the contents of the text messages from the 2898 number. The record, however, establishes that Corbin had a subjective expectation of privacy in the content of his text messages. See Montanez, supra at 301.

As mentioned above, Corbin provided the police with his cellular telephone number prior to his arrest. At trial he

offered the CSLI associated with the cellular telephone account as evidence that he was not in Hyde Park on July 25, 2011, implicitly claiming ownership of the cellular telephone account; and the cellular telephone associated with the 2898 number was seized from Corbin pursuant to a search warrant prior to his arrest. Moreover, the Commonwealth consistently attributed the cellular telephone account to Corbin. See Commonwealth v. Augustine, 472 Mass. 448, 452 n.6 (2015) (Augustine II) (cellular telephone owned by another treated as belonging to defendant where he paid bills and used it exclusively). To be sure, the fact that a defendant's name is not listed as the subscriber of the account could diminish his subjective expectation of privacy. However, on the facts of this case, Corbin's implicit acknowledgment of ownership satisfied his burden. See Commonwealth v. Genest, 371 Mass. 834, 836 (1977) (defendant has burden to show reasonable expectation of privacy).

Similarly, Corbin had an objectively reasonable expectation of privacy in his text messages. In Augustine I, 467 Mass. at 255, we recognized an objectively reasonable expectation of privacy in a defendant's CSLI records. We further stated "that the nature of cellular telephone technology and CSLI and the character of cellular telephone use in our current society render the third-party doctrine of [United States v.] Miller[],

425 U.S. 435 (1976),] and Smith [v. Maryland, 442 U.S. 735 (1979),] inapposite." Augustine I, supra at 245. The same result applies here with respect to the content of text messages stored on a cellular telephone service provider's servers.

Because we conclude that probable cause was required to obtain the content of Corbin's text messages, we next consider whether the application established the requisite probable cause for access to Corbin's text messages. See id at 256.

The application established a personal relationship between Thomas and Corbin, that Corbin was in telephonic contact with both Thomas and Fulgiam on the day of the murders, and that the circumstances of the murders suggested a connection to drugs. Although the fact that Thomas and Corbin may have used their cellular telephones to communicate with each other on the day of the murders elevated their relationship to a matter of importance in the investigation, it did not, without more, justify intrusion into the content of that communication.¹⁶ In

¹⁶ On July 25, 2011, between 2:15 P.M. and 7:27 P.M., Corbin and Thomas exchanged the following text messages:

Thomas: "What hapnd bro i need that"

"I need 2 c u like yesterday i have 2 get a whip manana n i def need that bread i would appreciate if u didnt hold me up"

"This is what i didnt want 2 happen we discussed this b4 bro straightn me first remember dnt make it bad bro"

contrast to Fulgiam, nothing in the application indicated a drug connection between Corbin and Thomas, such that Corbin might have a motive for murder. Other than the cellular telephone communication between Thomas and Corbin, the application failed to recite any facts that might have implicated Corbin in the crimes or suggested that the content of his text messages would aid in the apprehension of a suspect in the murders. See Augustine I, 467 Mass. at 256. Given these shortcomings in the application, we conclude that the Commonwealth failed to establish the requisite probable cause and, therefore, improperly obtained the content of Corbin's text messages.

The Commonwealth argues that, in any event, Corbin lacked standing to challenge the access to the content of the text messages because the cellular telephone account was held under a

Corbin: "Bro u know i do what i can 2 get u first but i called u. I cant hold these niggers up."

Thomas: "n my bread u feel me wit out me it neva would have been there 2 flip anything"

"U cant hold anyone up when its not there bread thats free money i should have mine off the top than play with urs not mine bro we talkd about this ur flip"

Corbin: "I see u going through some thing cause we never kicked it like this. im going 2 put as much 2gether 4 u not in 2 long"

Thomas: "Good look lol naw cause someone did somethng simular just cause i say im somewhre u cant assumd my schedule or do ur own thng thats all im tryna say talk"

"2 you when u come bro"

fictitious name or held by someone other than Corbin. "A defendant has standing either if [he] has a possessory interest in the place searched or in the property seized or if [he] was present when the search occurred." Commonwealth v. Williams, 453 Mass. 203, 208 (2009). The Commonwealth argues that the defendant has not made the requisite showing that he had a possessory interest in the cellular telephone account for the 2898 number because Corbin did not move for a new trial and file an affidavit averring such a possessory interest in the account, or present any affirmative evidence showing such an interest. However, the Commonwealth consistently has asserted that the listed account holder for the 2898 number was Corbin. In its § 2703(d) application, the Commonwealth associated the 2898 number with Corbin. Throughout the trial the Commonwealth asserted that Corbin sent the text messages it offered in evidence, and it offered Corbin's CSLI to show that there was no activity on his cellular telephone during the murders. Moreover, a detective testified that another detective was in telephonic contact with Corbin using the 2898 number. Finally, the cellular telephone associated with the 2898 number was seized from Corbin and searched pursuant to search warrant.¹⁷

¹⁷ The Commonwealth obtained Corbin's cellular telephone pursuant to a search warrant on October 27, 2011; however, it previously had obtained the content of his text messages pursuant to its August 15 § 2703(d) application.

Given these facts, Corbin has standing to challenge the warrantless search of the content of the text messages sent from the 2898 number.¹⁸ See Williams, supra at 208.

Last, we reject the Commonwealth's argument that customers of cellular service providers such as Metro PCS, which are advance-pay services, assume the risk that the content of information stored on its servers will be disclosed to third parties. To support its argument, the Commonwealth notes that companies such as Metro PCS do not conduct credit checks or verify the identity of its customers, and that as a consequence, customers who engage the services of such companies have a less objectively reasonable expectation of privacy. In determining a subscriber's reasonable expectation of privacy, we decline to distinguish between those who choose not to submit to a credit check, or do not have credit, or are not the named account

¹⁸ Corbin established standing here, in part, through his implicit acknowledgment of ownership of the cellular telephone account associated with the 2898 number, prior to and during trial. We note that a defendant, connected to a cellular telephone account with a cellular telephone service provider under an assumed name, will not automatically have standing to challenge the search of the information relating to the cellular telephone account. Such a defendant, as here, must establish both standing and a reasonable expectation of privacy in order to challenge such a search. See Commonwealth v. Williams, 453 Mass. 203, 207-208 (2009). Additionally, we acknowledge that the posture of this case made the determination of standing and reasonable expectation of privacy more difficult. The better practice is to assert this claim through a motion for a new trial and present affirmative evidence to support a defendant's entitlement to challenge such a search.

holder on a cellular telephone account and those customers who identify themselves or have established credit.

iii. Substantial likelihood of a miscarriage of justice.

We now ask whether the admission of the text messages, which could have been suppressed, created a substantial likelihood of a miscarriage of justice and "likely . . . influenced the jury's conclusion." Williams, 453 Mass. at 205, quoting Wright, 411 Mass. at 682. We conclude that it did not.

Corbin's defense was that he was innocent and that Thomas, as a high level drug dealer, was in a dangerous business. Corbin claimed that many people knew Thomas was a drug dealer and, for that reason, he was a target for drug robbery. Corbin's argument that the content of his text messages was the only evidence from which the jury could find a motive and opportunity for Corbin to commit the murders is belied by the record. Much of the information about Thomas's status as a high level drug dealer came in through other evidence.¹⁹

In addition, based on evidence wholly independent of the text messages, Corbin's involvement in the murders was not a

¹⁹ Thomas's best friend testified that Thomas was selling "a few thousand dollars" worth of marijuana per week and approximately \$4,000 or \$5,000 worth of cocaine per week. Additionally, that friend testified that it was common in the drug business for a higher level dealer to supply drugs to "street-level" dealers for sale, and the jury heard evidence that Fulgiam admitted to being in the drug business with Thomas and that Thomas had a lot more money than Fulgiam.

close question. The discovery of Corbin's fingerprint on the barrel of the curling iron found near Kee's body was highly inculpatory, as was the evidence of Corbin's telephonic contact with Fulgiam, Thomas, and the stolen cellular telephone on the day of the murders. The inference that Corbin was in possession of the cellular telephone stolen a few hours before the murders, and that he used this telephone to contact Thomas on multiple occasions, including within two hours of the murders, also was highly inculpatory. The jury also heard evidence that Thomas, Corbin, and Fulgiam were involved in the drug business together and that the murders were likely connected to a drug robbery. Moreover, although we recognize that trial counsel was faced with the task of downplaying the impact of the text messages once they were admitted in evidence, he affirmatively used this content in his closing argument to establish that (1) Thomas had a significant amount of drugs and money in his apartment most of the time; (2) Thomas was a "tempting" target for robbery; and (3) the nature of Thomas's business was such that persons other than Corbin could have a motive to kill Thomas. Against the backdrop of this highly incriminating evidence, we cannot say that the jury's exposure to Corbin's text messages likely influenced the jury's verdict. Therefore, Corbin cannot meet his burden to establish that trial counsel's failure to file a

motion to suppress the content of his text messages created a substantial likelihood of a miscarriage of justice.

2. Fingerprint analysis. The Commonwealth presented the following evidence to prove its contention that the fingerprint analysis placed both defendants at the scene of the crime during the murders. Although police criminalists were able to obtain several latent fingerprints²⁰ from items at the scene, ultimately, only five latent prints were individualized²¹ to defendants. Four latent prints were recovered from the magazine of the nine millimeter semiautomatic pistol, and one thumbprint was recovered from the barrel of the curling iron found near Kee's body.

During her testimony, a fingerprint analyst explained that latent print analysts compare the latent prints recovered from crime scenes to known prints, i.e., fingerprint impressions taken in a controlled setting, either in ink or on a scanner. Insofar as relevant here, police produced a card, known as a "ten-print" card, which includes the ten fingerprint

²⁰ A latent print is "a fingerprint that generally can't be seen right away, and [one] would need further processing in order for it to be seen."

²¹ Individualization is "when a latent print examiner comes to a conclusion that there is a sufficient amount of detail of quality and quantity of those details between the latent print and the known fingerprint to arrive at that conclusion, to establish that the latent print originated from the known print or that donor."

impressions, the name of the person who is being fingerprinted, typically a signature of that person, and other identifying information, such as date of birth and address. Police latent print analysts access the known prints through certain databases. The latent print analysts use a method known as analysis, comparison, evaluation, and verification, or ACE-V, to compare the latent prints recovered to known prints.

With respect to Corbin's fingerprint, the analyst explained that she began by using the ACE-V methodology to determine that the latent print had sufficient quality and quantity of detail for comparison purposes. Next, she obtained possible matches through a fingerprint database, including the ten-print card of Corbin that was maintained by the State police and created on July 7, 2005.²² Finally, after performing the ACE-V methodology again, the analyst "individualized the right thumb" of Corbin to the latent print recovered from the curling iron.

With respect to Fulgiam's fingerprints, four of seven latent fingerprints that were recovered from the magazine of the nine millimeter semiautomatic pistol were individualized to him. The analyst explained, over objection, that she generated the Fulgiam's known ten-print card, maintained by the State police and created on July 18, 2011, for comparison with the recovered

²² Corbin's ten-print card was admitted in evidence over objection.

latent prints.²³ Next, applying the ACE-V methodology, she individualized the four latent prints to Fulgiam.

a. Ten-print cards. The defendants argue that the judge erred in admitting the ten-print cards under the business records exception to the hearsay rule. See G. L. c. 233, § 78; Mass. G. Evid. § 803(6)(A) & note (2017). More specifically, the defendants argue that because the statements underlying the ten-print card were made by persons having no business duty to report the information accurately, the statements fall outside the scope of the business records exception to the hearsay rule. We disagree.

The business records exception to the hearsay rule provides, in relevant part: "a writing or record, . . . made as a memorandum or record of any act, transaction, occurrence or event, shall not be inadmissible in any civil or criminal proceeding as evidence of the facts therein stated because it is transcribed or because it is hearsay or self-serving." G. L. c. 233, § 78. A record falls within the scope of the business records exception to the hearsay rule, set forth in § 78, "if the judge finds that it was (1) made in good faith; (2) made in the regular course of business; (3) made before the action

²³ As discussed infra, both Corbin and Fulgiam vigorously contested the assertion that the ten-print cards associated with them actually contained their fingerprints because the ten-print cards lacked certain identifying information, including both Corbin and Fulgiam's signatures.

began; and (4) the regular course of business to make the record at or about the time of the transaction or occurrences recorded." Beal Bank, SSB v. Eurich, 444 Mass. 813, 815 (2005), citing DiMarzi v. American Mut. Ins. Co., 389 Mass. 85, 105 (1983). If such findings are made, the record "is presumed to be reliable and therefore admissible." Wingate v. Emery Air Freight Corp., 385 Mass. 402, 406 (1982).

This presumption, however, does not automatically extend to the out-of-court statements made by a secondary source that the record preparer relies on when creating the record. The essential element underlying the presumption of reliability is the theory that "entries in these records are routinely made by those charged with the responsibility of making accurate entries and are relied on in the course of doing business." Id. Where the person providing information to the preparer is unconnected to the business, and thus is under no business duty to provide accurate information, this essential element is lost. Although § 78 provides that preparer's personal knowledge (or lack thereof) goes to the record's weight, not its admissibility, this provision does not negate the requirement that, where the information contained within the record is offered for its truth, the source from which the preparer obtained the information "must carry the same indicia of reliability, arising

from regularity and business motives, that bring his own act of recording the information within the statutory exception." Id.

To demonstrate that the preparer's hearsay source bears the same indicia of reliability as the preparer, the proponent need not produce each speaker. Beal Bank, SSB, 444 Mass. at 816. Rather, the proponent need only present evidence demonstrating that the hearsay source "reported the information as a matter of business duty or business routine." Wingate, 385 Mass. at 406. Such was the case in Beal Bank, SSB, where the proponent bank introduced, as its own business record, a printout of a report produced and provided to it by the bank's loan servicing agent (agent). Beal Bank SSB, supra at 816. In determining that the judge did not abuse his discretion in admitting the document as a business record, we noted that because the agent serviced the bank's loans pursuant to a contract, the bank manager's testimony regarding the records was sufficient to support the admission of the documents. Id. at 817. Key to this determination was the existence of a business relationship between the bank and its agent. We noted, "this is not a case where the bank is simply receiving information from another business. Rather, [the agent] is the bank's servicing agent; it has a business duty [to accurately report] the information to the bank; and the bank routinely accesses and relies on that information." Id.

In this case, the Commonwealth introduced two ten-print cards created by the State police, each of which bore ten fingerprints and identifying information associated with the defendants.²⁴ As a threshold matter, we determine that the ten-print cards meet the statutory requirements under the business records exception.²⁵ The admissibility of the identifying information provided by the persons being fingerprinted and reflected on the ten-print card, however, is not so easily established. Unlike in Beal Bank, SSB, here, the persons being fingerprinted had neither a contractual obligation nor a business duty to provide accurate and reliable identifying information. Thus, the protections that "arise[] from regularity and business motives," Wingate, 385 Mass. at 406, are inapplicable here.

²⁴ Specifically, one of the ten-print cards reflected Corbin's name, aliases, date of birth, sex, race, place of birth, height, weight, eye and hair color, and Social Security number. The other reflected Fulgiam's name, date of birth, sex, race, place of birth, height, weight, and eye and hair color. Neither ten-print card reflected the signature of the person fingerprinted, although the ten-print card provides space for such information.

²⁵ The Commonwealth's witness, a State police trooper, testified that the ten-print records were maintained in the State police's identification unit, located in Sudbury, and confirmed that such records were typically produced, entered, and maintained for administrative purposes in good faith, in the ordinary course of business of the State police. The trooper also confirmed that the ten-print cards were created prior to the commencement of the case.

Here, the officer who creates the ten-print card has a duty to ensure that the person who is being fingerprinted is accurately identified. Otherwise, such cards would have little value to law enforcement. Moreover, G. L. c. 268, § 34A, states: "[w]hoever knowingly and willfully furnishes a false name or Social Security number to a law enforcement officer or law enforcement official following an arrest shall be punished by a fine or not more than \$1,000 or by imprisonment in a house of correction for not more than one year or by both such fine and imprisonment." Therefore, based on the officers' duty to ensure the ten-print cards are created with accurate information, and the arrestees' legal obligation to provide accurate information, we conclude that the identifying information on the cards is reliable and brings the identifying evidence reflected on the ten-print card within the scope of the business records exception to the hearsay rule. See Wingate, 385 Mass. at 406.

The defendants argue that the ten-print cards do not fall within the scope of the business records exception to the hearsay rule because the Commonwealth failed to present evidence that the person taking the fingerprints verified the identities of the persons fingerprinted. See United States v. Vigneau, 187 F.3d 70, 77 (1st Cir. 1999), cert. denied, 528 U.S. 1172 (2000) (admission of sender's name, address, and telephone number

reflected on Western Union "To Send Money" form for truth was error where Western Union did not have practice of verifying such information). Although we agree that verification may be a best practice, we conclude that the presence or absence of independent verification bears on the weight of the record rather than its admissibility under the business records exception. In addition, the defendants point out that important information, including signatures of the person taking the fingerprints, and signatures of the persons being fingerprinted are missing. These issues also go to the weight, which may be subject to intense scrutiny on cross-examination, rather than the admissibility of the evidence.

We are also not persuaded by Corbin's argument that the ten-print cards were inadmissible because the Commonwealth presented testimony from a witness who did not actually take or maintain the ten-print cards. Section 78 makes clear, as has this court, that the admissibility of a document under the business records exception does not turn on the personal knowledge of the record's preparer. See Wingate, 385 Mass. at 406, quoting G. L. c. 233, § 78 ("'personal knowledge by the entrant or maker' is a matter affecting the weight [rather than the admissibility] of the record"). Accordingly, we conclude

that the ten-print were properly admitted under the business records exception to the hearsay rule.²⁶

Last, the defendants argue that the admission of the ten-print cards violated the right of confrontation as guaranteed by the Sixth Amendment to the United States Constitution and art. 12 of the Massachusetts Declaration of Rights. We disagree. The Supreme Court of the United States has made clear that the confrontation clause "guarantees a defendant the opportunity to confront any person, in the 'crucible of cross examination,' whose 'testimonial' statements are introduced against him." Commonwealth v. Siny Van Tran, 460 Mass. 535, 552 (2011), quoting Crawford v. Washington, 541 U.S. 36, 51-52, 61 (2004). Similarly, art. 12 "commands that 'every subject shall have a right . . . to meet the witnesses against him face to face.'" Commonwealth v. Amirault, 424 Mass. 618, 628 (1997), quoting art. 12. "It is the testimonial character of any item of evidence that triggers the confrontation right, notwithstanding its admissibility under statute, State rule, or a common-law hearsay exception." Siny Van Tran, 460 Mass. at 552, citing Melendez-Diaz v. Massachusetts, 557 U.S. 305, 323 (2009). However, "[m]ost of the hearsay exceptions covered statements

²⁶ Because of our conclusion, we need not address Corbin's argument that trial counsel's failure to object to the validity of the ten-print card constituted ineffective assistance of counsel.

that by their nature were not testimonial -- for example, business records or statements in furtherance of a conspiracy." Melendez-Diaz, 557 U.S. at 324, citing Crawford, 541 U.S. at 56. The Court clarified, "[b]usiness and public records are generally admissible absent confrontation not because they qualify under an exception to the hearsay rules, but because -- having been created for the administration of an entity's affairs and not for the purpose of establishing or proving some fact at trial -- they are not testimonial." Melendez-Diaz, supra.

Fingerprint records are nontestimonial because they are created for the "administration of an entity's affairs" rather than to establish or prove some fact at trial. Commonwealth v. Weeks, 77 Mass. App. Ct. 1, 5 (2010). See Melendez-Diaz, 557 U.S. at 324. Here, the trooper testified that ten-print cards are created in the ordinary course of business in good faith, and Corbin and Fulgiam's ten-print cards were created prior to the commencement of the trial. The ten-print cards were business records under G. L. c. 233, § 78. Because the ten-print cards are business records, we conclude that the admission of the ten-print cards did not violate the defendants' right to confront witnesses against them protected by the Sixth Amendment and art. 12.

b. Testimony of fingerprint analyst. The defendants challenge the admission of the Commonwealth's fingerprint expert witness testimony on several grounds. The defendants first argue that the Commonwealth's expert witness improperly testified to the result of her fingerprint analysis in absolute terms, stating that she had individualized the defendants' fingerprints to prints found at the scene of the crime. According to the defendants, the introduction of expert fingerprint testimony stating the results of fingerprint analysis in absolute terms is inconsistent with recent science questioning the accuracy and reliability of fingerprint analysis and the ACE-V methodology. Because the defendants did not object to this aspect of the testimony at trial, our inquiry is whether any error created a substantial likelihood of a miscarriage of justice. Wright, 411 Mass. at 682.

We have on several occasions addressed the issue of the ACE-V methodology and expert testimony based on it. See, e.g., Commonwealth v. Gambora, 457 Mass. 715, 724-728 (2010), and Commonwealth v. Patterson, 445 Mass. 626, 641-655 (2005). In Gambora, supra at 724, we discussed in great depth a 2009 report published by the National Research Council for the National Academy of Sciences (NAS Report), which raised several issues regarding the reliability of certain aspects of the ACE-V

methodology and the expert testimony that relies upon it.²⁷ The central issue raised in the NAS Report was "the need to prevent overstatement of the accuracy of fingerprint comparisons, and for additional research." Commonwealth v. Joyner, 467 Mass. 176, 181 (2014), quoting Gambora, supra at 726. Although we stated that "courts historically have found fingerprint evidence to be admissible," Joyner, supra at 180, quoting Patterson, 445 Mass. at 644, we also noted that "[t]estimony to the effect that a latent print matches, or is 'individualized' to, a known

²⁷ In Gambora we stated:

"The [NAS] report does not appear to question the underlying theory which grounds fingerprint identification evidence; as the report states, there is scientific evidence supporting the theory that fingerprints are unique to each person and do not change over a person's life. . . . However, the NAS report adds, '[u]niqueness and persistence are necessary conditions for friction ridge identification [i.e., fingerprint identification] to be feasible, but those conditions do 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'" (citations omitted).

Commonwealth v. Gambora, 457 Mass. 715, 724-725 (2010), citing National Research Council, Strengthening Forensic Science in the United States, A Path Forward 143-144 & n.34 (2009) (NAS Report). Moreover, we stated that although the NAS Report does not draw the conclusion that fingerprint evidence lacks such reliability that courts should no longer deem it admissible, the report does "stress the subjective nature of the judgments that must be made by the fingerprint examiner at every step of the ACE-V process, including an examiner's ultimate conclusion that a latent print is 'individualized' to a specific, identified, known print." Gambora, supra at 725, citing NAS Report at 139, 141.

print, if it is to be offered, should be presented as an opinion, not a fact, and opinions expressing absolute certainty about, or the infallibility of, an 'individualization' of a print should be avoided." Gambora, supra at 729 n.22.

The defendants contend that the fingerprint expert witness failed to heed this court's cautionary advice and presented her findings based on her application of the ACE-V methodology to latent prints found on the scene as fact rather than opinion. We agree, but we are persuaded that the testimony did not create a substantial likelihood of a miscarriage of justice. Wright, 411 Mass. at 682.

Fingerprint analysts testifying as expert witnesses must clearly frame their findings in the form of an opinion to avoid improper testimony. See Mass. G. Evid. § 702 & note (2017). See also Joyner, 467 Mass. at 183 n.9 ("Gambora permits a fingerprint expert to opine on whether two fingerprints match," thus it is "helpful" to ask expert to testify as to his or her opinion). Here, the analyst testified that individualization signifies that the print examiner has "come[] to the conclusion that there is a sufficient amount of quality and quantity of those details between the latent print and the known fingerprint . . . to establish that the latent [print] originated from the known print or that donor." She testified on several occasions

that she individualized fingerprints of the defendants to latent prints found at the scene of the crime.

However, portions of the analyst's testimony implicitly suggested the fallibility of fingerprint analysis. Contrast Commonwealth v. Wadlington, 467 Mass. 192, 205 (2014)

(fingerprint analyst improperly testified as to her belief of "no error rate in [her] area of science"). For example, she agreed that latent prints are obtained from an "uncontrolled setting," and that various factors, including pressure, can affect the way the fingerprint is recorded. Moreover, as in Gambora, we note that the vigorous cross-examination of the analyst countered any possible misconception that individualization is infallible. Specifically, defense counsel for Fulgiam questioned her on her inability to determine when the latent prints were deposited, and counsel highlighted the fact that fingerprints are "somewhat delicate." Defense counsel for Corbin also questioned her on issues regarding the surface from which the latent print on the curling iron was taken and regarding the fact that the latent print recovered is not "exactly similar" to the known prints.

Finally, the Commonwealth's evidence linking the defendants to the crime, separate and apart from the fingerprint evidence, was strong. Thus, even though we conclude that the analyst's testimony regarding individualization was erroneously presented

as fact, we determine that the error did not create a substantial likelihood of a miscarriage of justice.

The defendants also argue that the judge erred in allowing the analyst to testify that another fingerprint analyst had reviewed her work.²⁸ According to the defendants, this testimony amounted to "improper vouching" and hearsay expert testimony.

We are not persuaded that this testimony was error. Expert testimony as to the opinions or conclusions of a second, nontestifying expert constitutes inadmissible hearsay. See Commonwealth v. Whitaker, 460 Mass. 409, 421-422 (2011). Here, the judge allowed the analyst's testimony that the other analyst "reviewed" her work, but did not allow testimony that the second analyst verified her work.²⁹ The analyst testified as to the ACE-V process, wherein verification or review by another fingerprint analyst is a step in the process, and did not testify as to the second analyst's independent conclusions. The

²⁸ During the analyst's testimony, counsel for Fulgiam preemptively objected to any questioning by the Commonwealth regarding whether the analyst's findings were verified by another fingerprint examiner. While the judge sustained the objection, the judge indicated that the witness would be allowed to testify that another fingerprint analyst reviewed her work.

²⁹ Despite the judge's ruling prohibiting the Commonwealth from questioning the analyst regarding whether another analyst verified her work, following the colloquy, the Commonwealth questioned whether her work was "verified." After the analyst testified in the affirmative, Fulgiam objected. The judge sustained the objection as to the use of the word "verified," but reiterated that he would allow the testimony regarding what the second analyst did when he examined the analyst's findings.

analyst's testimony stands in stark contrast to the expert testimony at issue in Whitaker, where the fingerprint analyst expert witness testified that two secondary analysts "concurred" with his conclusions regarding individualization. Id. at 421. Accordingly, we conclude that the judge did not err in admitting the fingerprint analyst's testimony confirming that another fingerprint analyst reviewed her findings.

Nonetheless, judges must use caution in allowing testimony regarding the verification step in ACE-V analysis, as "verifying" suggests that a nontestifying expert concurs with the testifying expert's conclusion. Such testimony would be improper hearsay testimony. See Commonwealth v. Chappell, 473 Mass. 191, 202 (2015).

3. Gang references. Corbin argues that the Commonwealth improperly and repeatedly referenced gang affiliation during the trial, despite the fact that the judge granted Fulgiam's motion in limine to exclude such references. This argument has no merit. Corbin merely speculates that the jury would conclude that the defendants were affiliated with gangs based on the neighborhoods in which the men grew up.³⁰ Additionally, the prosecutor's closing argument was proper; there was testimony

³⁰ During their interviews with detectives, Fulgiam and Corbin told the detectives that Fulgiam was originally from the Academy Homes Development in the Roxbury section of Boston, Corbin was from Humboldt Avenue in Roxbury, and Thomas was from Heath Street in the Jamaica Plain section of Boston.

that six or seven men were seen fleeing the victim's apartment building immediately after the witnesses heard gun shots. It is within permissible bounds for the prosecutor to infer that a "team" of men committed the murders. There was no error. See Commonwealth v. Kozec, 399 Mass. 514, 516-517 (1987).

4. Review pursuant to G. L. c. 278, § 33E. After a full review of the trial record, we affirm the convictions and decline to grant extraordinary relief pursuant to G. L. c. 278, § 33E.

So ordered.

LOWY, J. (concurring). I agree that the ten-print card qualifies for the business record exception to the rule against hearsay. However, I write separately because the card in this case involves two levels of hearsay: the ten-print card itself and the information provided by the individual to fill out the card. I believe the court does not precisely address each level.

The business records exception to the rule against hearsay allows information recorded for a business purpose and contained in a business record in evidence for its truth. See Mass. G. Evid. § 803(6) (A) (2017). This rule includes out-of-court statements: if the statement is recorded for a business purpose and the individual making the statement does so for a business purpose, the statement is admissible for its truth. See id. If an out-of-court statement contained in a business record is not made pursuant to a business purpose, it still may be admissible if the out-of-court statement is recorded for a business purpose and the statement falls within another hearsay exception or exclusion. As the majority points out, an arrestee's legal obligation does not equate with a business purpose.

However, I believe that the information provided to fill out the ten-print card fell within the hearsay exclusion for an opposing party's statement. Mass. G. Evid. § 801(d) (2) (a) (2017). For the reasons stated by the court, including the

defendant's legal obligation to provide identifying information, the totality of the circumstances established a more than adequate basis for the judge to conclude -- as a preliminary question of fact on which admissibility depends and as a matter of conditional relevance -- that Corbin was the individual who provided the information. See Mass. G. Evid. § 104(a), (b) (2017). The ten-print card was properly admitted because the information in the ten-print card was admissible under an exclusion from the rule against hearsay, and the ten-print card was admissible as a business record. Mass. G. Evid. § 801(d)(2)(A); § 803(6)(A).