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IN THE DISTRICT COURT OF APPEAL
OF FLORIDA
SECOND DISTRICT

CHRISTOPHER RAY QUEEN,)
)
)
Appellant,)
)
)
v.) Case No. 2D19-3890
)
)
STATE OF FLORIDA,)
)
)
Appellee.)
)

Opinion filed March 24, 2021.

Appeal from the Circuit Court for
Highlands County; Peter F. Estrada,
Judge.

Howard L. Dimmig, II, Public Defender,
and Jeffrey Sullivan, Special Assistant
Public Defender, Bartow, for Appellant.

Ashley Moody, Attorney General,
Tallahassee, and Johnny T. Salgado,
Assistant Attorney General, Tampa,
for Appellee.

ATKINSON, Judge.

Christopher Ray Queen appeals his convictions and sentences for three hundred counts of possession of child pornography. Queen argues the trial court erred by overruling his hearsay objection to a digital forensic technician's testimony regarding the hash values associated with the images found on his devices. We agree as to one

of those images and reverse Queen's conviction for count 47. We affirm the remainder of Queen's convictions and sentences without further discussion.

On June 12, 2017, Queen sent an email containing pornographic images from his AOL email address. AOL recognized nine images as suspected child pornography and reported the email to the National Center for Missing and Exploited Children (NCMEC) through its CyberTipline. NCMEC forwarded AOL's tip to the FBI. The FBI referred the case to the Highlands County Sheriff's Office.

Pursuant to a search warrant, law enforcement searched Queen's home and seized his cell phone, tablet, hard drive, laptop, desktop computer, and various digital storage devices. A digital forensic technician with the Highlands County Sheriff's Office forensically examined Queen's devices using Griffeye, an image and video specialization program used by law enforcement to facilitate identification of contraband files on devices containing large volumes of image and video files.

The digital forensic technician testified that the Griffeye program relies on hash values to identify contraband files. He explained that hash values are unique alphanumeric values that are permanently associated with computer files. Hash values are remarkably accurate and virtually impossible to duplicate.¹ According to the digital forensic technician, Griffeye works by comparing hash values associated with image

¹In Morales v. State, 274 So. 3d 1213, 1215 (Fla. 1st DCA 2019), the First District recounted an expert witness's testimony that "there had never been two different files with the same hash value other than in a lab setting where it took two supercomputers over two years to manufacture an identical hash value for two different and very small (four kilobyte) files." "[I]f one took a picture file and changed the shading of one pixel out of the millions of pixels that made up the picture, the hash value would be completely different." Id.

and video files on an individual's devices to hash values of files containing child pornography from a database developed by NCMEC and Project VIC.²

For several years, NCMEC and Project VIC have been developing a database of hash values associated with images of child pornography. NCMEC and Project VIC have built their database by partnering with law enforcement agencies. Local law enforcement agencies submit confirmed images of child pornography and their associated hash values to NCMEC and Project VIC. The forensic witness explained that the organizations independently "verify"³ the material submitted by the local agencies but gave no explanation of what that verification process entails. For the purpose of this opinion, the court assumes that the process might include an independent verification that the photographs depict children. The organizations then update their database with the new hash values submitted by the local agencies. Once the database is updated, NCMEC and Project VIC disseminate their hash sets to local law enforcement agencies and other partners.

Using Griffeye, the Highlands County digital forensic technician discovered three hundred images on Queen's devices that were assigned hash values that matched hash values of images designated as child pornography in NCMEC and

²The digital forensic technician testified that Project VIC is "the Department of Homeland Security's child porn division."

³The digital forensic technician did not explain how NCMEC and Project VIC verify the materials submitted, only that these organizations do verify the materials submitted to them by partnering law enforcement agencies.

Project VIC's database. Queen was charged with three hundred counts of possession of child pornography in violation of section 827.071(5), Florida Statutes (2018).⁴

The case proceeded to a bench trial on March 27, 2019. At trial, the State called the digital forensic technician as a witness and asked the trial court to allow him to render opinions in the field of forensic technology. The trial court found the digital forensic technician to be qualified to render opinions in the field of his expertise. The digital forensic technician testified that the hash values of each of the three hundred images discovered on Queen's devices matched a hash value of an image associated with child pornography in NCMEC and Project VIC's database. Queen objected, arguing that this testimony was based on hearsay because the digital forensic technician relied on hash values to testify that the images contained depictions of child

⁴Section 827.071(5), Florida Statutes (2018), provides in relevant part:

(5)(a) It is unlawful for any person to knowingly possess, control, or intentionally view a photograph, motion picture, exhibition, show, representation, image, data, computer depiction, or other presentation which, in whole or in part, he or she knows to include any sexual conduct by a child. The possession, control, or intentional viewing of each such photograph, motion picture, exhibition, show, image, data, computer depiction, representation, or presentation is a separate offense. If such photograph, motion picture, exhibition, show, representation, image, data, computer depiction, or other presentation includes sexual conduct by more than one child, then each such child in each such photograph, motion picture, exhibition, show, representation, image, data, computer depiction, or other presentation that is knowingly possessed, controlled, or intentionally viewed is a separate offense. A person who violates this subsection commits a felony of the third degree, punishable as provided in s. 775.082, s. 775.083, or s. 775.084.

pornography. The trial court overruled Queen's hearsay objection because digital forensic technicians rely on the hash values in their industry.

For most of the images, the digital forensic technician was able to identify the individuals in the images found on Queen's computer as children engaging in sexual activity with adults or other children without reference to the hash values associated with the images. However, he was unable to determine whether the female depicted in Exhibit 47 was a child based on his personal assessment of the image alone. The digital forensic technician testified that the image depicted a female child engaged in sexual activity with an adult male based on the hash value associated with the image. In other words, to prove that the image was of a child, the State relied on the digital forensic technician's conclusion the image had a hash value assigned to an image that had been designated in NCMEC and Project VIC's database as child pornography. Queen renewed his hearsay objection to the evidence based on hash values, and the trial court again overruled the objection.

The trial court found Queen guilty of all three hundred counts of possession of child pornography. The trial court sentenced Queen to five years for each count but arranged for some sentences to run concurrently and some to run consecutively. Queen was sentenced to a total of 145 years in prison.

Queen argues that the trial court erred by overruling his hearsay objection to the digital forensic technician's testimony concerning hash values. He contends that the digital forensic technician's testimony that Exhibit 47 was an image depicting a female child engaged in sexual activity was based on a hearsay statement that an image with the same hash value was previously identified as an image containing child

pornography by an unknown law enforcement officer who provided the image to NCMEC and Project VIC. The State responds that hash values are not inadmissible hearsay because they come from a "trustworthy source," they are "extremely accurate," and, like fingerprints and DNA samples stored in national depositories and databases, they allow law enforcement to compare images suspected of depicting child pornography to images already known to be child pornography.

While a trial court's ruling on the admissibility of evidence is generally reviewed for abuse of discretion, "the question of whether a statement is hearsay is a matter of law and is subject to de novo review on appeal." North v. State, 221 So. 3d 1235, 1236 (Fla. 2d DCA 2017) (quoting Cannon v. State, 180 So. 3d 1023, 1037 (Fla. 2015)). Hearsay is an out-of-court statement offered into evidence to prove the truth of the matter asserted. § 90.801(1)(c), Fla. Stat. (2019). Hearsay is generally inadmissible unless it falls under an enumerated exception. § 90.802; see also §§ 90.803, .804 (enumerating exceptions to the hearsay rule).

Here, the digital forensic technician's testimony that Exhibit 47 contained an image of child pornography included and relied upon a hearsay statement because it was not the digital forensic technician who made the determination that the image of which exhibit 47 was an identical copy depicted a child; it was an unknown individual who worked for the law enforcement agency that submitted the image to the database or one who worked for NCMEC or Project VIC who independently verified that the image was of a child. Cf. United States v. Yohe, ACM 37950 (recon), 2013 WL 3973240, at *4 (A.F. Ct. Crim. App. July 22, 2013) (determining that the Confrontation Clause was violated by the introduction of statements made by "an out-of-court,

unknown and unidentified witness in a [NCMEC] forensic report" that the individuals depicted in photographs were children), vacated by ACM 37950 (recon), 2015 WL 5737178, at *7 (A.F. Crim. Ct. App. Sept. 3, 2015) (holding any error in admitting the NCMEC report was harmless under the facts of the case). Basing his conclusion on a comparison of the hash value assigned to the image with the hash sets provided by NCMEC and Project VIC, the digital forensic technician was merely conveying to the jury what the unidentified individual had communicated to the database. No recognized hearsay exception applies to this out-of-court statement. See §§ 90.803, .804.

For the digital forensic technician's photo-matching testimony to support the requisite element of the charged crime, someone, somewhere had to have made a determination that the image of which Exhibit 47 is an identical copy was an image depicting a child. See Morales v. State, 274 So. 3d 1213, 1215 (Fla. 1st DCA 2019) (recounting that an expert witness explained that when a hash value is identified in a database as child pornography it has "been identified by a human being as being child exploitative at one point in time" (emphasis added)). The individual who made that determination had communicated this determination by way of his or her submission of the image to the database. However, that individual did not testify in Queen's trial. It is that statement, the initial determination that the original image depicted a child, that was made out of court and was admitted for the truth of the matter asserted—that Exhibit 47, an identical copy of the original image, was itself one that depicted a child. See Dixon v. State, 107 So. 3d 527, 533 (Fla. 4th DCA 2013) ("Hearsay is 'a statement, other than one made by the declarant while testifying at the trial or hearing, offered in evidence to prove the truth of the matter asserted.' " (quoting § 90.801(1)(c))).

Contrary to the State's assertions, a hearsay statement is not admissible simply because it is "extremely accurate" and comes from a "trustworthy source" created to allow law enforcement to compare suspected contraband to items confirmed to be contraband. We need not question the accuracy of hash values or dispute that NCMEC and Project VIC are trustworthy sources because even hearsay statements made by sources deemed trustworthy must be excluded if an exception to the hearsay rule does not apply. See § 90.802.

And the hearsay statement that an image with a particular hash value is child exploitative is not admissible simply because it is relied upon by forensic technicians to identify images of child pornography for law enforcement in investigations. See Phillip Morris USA, Inc. v. Pollari, 228 So. 3d 115, 129 (Fla. 4th DCA 2017) ("Expert witnesses may properly rely upon hearsay in arriving at an opinion so long as 'the hearsay is of the type reasonably relied upon by experts in the field.' " (quoting Vega v. State Farm Mut. Auto., 45 So. 3d 43, 45 (Fla. 5th DCA 2010)); see also § 90.704. The trial court allowed the forensic technician to render opinions in his field of expertise. As to Exhibit 47, the expert's expertise extended only to the forensic technology that establishes that the image introduced into evidence is the same image stored in the database, not that the original image depicted a child.

The forensic technician testified, to what may very well be an astounding degree of certainty, that it was the *same photo*. However, the witness expressed no opinion, much less a certainty, that either exhibit 47 or the photo of which it was an identical copy depicted a child. Expertise in photo-matching has nothing to do with an ability to assess the age of a person in a picture. Thus, there was still an unexcepted,

out-of-court statement being relied upon for the truth of the matter asserted—the declaration by the unnamed individual that the original image did indeed depict a child.

Comparison of the child pornography hash value database to the national fingerprint database and DNA depository does not support the State's case. Unlike the processes for recovering and analyzing fingerprints and DNA which follow generally known scientific standards, the record is devoid of any explanation of how an image in the NCMEC and Project VIC database is determined to be an image depicting child pornography. More importantly, DNA or fingerprint evidence is matched to something that has already been identified as belonging to an individual human being: DNA evidence found at the scene of the crime is matched to a sample taken from an identified suspect or a database that contains the DNA information of identifiable people; fingerprints recovered by investigators are matched to fingerprints taken from an arrestee or to fingerprints in a database belonging to known individuals. By contrast, the hash value system matches a photo of an unidentified individual to another identical photo of an unidentified individual, which unknown individual was determined at some time by another unidentified individual to be a child under a certain age. While the hash value system may be able to ensure that two images are the same image "with almost absolute certainty," Morales, 274 So. 3d at 1218 (quoting United States v. Reddick, 900 F.3d 636, 639 (5th Cir. 2018)), it provided no certainty whatsoever regarding the initial determination that the image of which exhibit 47 was a copy depicted a child.

Thus, the trial court erred in overruling Queen's hearsay objection to the forensic technician's testimony that the female in Exhibit 47 was a child based on the hash value associated with the image file. Because this was the only evidence that the

image depicted sexual conduct by a child, the error was not harmless. See State v. DiGuilio, 491 So. 2d 1129, 1135 (Fla. 1986) ("The harmless error test . . . places the burden on the state, as the beneficiary of the error, to prove beyond a reasonable doubt that the error complained of did not contribute to the verdict or, alternatively stated, that there is no reasonable possibility that the error contributed to the conviction.").

It is worth noting that the record suggests that the hash value system utilized in the investigation and prosecution of Queen's crimes is a very useful product of a worthwhile endeavor. Cf., e.g., Morales, 274 So. 3d at 1215 (approving the use of hash value identification as a means of establishing probable cause for a search warrant and explaining how it makes it unnecessary "for a company to have their employees repeatedly view such images, which often resulted in posttraumatic stress"). However, a crucial factual determination made at an unknown time in an unknown place by an anonymous individual who does not testify at trial cannot serve as the sole basis of a criminal conviction unless it falls within an exception to the prohibition on hearsay.

We reverse Queen's conviction for count 47 but affirm the remainder of Queen's convictions.

Affirmed in part; reversed in part.

SILBERMAN and SLEET, JJ., Concur.