WHAT THE BRAIN SAW: THE CASE OF TRAYVON MARTIN AND THE NEED FOR EYEWITNESS IDENTIFICATION REFORM

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ABSTRACT

The shooting of Trayvon Martin caused many to question what exactly led to the death of an unarmed seventeen-year-old African-American teenager. This Essay discusses one piece of the puzzle: the brain, in creating and preserving memories, can distort our perception of events and people around us. This distortion of perception and memory can later influence eyewitness testimony—often the most riveting and misleading information for a jury. Bringing these two separate but connected moments of inaccurate perception and inaccurate recollection together, this Essay examines the role of memory and perception in the death of Trayvon Martin and in eyewitness identification in criminal cases, ultimately supporting broad reform in our criminal justice system.

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INTRODUCTION

> I think the hoodie is as much responsible for Trayvon Martin's death as George Zimmerman was.
>
> —Geraldo Rivera[1]

Trayvon Martin lost his life when a neighborhood watch volunteer pursued him, inaccurately concluding that Martin was a criminal who did not belong in that gated community. Similar inaccurate assessments are often made by witnesses at the scene of a crime. False determinations about a suspect's appearance and behavior are due to implicit biases and simply to how the human brain processes visual information while under stress. One of the strongest reasons for a faulty determination is the malleability of human visual perception, both in the moment of a crime and in recalling the crime later.

The malleability of memory is apparent in research on eyewitness misidentification in criminal cases, especially research on those convictions that have been overturned. The unconscious process of remembering is subject to a variety of influences, from the moment of the experience to the recollection months or years later.[2] The creation of memory has three successive phases: encoding, or acquiring visual information while perceiving an event; storage, or retaining the information regarding the event; and retrieval, attempting to recall and reconstruct the event.[3] Each phase and its relevance to misidentifications will be examined in this Essay. This Essay also focuses on the impact of racial stereotypes, implicit bias, and the ability to remember faces. In this way, the Essay differs from a typical discussion of accuracy factors. The Essay will (1) analyze encoding through George Zimmerman's correct and incorrect eyewitness perceptions of Trayvon Martin, (2) review storage through outside influences on eyewitness identifications, and (3) consider retrieval alongside the impact of police procedures on the recall of events. Implicit bias is factored into and analyzed in each of these stages of memory; bias is an influence that cannot be separated.

Memory retrieval in particular is evaluated in this Essay through developments in innocence work and wrongful convictions. The exon-

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1. *FOX & Friends* (FOX News television broadcast Mar. 23, 2012), *available at* http://video.foxnews.com/v/1525652570001/geraldo-rivera-trayvon-martins-hoodie-is-as-much-responsible-for-his-death-as-george-zimmerman/.

2. *See generally* Peter N. Shapiro & Steven Penrod, *Meta-Analysis of Facial Identification Studies*, 100 PSYCHOL. BULL. 139 *passim* (1986) (studying variables influencing the accuracy of memory and facial recognition). However, it should be noted that the "forgetting curve" indicates that memory is lost and altered the most just after the event. Although a greater lapse in time between event and recollection of that event lessens the accuracy of the memory, the greatest decay of the memory occurs in its immediate aftermath. *See id.* at 150.

3. Elin M. Skagerberg, *Co-Witness Feedback in Line-Ups*, 21 APPLIED COGNITIVE PSYCHOL. 489, 489 (2007).

erations of wrongfully convicted individuals corroborate the science behind false memory and faulty eyewitness identifications. They also provide a compelling insight into how George Zimmerman came to pursue and ultimately encounter Trayvon Martin on the night of Martin's death.

The multiple factors that affected Zimmerman's perception of Martin and influence memory storage and retrieval generally are divided into two groupings: system variables and estimator variables. These variables include both physical and psychological factors that impact memory accuracy during encoding, storage, and retrieval.[4] System variables are those "under the direct control of the criminal justice system."[5] These include police protocols on instructing a witness before lineup identification, the composition of the lineup, and how the suspects are presented to the witness. Estimator variables, by contrast, include physical influences, such as lighting conditions, time of day, and weather at the time of the event, or psychological influences, such as the race of the witness or the suspect.[6]

This Essay analyzes both system and estimator variables to illuminate the causes of false perception and memory. It examines the impact of false perception on the occurrence of crime—Zimmerman's pursuit of Martin—as well as on the justice system's response to crime—the use of unreliable eyewitness testimony. The Essay queries whether our justice system is able to accurately determine, understand, and respond to the roles of perception, memory, and eyewitnesses to a crime. In this context, Trayvon Martin's death can serve as a lesson to police and citizens alike on the corruptibility of eyewitness accounts. His case provides a lens through which one can re-examine the strengths and weaknesses of our justice system and the very human individuals who comprise it.

I. MEMORY ENCODING: FACTS AND PERCEPTIONS IN THE ALTERCATION BETWEEN TRAYVON MARTIN AND GEORGE ZIMMERMAN

The first phase of memory—encoding—is critical to the interaction between George Zimmerman and Trayvon Martin. Encoding takes place when the witness visually determines what is happening in the events surrounding him.[7] Encoding is the first step in creating and narrating a memory.[8]

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4. Henry F. Fradella, *Why Judges Should Admit Expert Testimony on the Unreliability of Eyewitness Testimony*, 2 FED. CTS. L. REV. 1, 6 (2007). Other terms for these stages are "acquisition," "retention," and "retrieval." *Id.*

5. Gary Wells, *Applied Eyewitness-Testimony Research: System Variables and Estimator Variables*, 36 J. PERSONALITY & SOC. PSYCHOL., 1546, 1548 (1978).

6. *See* Brian L. Cutler, Steven D. Penrod & Todd K. Martens, *The Reliability of Eyewitness Identification: The Role of System and Estimator Variables*, 11 L. & HUM. BEHAV. 233, 234–35 (1987).

7. Sarah Anne Mourer, *Reforming Eyewitness Identification Procedures Under the Fourth Amendment*, 3 DUKE J. CONST. L. & PUB. POL'Y 49, 55 (2008).

8. *See id.*

A. *Estimator Variables*

Visual observation, and thus encoding, can be influenced by many of the estimator variables discussed above.[9] Examples of these variables include the eyewitness's stress level,[10] the duration of the event, lighting conditions, conversations with co-witnesses, and exposure to other narratives of what is happening.[11] The accuracy of identification depends largely on situational factors such as location and time of day,[12] and weather, poor lighting, and a short time frame can all influence visibility.[13]

Many of these estimator variables played a role in George Zimmerman's false perception of Trayvon Martin. This is normal; memory can easily fail or be distorted at the time of the event, as well as become distorted or decay over time.[14] Furthermore, individual characteristics of the witness can affect one's perception.[15] And, of course, whereas immediate conditions can influence the unconscious encoding of the memory, alternate motivations can affect what the witness reports to a police authority.[16]

The dark and rainy evening,[17] compounded by the stress and fear of the event, may have hindered Zimmerman's ability to see Trayvon Martin clearly and led to Zimmerman's perception that Martin was armed. These factors likely influenced Zimmerman's encoding of the events

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9. Joseph F. Savage, Jr. & James P. Devendorf, *Conviction After Misidentification: Are Jury Instructions a Solution?*, 35 CHAMPION 30, 31 (2011).

10. *See, e.g.*, Judith L. Alpert et al., *Comment on Ornstein, Ceci, and Loftus (1998): Adult Recollections of Childhood Abuse*, 4 PSYCHOL. PUB. POL'Y & L. 1052, 1054–55 (1998) ("[A] large body of evidence exists to suggest that, in contrast to normal memories, emotional (and, hence, traumatic) memories are encoded differently. Emotional memories have been described as detailed and accurate and not prone to error. . . . [A] review of research on traumatic memories indicates the relative accuracy and persistence of traumatic memories as compared to more ordinary ones." (citations omitted)).

11. *See* ELIZABETH F. LOFTUS ET AL., EYEWITNESS TESTIMONY: CIVIL AND CRIMINAL 12–49 (4th ed. 2007).

12. *See generally* Gary L. Wells, *Eyewitness Identification: Systemic Reforms*, 2006 WIS. L. REV. 615 *passim* (explaining the problems with eyewitness identification and putting forward proposals for reform).

13. *See id.* at 615–16.

14. Richard A. Wise et al., *A Survey of Law Officers and Its Significance for Cross-Examining Witnesses About Eyewitness Accuracy*, 35 CHAMPION 32, 32–33 (2011) ("Although memory works reasonably well in everyday life, it does not operate like a video recorder that captures an event with near perfect fidelity. Some information may never be encoded (i.e., get into memory), and details may be forgotten rapidly.").

15. *See* Savage & Devendorf, *supra* note 9, at 31–32.

16. *See, e.g.*, United States v. Wade, 388 U.S. 218, 230 (1967) ("The impediments to an objective observation are increased when the victim is the witness. Lineups are prevalent in rape and robbery prosecutions and present a particular hazard that a victim's understandable outrage may excite vengeful or spiteful motives.").

17. *See Transcript of George Zimmerman's Call to the Police*, MOTHER JONES, http://www.motherjones.com/documents/326700-full-transcript-zimmerman (last visited Dec. 30, 2012) [hereinafter *Transcript of Zimmerman's Call*] ("It's raining and he's just walking around . . . ."). Trayvon Martin may have been wearing the hoodie over his head simply because of the rain.

around him, just as they can distort eyewitness identifications in general.[18]

Zimmerman's psychological perceptions also were an important estimator variable. On February 26, 2012, George Zimmerman called 911 to report a "real suspicious guy" who "looks like he's up to no good, or he's on drugs or something."[19] George Zimmerman had appointed himself captain of his volunteer neighborhood watch; the "real suspicious guy" he saw that night was Trayvon Martin.[20] Martin, a seventeen-year-old African-American male, was staying with his family in a gated community in Sanford, Florida.[21] Zimmerman called 911 at 7:09 p.m., roughly forty-five minutes after the sun had set on that rainy evening.[22] In the dark and the rain, Zimmerman could only identify Martin as an African-American male in his late teens.[23] He described Martin as wearing a dark grey hoodie.[24] That hoodie would ultimately become a symbolic image of Zimmerman's blind identification of Martin as a criminal.[25]

B. The Hoodie and Implicit Racial Bias

More than a mere symbol, the hoodie blinded Zimmerman by both enhancing his personal blind spot of conscious and subconscious bias, and by acting as a physical block to Zimmerman's view of Martin. The

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18.   It should be noted that these same factors could have influenced Trayvon Martin's ability to see Zimmerman and to know whether Zimmerman was armed. This is particularly possible given Martin's countering concern about Zimmerman following him and continuing to follow Martin even after Martin started running. Serge F. Kovaleski, *Martin Spoke of 'Crazy and Creepy' Man Following Him, Friend Says*, N.Y. TIMES, May 18, 2012, at A9.

19.   *Transcript of Zimmerman's Call*, *supra* note 17.

20.   Frances Robles, *Shooter of Trayvon Martin a Habitual Caller to Cops*, MIAMIHERALD.COM, Mar. 19, 2012, *available at* 2012 WLNR 5758849.

21.   Kovaleski, *supra* note 18.

22.   On February 26, 2012, the sun set at 6:22 p.m. in Sanford, Florida. *Sunrise Sunset Calendar for Sanford, Florida*, SUNRISESUNSET.COM, http://www.sunrisesunset.com/calendar.asp (enter "Sanford, Florida" into search box; then follow "Other Month" hyperlink under the "Sanford Florida" banner; then select "February" under month drop-down box and enter "2012" in year field; then click "Make Calendar" button) (last visited Feb. 19, 2013).

23.   *Transcript of Zimmerman's Call*, *supra* note 17 ("It's raining and he's just walking around . . . ."). Trayvon Martin may have been wearing the hoodie over his head simply because of the rain. Kovaleski, *supra* note 18 ("The girl implored Mr. Martin, 17, who said he put his sweatshirt hood up because of the rain, to run to the town house where he was staying with his father, his father's girlfriend and her 14-year-old son.").

24.   *Transcript of Zimmerman's Call*, *supra* note 17. In his own social commentary on race and clothing, Geraldo Rivera also blamed the hoodie for Trayvon Martin's death, later stating more fully, "A week ago I ranted against hoodies like the one worn by Trayvon. What I was trying to do was caution parents that allowing their kids to wear hoodies or similar clothing in certain circumstances, particularly if they're minority young men, could be dangerous." *Geraldo Apologises to Trayvon's Parents for Controversial 'Hoodie' Comments as Thousands Join the Largest Rally Yet in Teenager's Hometown*, THE DAILY MAIL (Apr. 2, 2012), http://www.dailymail.co.uk/news/article-2123827/Geraldo-Rivera-apologises-Trayvon-Martins-parents-controversial-hoodie-comments.html.

25.   *See* Elizabeth Flock, *Geraldo Rivera Hoodie Comments Spark Prominent People to Wear Hoodies*, WASHINGTONPOST.COM, (Mar. 27, 2012 09:14 AM), http://www.washingtonpost.com/blogs/blogpost/post/geraldo-rivera-hoodie-comments-spark-prominent-people-to-wear-hoodies/2012/03/27/gIQAOih4dS_blog.html; *see also* Katherine Boyle, *The Hoodie Label*, WASH. POST, Mar. 26, 2012, at C01.

combination distorted Zimmerman's perception and memory of the teen-ager.

Geraldo Rivera blamed Trayvon's hoodie as an indicator of criminal behavior, one that could or should be avoided.[26] The reality is more damning: studies have shown that African-American faces and bodies can trigger thoughts of crime, and thinking of crime can trigger thoughts of African-American people.[27] As an African-American male, Trayvon Martin lived with a heightened likelihood of being associated with crime.

Unarmed African-American men face a greater threat of being shot than unarmed white men.[28] Shooter bias studies explore the impact of implicit race bias on a person's decision to shoot.[29] More than twenty studies reveal that both white and African-American subjects are more likely to shoot an unarmed African-American man than an unarmed white man.[30] This shooter bias goes beyond negative sentiments and shows the unconscious impact of racial stereotypes.[31]

Martin's race and the hoodie likely influenced Zimmerman's identification of Martin as a criminal. It should be noted, however, that the hoodie itself also limited what Zimmerman was able to see. Research shows that hair and even the hairline are important indicators of identification, and the covering of hair influences the accuracy of identification.[32] Martin's hoodie physically obscured his facial features and ap-

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26. *See supra* at notes 24–25.

27. Jennifer L. Eberhardt et al., *Seeing Black: Race, Crime, and Visual Processing*, 87 J. PERSONALITY & SOC. PSYCHOL. 876, 876 (2004).

28. Adam Benforado, *Quick on the Draw: Implicit Bias and the Second Amendment*, 89 OR. L. REV. 1, 43, 46–47 (2010). Similarly, African-American police officers face a greater risk of being shot than white police officers. *See Table 27: Law Enforcement Officers Feloniously Killed; Type of Weapon, 1997–2006*, FED. BUREAU OF INVESTIGATION (Oct. 2007), http://www2.fbi.gov/ucr/killed/2006/table27.html.

29. Benforado, *supra* note 28, at 42–44. The studies generally use simulations similar to video games; the simulations show individuals of different races in many backgrounds where they are carrying either a gun or a harmless item like a cell phone or wallet. Participants are asked to shoot anyone who is armed and not to shoot anyone who is unarmed. *Id.* at 43. The results are that "[p]articipants are faster and more accurate when shooting an armed black man than an armed white man, and faster and more accurate when responding 'don't shoot' to an unarmed white man than an unarmed black man." Joshua Correll et al., *Across the Thin Blue Line: Police Officers and Racial Bias in the Decision to Shoot*, 92 J. PERSONALITY & SOC. PSYCHOL. 1006, 1007 (2007); *see also id.* at 1016–22.

30. Benforado, *supra* note 28, at 43, 49; *see also* Jerry Kang, *Trojan Horses of Race*, 118 HARV. L. REV. 1489, 1514–28 (2005).

31. Joshua Correll et al., *The Police Officer's Dilemma: Using Ethnicity to Disambiguate Potentially Threatening Individuals*, 83 J. PERSONALITY & SOC. PSYCHOL. 1314, 1324–25 (2002).

32. In a series of six studies analyzing data from over 1,300 witnesses, the witnesses made fewer correct identifications when they viewed subjects wearing hats (44%) rather than subjects who had visible hair and a visible hairline (57%). *See* Brian L. Cutler, *A Sample of Witness, Crime, and Perpetrator Characteristics Affecting Eyewitness Identification Accuracy*, 4 CARDOZO PUB. L. POL'Y & ETHICS J. 327, 332–33 (2006) [hereinafter Cutler, *Characteristics Affecting Accuracy*]. It should be noted that this experiment was of witnesses who viewed versions of a video-taped enact-ment of a robbery, and some time later attempted to identify the perpetrators from lineups. In some lineups the perpetrator was present, in others no perpetrator was present. In each study, variables were systematically manipulated to determine their impact on the accuracy of witness identifica-

pearance from Zimmerman. This, along with Zimmerman's possible association of the clothing with race and stereotypes of crime, may have undermined Zimmerman's ability to correctly identify Martin as an unarmed teenager.[33]

Zimmerman followed the teenager, incorrectly suspecting Martin was dangerous and possibly armed.[34] Zimmerman initially stated, "This guy looks like he's up to no good, or he's on drugs or something."[35] Later, Zimmerman told the 911 operator, "He's got something in his hands," and "something's wrong with him," noting Martin had his hand in his waistband.[36] When Martin began running, his "guilt" was confirmed.[37] Zimmerman pursued the teenager, stating, "[T]hese assholes they always get away."[38]

Within minutes, the two confronted each other and Zimmerman shot and killed Trayvon Martin.[39]

II. MEMORY STORAGE: DIFFICULTIES WITH EYEWITNESS IDENTIFICATION

The second stage of memory—storage, or retaining the information of an event—is equally as corruptible as encoding. Bearing witness to a crime is stressful and impairs a witness's ability to accurately perceive his surroundings.[40] Contrary to assumptions that if one sees or experiences a violent crime he is more likely to remember the details intensely, studies show instead how extreme stress has a negative correlation with identification and recall accuracy.[41]

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tions. *Id.* at 332; s*ee also* Brian L. Cutler & Steven D. Penrod, *Improving the Reliability of Eyewitness Identification: Lineup Construction and Presentation*, 73 J. APP. PSYCHOL. 281, 283 (1988); Cutler et al., *supra* note 6, at 240; Brian L. Cutler et al., *Improving the Reliability of Eyewitness Identification: Putting Context into Context*, 72 J. APP. PSYCHOL. 629, 630 (1987).

33.   *See* Robles, *supra* note 20.

34.   *See Transcript of Zimmerman's Call*, *supra* note 17.

35.   *See id.* Zimmerman's first words to the 911 operator were "Hey we've had some break-ins in my neighborhood, and there's a real suspicious guy. . . . [T]his guy looks like he's up to no good, or he's on drugs or something. It's raining and he's just walking around, looking about." *Id.*

36.   *See id.*

37.   Perhaps additionally important to the weather conditions, visual impairments, and associations with race is Zimmerman's identity as a policing authority figure. George Zimmerman was the self-appointed captain of his volunteer neighborhood watch. He had called 911 forty-six times since 2004, and fifty suspicious-persons reports were called in to police from his neighborhood between 2011 and 2012. *See* Robles, *supra* note 20. At the beginning of his call to 911 on February 26, 2012, Zimmerman pointed out the number of break-ins and thefts in his neighborhood recently. *See Transcript of Zimmerman's Call*, *supra* note 17. He had a vision of himself as a guard and acted the part; he carried a nine millimeter gun while "patrolling." This self-perception may have also played a strong role in Zimmerman's encounter with Trayvon Martin.

38.   *See Transcript of Zimmerman's Call*, *supra* note 17.

39.   *See* Robles, *supra* note 20.

40.   *See* Charles A. Morgan, III et al., *Accuracy of Eyewitness Memory for Persons Encountered During Exposure to Highly Intense Stress*, 27 INT'L J.L. & PSYCHIATRY 265, 265–66 (2004).

41.   *See id.*

As an example, one study tested 530 active-duty military personnel who were enrolled in military survival-school training by placing them in situations of either high-stress or low-stress interrogation.[42] The personnel went through food and sleep deprivation for forty-eight hours and then were shown both live and photo lineups of their interrogators.[43] The high-stress subjects performed much worse in the photo lineups, and over two-thirds of them made an incorrect identification. In the live lineup, 56% of the high-stress subjects made an incorrect identification.[44] The rate of false identifications in this and other studies supports the conclusion that stress dramatically impacts a person's sensory perception[45] and negatively affects the accuracy of eyewitness identification.[46]

Recent studies also confirm that giving a witness any positive feedback after the witness makes an identification alters how the memory is created and stored.[47] If a witness receives positive feedback, he will repeat the identification with greater certainty the next time and will be more confident in these perceptions, whether they were accurate or not.[48] In a well-known 1998 study, participants viewed a security camera video and attempted to then identify the gunman from a photo lineup.[49] The actual gunman was *not* in the photo spread; yet, all of the participants made false identifications.[50] After making the false identifications, participants were told that they had correctly identified the suspect, incorrectly identified the suspect, or told nothing at all. [51] The type of feedback the witness received influenced his later reports on how certain he was of his identification, how good of a view he had of the suspect in the

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42.   *See id.* at 267–68.

43.   *See id.* at 269.

44.   *Id.* at 272.

45.   *See* ALEXIS ARTWOHL & LOREN W. CHRISTENSON, DEADLY FORCE ENCOUNTERS: WHAT COPS NEED TO KNOW TO MENTALLY AND PHYSICALLY PREPARE FOR AND SURVIVE A GUNFIGHT 39 (1997); BRUCE K. SIDDLE, SHARPENING THE WARRIOR'S EDGE 76–77 (1995).

46.   *See* Kenneth A. Deffenbacker et al., *A Meta-Analytic Review of the Effects of High Stress on Eyewitness Memory*, 28 LAW & HUM. BEHAV. 687, 692, 694–95, 698–99 (2004) (examining the effect of stress on identification in 27 tests involving 1,700 participants as witnesses). Participants made correct identifications 59% of the time in low-stress conditions and 39% in high-stress conditions. *Id.* at 700. Also, false identifications in lineups where the target was present were higher with participants in high-stress conditions (34%) than with those in low-stress conditions (19%)). *Id.* at 696.

47.   Amy Bradfield Douglass & Nancy Steblay, *Memory Distortion in Eyewitnesses: A Meta-Analysis of the Post-Identification Feedback Effect*, 20 APP. COGNITIVE PSYCHOL. 859, 864–66 (2006); Gary L. Wells & Amy L. Bradfield, *"Good, You Identified the Suspect": Feedback to Eyewitnesses Distorts Their Reports of the Witnessing Experience*, 83 J. APP. PSYCHOL. 360, 360 (1998).

48.   Douglass & Steblay, *supra* note 47, at 863–64; Wells & Bradfield, *supra* note 47.

49.   Wells & Bradfield, *supra* note 47, at 363.

50.   *Id.*

51.   *See id.* The purpose of the feedback was not to accurately respond to the participant's identification but rather to gauge the influence of said feedback on the participant's memory of the identification. *Id.* Thus, a participant who made a false identification would be informed that his identification was correct. *Id.* An example of confirming feedback for the participant was "good, you identified the actual suspect." *Id.* The disconfirming feedback was "[a]ctually, the suspect is number ___."). *Id.*

video, and even how clear his memory was of the event.[52] The participants who received positive confirmation were more certain of their identification later, thought they had a good view, and were confident in their memories.[53] Such a study shows how susceptible witnesses are to suggestive statements.

Just as in the studies discussed above, the 911 operator's simple feedback to George Zimmerman—that the suspect was a possible danger—may have served to reinforce Zimmerman's personal perceptions, interpretations, and biases.[54] The stress of the situation was high for Zimmerman, as evidenced from their dialogue. In his mind, Zimmerman was following not a citizen or a neighbor but a person who was a danger or a threat.

> Zimmerman: Somethings [sic] wrong with him. Yup, he's coming to check me out, he's got something in his hands, I don't know what his deal is.
>
> Dispatcher: Just let me know if he does anything[,] ok[?]
>
> Zimmerman: How long until you get an officer over here?
>
> Dispatcher: Yeah we've got someone on the way, just let me know if this guy does anything else.[55]

Trayvon Martin was simply walking home, yet the social cue from the operator confirmed for George Zimmerman that his perceptions of Martin were correct. Eyewitnesses are likewise influenced when they receive confirmation or affirmation of identification by law enforcement.[56] This same problem confounds the reliability of the identification in the moment and again when it is recalled later because it is stored as a seemingly accurate memory.[57]

The social cues and sanctioned authoritative interactions like the 911 operator's with Zimmerman, short as they may be, confirmed for Zimmerman that he was watching someone dangerous, someone worthy of police attention.[58] When the suspect began to run, the conversation with the 911 operator escalated with Zimmerman asking when the police

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52. *Id.* at 365–67. Indeed, it should be noted that the witnesses who received confirming feedback had made false identifications, and yet maintained and increased their confidence in having identified the perpetrator.

53. *Id.* at 366.

54. J. Don Read, *Features of Eyewitness Testimony Evidence Implicated in Wrongful Convictions*, 31 MANITOBA L.J. 523, 531 (2006).

55. *Transcript of Zimmerman's Call*, *supra* note 17.

56. Wells & Bradfield, *supra* note 47, at 366.

57. *Id.* at 366–67.

58. For a more detailed explanation of how a witness's memory can be affected by variables after the event, see Gary L. Wells et al., *From the Lab to the Police Station: A Successful Application of Eyewitness Research*, 55 AM. PSYCHOLOGIST 581, 582–83 (2000).

would arrive, and the dispatcher confirming that an officer was on the way.[59]

Zimmerman thought that Martin looked like a criminal, someone who could break into the neighborhood houses, in part because Martin was a young African-American man walking in the rain wearing a hoodie.[60] When Martin began to run, Zimmerman concluded that Martin was escaping from a crime—that Martin was indeed a criminal.[61] Zimmerman assumed Martin did not live in the community;[62] that assumption obscured for Zimmerman the possibility that Martin was running home to get out of the rain or to get away from Zimmerman, the stranger who was following him.[63] Ultimately, Trayvon Martin was a seventeen-year-old young man returning from the store with Skittles and iced tea while talking on the phone.[64] What George Zimmerman thought he saw was another matter.

III. MEMORY RETRIEVAL:
DNA EXONERATIONS AND EYEWITNESS MISIDENTIFICATION

Misidentification and the decay of memory can also occur when an eyewitness recounts an event later. Retrieval, the final stage of memory, involves recalling and reconstructing the event. As noted above, the original perceptions of the eyewitness can be altered after the fact through otherwise standard procedures. One such problematic procedure is showing a witness a suspect lineup or a photo array of suspects with no instructions from the lineup administrator.[65] Without any instruction, the eyewitness often assumes the perpetrator of the crime must be present in the lineup or the photos: one of the individuals is guilty.[66] The eyewitness then chooses the person who most resembles the perpetrator, a phe-

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59.   *Transcript of Zimmerman's Call*, *supra* note 17.

60.   *See id.* (telling 911 operator "[h]ey we've had some break-ins in my neighborhood and there's a real suspicious guy . . . . It's raining and he's just walking around, looking about. . . . [H]e was just staring . . . looking at all the houses").

61.   *Id.* (telling 911 operator "[h]ey we've had some break-ins in my neighborhood and there's a real suspicious guy . . . . These assholes they always get away. . . . Shit he's running").

62.   *See* Kovaleski, supra note 18 ("The girl, who talked with Mr. Martin several times that evening, told the investigator that she then heard Mr. Martin ask, 'Why are you following me for?' She heard the other man ask, 'What are you doing around here?'").

63.   *See id.* ("[T]he unidentified 16-year-old said Mr. Martin described a man who was 'crazy and creepy' and on the phone, watching him from a vehicle before he started to follow him on foot. The girl implored Mr. Martin, 17, who said he put his sweatshirt hood up because of the rain, to run to the town house where he was staying with his father, his father's girlfriend and her 14-year-old son. . . . Earlier, Mr. Martin had temporarily sought cover from the rain by one of the buildings.").

64.   Donald Jones, *Skittles, Ice Tea and the 'Right to Stand Your Ground' in Trayvon Martin Case*, MIAMIHERALD.COM, Apr. 11, 2012, http://www.miamiherald.com/2012/04/11/2743270/skittles-ice-tea-and-the-right.html; *see also* Alexander Abad-Santos, *Watch: Trayvon Martin Buying Skittle and Iced Tea at 7-Eleven*, ATLANTIC WIRE (May 18, 2012), http://www.theatlanticwire.com/national/2012/05/watch-trayvon-martin-buying-skittles-and-iced-tea-7-eleven/52522/.

65.   *See generally* Wells, *supra* note 12, at 625 (explaining the problems with eyewitness identification and putting forward proposals for reform).

66.   *Id.*

nomenon known as the "relative judgment process."[67] Any statements by the police or further information on the actions of the suspect serve to reinforce that identification.[68] Procedures implemented to assist an eye-witness in identifying a suspect can reinforce or exacerbate any flaws in the original observation.[69]

Additional cognitive factors also influence witness perception of a suspect, including any physical traits. "Cross-racial misidentification" is a phenomenon where people have difficulty identifying members of a different racial group.[70] Caucasians in particular have difficulty identifying non-Caucasians.[71] In a meta-analysis with nearly 5,000 participants, witnesses were 1.4 times more likely to correctly identify a face they had seen before if the person was the same race as their own; witnesses were 1.56 times more likely to falsely identify a new face if the person was a race other than their own.[72]

In the altercation between George Zimmerman and Trayvon Martin, Zimmerman was Caucasian and Hispanic, whereas Martin was African-American. More insidiously, as noted earlier, shooter bias studies have shown through videogame simulations that individuals are more likely to associate African-Americans as armed and Caucasians as unarmed.[73] One of the most popularly known studies on implicit bias and eyewitness identification involves a photograph of two men fighting; one man held a knife while the other was unarmed.[74] When both men in the photograph were Caucasian, subjects generally remembered correctly which man was holding the knife.[75] When the Caucasian man was armed and the African-American man was unarmed, the majority of subjects, both Afri-

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67.   *Id.* at 618.

68.   Amy L. Bradfield et al., *The Damaging Effect of Confirming Feedback on the Relation Between Eyewitness Certainty and Identification Accuracy*, 87 J. APPLIED PSYCHOL. 112, 115, 117 (2002).

69.   *See Groundbreaking Study Finds Double-Blind Sequential Lineups More Accurate in Eyewitness Identifications*, JOHN JAY C. OF CRIM. JUST. NEWSROOM (Sept. 19, 2011), http://www.jjay.cuny.edu/4898.php (observing that study participants demonstrated greater errors in simultaneous lineups rather than in sequential lineups, the former of which influence eyewitnesses in identification by providing them a basis for comparison amongst the members of the lineup).

70.   John P. Rutledge, *They All Look Alike: The Inaccuracy of Cross-Racial Identifications*, 28 AM. J. CRIM. L. 207, 211 (2001).

71.   *Id.*

72.   Christian A. Meissner & John C. Brigham, *Eyewitness Identification: Thirty Years of Investigating the Own-Race Bias in Memory for Faces: A Meta-Analytic Review*, 7 PSYCHOL. PUB. POL'Y & L. 3, 3, 15 (2001); *see also* Cutler, *Characteristics Affecting Accuracy*, *supra* note 32, at 329–30.

73.   *See* Jonathan Feingold & Karen Lorang, *Defusing Implicit Bias*, 59 UCLA L. REV. DISCOURSE 210, 223–24 (2012).

74.   Steven B. Duke et al., *A Picture's Worth a Thousand Words: Conversational Versus Eyewitness Testimony in Criminal Convictions*, 44 AM. CRIM. L. REV. 1, 29 (2007).

75.   *Id.*

can-American and Caucasian, misremembered the African-American man as holding the knife.[76]

Studies similarly find people are more likely to misidentify objects as guns when in the hands of African-American men instead of Caucasian men.[77] People display racial bias in how fast they decide to shoot or not to shoot in simulations, and how accurate those decisions are in shooting an armed versus unarmed subject.[78]

Bearing out the underlying findings of these studies, cross-racial misidentifications have surfaced in a large number of wrongful convictions. The single greatest cause of wrongful convictions in the United States is eyewitness misidentification.[79] In a 2000 study, Innocence Project founders Barry Scheck and Peter Neufeld, along with columnist Jim Dwyer, found that 82% of wrongful convictions included mistaken eyewitness identifications.[80] Of those mistaken identifications, 44% were Caucasian individuals erroneously identifying an innocent African-American defendant as the perpetrator.[81]

Cross-racial misidentifications that lead to wrongful convictions can occur because people find it difficult to recognize physical traits with which they are unfamiliar.[82] Yet for George Zimmerman, subconscious bias based on race likely influenced his misidentification of Trayvon Martin as a criminal.[83] In his phone call, with limited information, Zimmerman saw the young African-American man walking in the neighbor-

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76. *Id.* at 30. For a study on the influence of the suspect's race on his appearance of guilt, see Justin D. Levinson & Danielle Young, *Different Shades of Bias: Skin Tone, Implicit Racial Bias, and Judgments of Ambiguous Evidence*, 112 W. VA. L. REV. 307, 310–11 (2010) (finding participants shown the photo of a dark-skinned suspect were significantly more likely to find ambiguous evidence more probative of guilt, and more likely to believe the suspect was guilty). A number of studies have also shown that Americans of all races make positive associations with white faces and negative associations with black faces. *See* Andrew Scott Baron & Mahzarin R. Banaji, *The Development of Implicit Attitudes: Evidence of Race Evaluations from Ages 6 and 10 and Adulthood*, 17 PSYCHOL. SCI. 53 *passim* (2006).

77. *See* B. Keith Payne, *Prejudice and Perception: The Role of Automatic and Controlled Processes in Misperceiving a Weapon*, 81 J. PERSONALITY & SOC. PSYCHOL. 181, 189 (2001).

78. Correll et al., *supra* note 31.

79. *Eyewitness Misidentification*, INNOCENCE PROJECT, http://www.innocenceproject.org/understand/Eyewitness-Misidentification.php (last visited Jan. 2, 2013); *see also* BRANDON L. GARRETT, CONVICTING THE INNOCENT: WHERE CRIMINAL PROSECUTIONS GO WRONG 48 (2011) (finding that 190 of the first 250 DNA-based exonerations in the United States involved eyewitness misidentification).

80. BARRY SCHECK, PETER NEUFELD & JIM DWYER, ACTUAL INNOCENCE: WHEN JUSTICE GOES WRONG AND HOW TO MAKE IT RIGHT 318 (2003).

81. *See id.* at 318, 366; *see also* Sandra Guerra Thompson, *Beyond a Reasonable Doubt? Reconsidering Uncorroborated Eyewitness Identification Testimony*, 41 U.C. DAVIS L. REV. 1487, 1493 (2008) ("The phenomenon of unreliable cross-racial identifications is universally accepted as fact by psychologists."); Meissner & Brigham, *supra* note 72 (finding an African-American innocent suspect has a greater chance of being misidentified by a Caucasian eyewitness than by an African-American eyewitness).

82. *See* Meissner & Brigham, *supra* note 72, at 22–23.

83. *See* Matthew DeLuca, *Did Trayvon Shooter Abuse 911?*, DAILYBEAST.COM (Mar. 22, 2012), http://www.thedailybeast.com/articles/2012/03/23/did-trayvon-shooter-abuse-911.html.

hood as "suspicious" and "up to no good."[84] Zimmerman was known in the neighborhood[85] to warn residents to be "on alert" for African-American individuals.[86] As studies have shown how reading newspaper stories about African-American criminals increases a participant's shooter bias in a simulation,[87] Zimmerman may have been primed to mistake Martin's Skittles and iced tea for a weapon—and to ultimately shoot Martin—by his conscious and unconscious bias.

Furthermore, Zimmerman's perception may have been corrupted by his expectations, beliefs, and sheer desire to catch a criminal, all common influences on witnesses to a crime.[88] Whereas these are normal influences on a citizen, police are trained to respond differently. Although officers, just like citizens, can hold implicit racial biases, their firearms training generally prepares them to override these automatic associations and not display the same shooter bias.[89] Even firearms training on implicit racial bias for college students produced a similar decrease in shooter bias.[90] Private-citizen gun owners, such as Zimmerman, have no comparable training.

The influence of personal bias on what one sees, coupled with the difficulty of accurate identification in a stressful moment, has resulted in the death and wrongful incarceration of hundreds of innocent individuals.[91]

IV. REFORM: HOW TO INCREASE THE ACCURACY OF EYEWITNESS IDENTIFICATIONS

To correct for the risk associated with police and other external influences on witness narratives and memory, both the courts and the federal government have offered guidance. In 1999, the National Institute of Justice in the Department of Justice released a guide for law enforcement on gathering eyewitness evidence.[92] The guide was created based on psychological research and intended to maintain the integrity of eyewitness

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84. *Transcript of Zimmerman's Call*, *supra* note 17.

85. Robles, *supra* note 20.

86. Indeed, a year earlier, in 2011, he called 911 about a suspicious looking African-American boy, who was "7 to 9" years old. *See* DeLuca, *supra* note 83.

87. Joshua Correll et al., *The Influence of Stereotypes on Decisions to Shoot*, 37 EUR. J. SOC. PSYCHOL. 1102, 1107 (2007) ("[R]einforcing or undermining racial stereotypes that link Blacks to danger and crime can dramatically affect the magnitude of racial bias in the decision to shoot.").

88. *See generally* Deborah Davis & Elizabeth F. Loftus, *Internal and External Sources of Misinformation in Adult Witness Memory*, *in* 1 HANDBOOK OF EYEWITNESS PSYCHOLOGY: MEMORY FOR EVENTS 209–23 (Michael P. Toglia et al. eds., 2007); *see also* Robert J. Smith & Bidish J. Sarma, *How and Why Race Continues to Influence the Administration of Criminal Justice in Louisiana*, 72 LA. L. REV. 361, 381–85 (2012).

89. Adam Benforado, *supra* note 28, at 48.

90. Correll et al., *supra* note 31, at 1320.

91. *See* SCHECK ET AL., *supra* note 80, at 55, 58, 95, 262–65, 281–85, 318, 324, 352–53, 365–66.

92. NAT'L INST. OF JUSTICE, U.S. DEP'T OF JUSTICE, EYEWITNESS EVIDENCE: A GUIDE FOR LAW ENFORCEMENT (1999).

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identifications.[93] Some of the suggested police protocols in the guide are to ask open-ended questions of witnesses, to remind the witness the actual perpetrator may or may not be present in the lineup, and to obtain a confidence statement of how certain the witness is in his identification.[94]

Similar suggestions for improving the accuracy of eyewitness identification arise from scientific studies. Law enforcement officers are encouraged to advise the witness that the perpetrator may or may not be present in the lineup, the witness should not feel compelled to make an identification, it is as important to exclude innocent persons as it is to identify the perpetrator, and the investigation will continue whether or not an identification is made.[95] Studies also recommend that the lineup be a double-blind procedure in which the police administrator does not know the suspect.[96] To minimize the problem of relative judgment—picking the person who looks most like the perpetrator—the pictures or suspects should be shown sequentially.[97] By allowing a witness to decide on a suspect one at a time rather than comparing them all, the reliability of the identification is increased.[98] The witness compares each photo with her memory, rather than the photos with each other.[99] A sequential presentation also lessens the pressure on the witness, who should not know when she is looking at the final suspect.[100]

Around the same time as the shooting of Trayvon Martin, the U.S. Supreme Court reconsidered eyewitness identification issues for the first time in twenty years.[101] Although the decision in *Perry v. New Hampshire* did not advance reforms for police protocols in eyewitness identifications, it did reflect the growing concern over the malleability of eyewitness identification.[102] The Court held that a pre-admission judicial ruling on the reliability of an eyewitness identification was only required where a suggestive pretrial identification had been arranged by law enforcement.[103] Due process required nothing more, and any harms of the

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93.   *Id.* at 1–2.
94.   *Id.* at 5–6, 13, 15, 22–23, 32. The drafting committee included government officials, social science researchers, law enforcement officials, defense lawyers, and prosecutors. *Id.* at 6. The suggestions have been adopted by a number of jurisdictions, including New Jersey, North Carolina, Wisconsin, Illinois, Virginia, Maryland, West Virginia, and Texas. For more details on these protocols, see David A. Sonenshein & Robin Nilon, *Eyewitness Errors and Wrongful Convictions: Let's Give Science a Chance*, 89 OR. L. REV. 263, 279–82 (2010).
95.   Sonenshein & Nilon, *supra* note 94, at 281.
96.   *Id.* at 272, 278–79.
97.   *Id.* at 272.
98.   *See id.*
99.   *See id.*
100.   The sequential lineup was specifically envisioned as a potential solution to the problem of relative judgment but has also increased the reliability of eyewitness identifications in other ways. Wells et al., *supra* note 58, at 586.
101.   *See* Perry v. New Hampshire, 132 S. Ct. 716, 721 (2012).
102.   The Court held that "the Due Process Clause does not require a preliminary judicial inquiry into the reliability of an eyewitness identification when the identification was not procured under unnecessarily suggestive circumstances arranged by law enforcement." *Id.* at 730.
103.   *Id.*

identification could be negated by cross-examination, expert testimony on the problems with eyewitness identification, and jury instructions. Justice Sonia Sotomayor, the only former trial judge on the bench, dissented, noting the substantial problems associated with misidentification, whether or not the identification had been organized by the police.[104] Justice Sotomayor went so far as to cite the empirical studies challenging the reliability of eyewitness identifications: in quoting *State v. Henderson*,[105] she stated, "The empirical evidence demonstrates that eyewitness misidentification is 'the single greatest cause of wrongful convictions in this country.'"[106]

In *Henderson*, the New Jersey Supreme Court just the year before had reformed its test for the admissibility of eyewitness identification evidence.[107] The court relied on decades of scientific research, emphasizing the growth in knowledge since the standing admissibility test had been established.[108] In raising the bar for admitting eyewitness identification evidence, the court recognized that the previous approach needed to be updated.[109] The court incorporated empirical evidence to find that the current admissibility standard was not in keeping with due process obligations under the New Jersey Constitution.[110]

The court in *Henderson* specifically addressed estimator variables, such as visibility, age of the viewer, and lighting, and system variables, such as lineup procedures and police interaction. The court focused primarily on the system variables and changing police protocol because they are factors "within the control of the criminal justice system."[111]

The focus of the opinion in *Henderson* will reform police protocols for eyewitness identifications in New Jersey and create more stringent standards of "suggestibility" by the police.[112] However, the opinion's

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104.   *Id.* at 730–31, 738 (Sotomayor, J., dissenting).

105.   State v. Henderson, 27 A.3d 872 (N.J. 2011).

106.   *Perry*, 132 S. Ct. at 738 (Sotomayor, J., dissenting) (quoting *Henderson*, 27 A.3d at 885).

107.   *Henderson*, 27 A.3d at 920–22.

108.   *Id.* at 928.

109.   *See id.*

110.   *Id.* at 919 n.10 (citing N.J. CONST. art I, § 1). The Supreme Court of New Jersey granted certification in order to address the "current framework for evaluating the admissibility of [eyewitness identification] evidence," and it remanded to the trial court for a hearing to determine whether the standing admissibility test was viable "in light of recent scientific and other evidence." State v. Henderson, 39 A.3d 147, 147–48 (N.J. 2009). The court appointed the retired Honorable Geoffrey Gaulkin to preside as special master of the case. *Henderson*, 27 A.3d at 884. The special master reviewed the scientific literature, the testimony of seven experts, and over 200 published scientific studies. *Id.* His thorough work was influential on the New Jersey Supreme Court's ultimate opinion. *See id.*

111.   *Id.* at 895.

112.   A New Jersey Supreme Court opinion, *State v. Chen*, 27 A.3d 930 (N.J. 2011), a companion case to *Henderson*, also acknowledged the suggestiveness of interactions with private actors, not only with police. *Id.* at 932 (holding that the first *Henderson* requirement may be met by showing evidence of suggestiveness caused by private actors and stating, "Recent social science research reveals that suggestive conduct by private actors . . . can undermine the reliability of eyewitness

focus on police suggestiveness ignores the unreliability caused by esti-mator variables and their contribution not only to inaccurate identifica-tions but also to wrongful convictions.[113]

Finally, it should be noted that the jury ultimately decides whether evidence is reliable.[114] Studies show that jurors lend greater importance to eyewitness testimony than to nearly any other piece of evidence.[115] Jurors also generally show a poor understanding of scientific research on whether and how eyewitness testimony is reliable.[116]

CONCLUSION

Trayvon Martin's case and innocence litigation show the depth and breadth of eyewitness identification problems in our current criminal justice system. Not only does a witness experience difficulty in accurate-ly assessing his surroundings in a stressful moment, the witness's visual perceptions may be later tainted by a number of factors, including unin-tentional outside suggestion. This psychological information demands that actors in the criminal justice system adopt best practices for police interviewing eyewitnesses. This information also contributes to a possi-ble framework for understanding the death of Trayvon Martin. Perhaps his death, and the increased awareness of how damaging racial bias and situational factors can be to visual perception, will lead to heightened scrutiny of an individual's own biases as well as those of the criminal justice system. With greater awareness, greater reform to eyewitness identification policies and procedures can follow.

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identifications . . . . We consider that evidence in light of the court's traditional gatekeeping role to ensure that unreliable, misleading evidence is not presented to jurors").

    113.   Justice Sotomayor made the same observation in her dissent in *Perry v. New Hampshire*, 132 S. Ct. 716 (2012), stating that the majority's opinion "recasts the driving force of our decisions as an interest in police deterrence, rather than reliability." *Id.* at 731 (Sotomayor, J., dissenting).

    114.   *Id.* at 728 (majority opinion).

    115.   *See* LOFTUS, *supra* note 11, at 9–10 (describing a study in which the conviction rate by mock jurors rose by fifty percentage points when an eyewitness identification was provided, despite the fact that the eyewitness had vision so poor he could not possibly have seen the suspect's face); *see also* Peter J. Smith, *New Legal Fictions*, 95 GEO. L.J. 1435, 1452–55 (2007) (citing numerous sources to support the proposition that "[t]he presumption that jurors can competently assess the reliability of eyewitness testimony . . . is a new legal fiction"); Rutledge, *supra* note 70, at 210.

    116.   *See* Richard S. Schmechel et al., *Beyond the Ken? Testing Jurors' Understanding of Eyewitness Reliability Evidence*, 46 JURIMETRICS J. 177, 178, 191–92 (2006).