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THE NEUROSCIENCE AND EPIGENETICS OF SEXUAL HARASSMENT: BRAIN REACTIONS, GENE EXPRESSIONS, AND THE HOSTILE WORK ENVIRONMENT CAUSE OF ACTION

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I. ABSTRACT

Sexual harassment has emerged as a devastating reality in the American workplace. Courts have reviewed cases while lamenting about the imprecision in the law and its application to the facts. When jurisprudence joins neuroscience and analysis joins epigenetics a new approach to sexual harassment will emerge. The Article uses neuroscience and epigenetics to add precision to judging sexual

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harassment claims. The Article shows how the science of epigenetics can be used to accurately assess the victim's injury and damages. Macro and micro-aggressions in a hostile work environment can have lasting effects on gene expression. Telomere length can degrade causing increased inflammation throughout the body. These epigenetic effects can be passed from generation to generation, infusing the injury of the victim throughout the family line. The Article also provides an introduction to three types of sexism, each related to a different set of neurophysiologic reactions: hostile, benevolent, and ambivalent. When hostile sexists view some women they have brain reactions that are directly linked to dehumanization and objectification. The Article also explores the brain reactions of the onlookers—the judge, jurors, witnesses, and employers, all of whom assess the harassment at different points in the process. The neurophysiologic reactions of these groups to a sexist joke can reveal the norms in the workplace that encourage or discourage harassment. Practitioners and finders of fact have accepted the imprecision surrounding judgements in sexual harassment cases for far too long.

II. INTRODUCTION

The once murky landscape of the modern workplace has moved into stark relief with the focused images of sexual harassment and abuse. The persistent stories of abuses by politicians, Hollywood moguls,

business leaders, movie stars and media bigwigs have astounded and repulsed many.[1] These stories have made the questions of "why did this happen?" and "how could this be tolerated?" more urgent than ever. Some of the alleged behavior continued by individual perpetrators for decades.[2] In many cases, the surrounding employees remained not only cognizant but on occasion complicit in the abuse.[3]

The United States Supreme Court in *Harris v. Forklift Systems, Inc.* set forth two essential truths about hostile work environment sexual harassment claims.[4] First, the severity and pervasiveness of harassing acts must be assessed both objectively and subjectively.[5] Second, the assessment of objective and subjective effects "is not, and by its nature cannot be, a mathematically precise test."[6] The problem with this assessment is not the admission that the law is inherently imprecise. The problem is that while faced with the lack of precision for the application of law to fact courts have taken no steps to enhance the precision for the finder of fact. This article argues that the precision may be found in neuroscience and epigenetics.

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[1] *See* Stephanie Zacharek et al., *Person of the Year 2017: The Silence Breakers*, TIME, http://time.com/time-person-of-the-year-2017-silence-breakers/ (last visited Apr. 20. 2017).
[2] *Id.*
[3] *See, e.g.*, Megan Twohey et al., *Weinstein's Complicity Machine*, N.Y. TIMES (Dec. 5, 2017), https://www.nytimes.com/interactive/2017/12/05/us/harvey-weinstein-complicity.html.
[4] Harris v. Forklift Sys., Inc., 510 U.S. 17, 21–22 (1993).
[5] *Id.*
[6] *Id*. at 22.

Undoubtedly jurists, practitioners, and parties must recognize that each case must be considered individually and analyzed based on its unique facts. Infusing subjectivity into legal analysis is often problematic. However, it is criminal to fail to study the nature of the subjectivity. The victim of sexual harassment should not be left to present facts as a mere constellation of images on a pallet and leaving the finder of fact view the complexities through entrenched but unexplored biases. Such a practice makes the analysis of hostile environment cases the jurisprudential equivalent of a Rorschach test.

The contours of the cause of action for sexual harassment have been set forth in both statute and case law. *Title VII of the Civil Rights Act of 1964* states that workplace discrimination on the basis of sex is prohibited.[7] The Equal Opportunity Commission stated in its Guidelines that sexual harassment is a form of Title VII sex discrimination.[8] There are two main categories of sexual harassment. First, in *quid pro quo* sexual harassment employment or benefits of employment are conditioned on an employee's submission to sexual conduct.[9] Second, hostile environment sexual harassment involves sexual conduct that is so offensive and intimidating that it affects an employee's ability to perform a job.[10]

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[7] *42 U.S.C. § 2000e-2(a) (2012).*
[8] 29 C.F.R. § 1604.11(a) (2017).
[9] *See id*; Meritor Sav. Bank, FSB v. Vinson, 477 U.S. 57, 65 (1986).
[10] *Meritor*, 477 U.S. at 65.

Some might argue that *quid pro quo* sexual harassment claims are more clearly defined. The dyad of boss to employee and the requested exchange of sexual favors for employment benefits may be easily detected. In contrast, in a hostile-work-environment claim, multiple actors can engage in varying levels of offensive or abusive conduct that can range from visual, verbal or physical acts. In either type of sexual harassment, the brain reactions of the victim, the victimizer, and those who sit in judgement of both are of some import.[11] Likewise, the epigenetic changes in the victim, as a result of the harassment, may affect the assessment of the injury and damages.

Part I of this article discusses the neurophysiologic correlates of the specific type of sex bias, hostile sexism, that likely leads to the most pervasive and severe acts of abuse in the workplace. Part II discusses how differential neurophysiologic reactions in those who assess the levels of harassment (*e.g.* finders of fact, supervisors or on-looking coworkers) lend themselves to improper analysis of objective and subjective criteria used in hostile work environment claims. Part III explores solutions for assessing injury and damages using epigenetic models.

[11] Mina Cikara et al., *From Agents to Objects: Sexist Attitudes and Neural Responses to Sexualized Targets*, 23 J. COGNITIVE NEUROSCI. 540, 549 (2011).

III. PART I: THE NEUROPHYSIOLOGIC REACTIONS OF THE HARASSER

The neurophysiologic correlates of abusive and harassing acts have been studied extensively by scientists.[12] This is not simply an interesting exploration by academicians. Abusive behavior in the workplace cannot be effectively deterred or prevented unless and until the cause of the behavior is understood. Simply writing off the behavior as the actions of a "jerk", a "social-dinosaur" or a "pervert" is an unacceptable over simplification and abdication of responsibility to determine and address the problem. Similarly, analyzing human behavior through the lenses of psychology or sociology by themselves is a mistake. Human behavior necessarily involves the human brain; therefore, neuroscience must join the panoply of topics included in the discussion.

Using the structure of Title VII as a guide,[13] sexual harassment is a form or manifestation of sex or gender bias that can take many forms. But it is not enough to end the inquiry there. If one can posit that acts of sexual harassment (specifically the subset of acts against women and perpetrated by men) are based, at least in part, on sex or gender bias then it is important to define the bias.[14] There is more than one kind of sex

[12] *Id.* at 540.
[13] *42 U.S.C. § 2000e-2(a) (2012).*
[14] Sexual harassment comes in many forms and configurations. It must be explicitly stated that men are often the victims of sexual harassment in the workplace. It must

bias or sexism. Indeed, three main forms have been identified by scholars: benevolent sexism, ambivalent sexism, and hostile sexism.[15] These labels are not simply musings of sociologists.[16] Scientists have used functional Magnetic Resonance Imaging ("fMRI") to scan the brains of people with high scores on psychological tests for ambivalent sexism, benevolent sexism, and hostile sexism. Distinctly different neurophysiologic reactions mark each type of sexism.

Ambivalent sexism is based on the seemingly innocent notion that humans have complementary gender roles that are assigned preternaturally.[17] For example, ambivalent sexism includes: the belief that a woman should stay home to rear children because she is simply born with a greater ability to nurture; and the belief that a man should

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also be stated that women can be the perpetrators of sexual harassment in the workplace. This article does not seek to marginalize these legitimate areas for exploration and study; they are worthy of discussion. The victimizers should be punished and the victims should be made whole. The discussion in this article is already broad-based and complex (*i.e.* layering neuroscience, epigenetics, and sexual harassment). The man-on-woman dyad has been selected because it comports with the over-whelming majority of neuroscientific scholarship on the issue available today. As more neuroscience studies are completed that explore same-sex harassment and woman-on-man harassment, more articles will be written on how they overlap with the law.

[15] Peter Glick & Susan T. Fiske, *The Ambivalent Sexism Inventory: Differentiating Hostile and Benevolent Sexism*, 70 J. PERSONALITY & SOC. PSYCHOL. 491, 494 (1996).

[16] Not all men are sexists and not all men have sexist views. Additionally, some women hold views that can be reasonably labeled as sex or gender bias. The purpose of this article is to explore the perpetuation of sexual harassment by ambivalent, benevolent, and hostile sexists not to paint all men with a broad brush.

[17] *Id.*

work outside of the home because he is naturally better adapted to the harsh competition at the core of the world of business.[18]

Ambivalent sexism does not require the holder to see men as dominant over or superior to women in a hierarchical structure. The person that holds ambivalent sexist views may believe that both sets of roles and natural talents are equally valuable.[19] Neither the man nor the women needs to be better to the ambivalent sexists; they just need to be seen as naturally different. Ambivalent sexism masquerades as benign since it is does not require hostility or hierarchy; however, it may be used to limit the access women and men have to non-traditional jobs.[20]

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[18] *Id*.

[19] *Id*.

[20] The strength of stereotypes for roles and talents may reinforce achievement levels. For example, science, math, and technology achievement levels among women vary significantly from country to country. Brian A. Nosek et al., *National Differences in Gender-Science Stereotypes Predict National Sex Differences in Science and Math Achievement*, 106 PROC. NAT'L ACAD. SCI. U.S. 10593, 10596–97 (2009). The level of gender-science stereotypes predicts the level of achievement by country. *Id.* Men who have strong positive attitudes towards women regardless of the level of virtue an individual woman may display, may still engage in ambivalent sexism. Yarrow Dunham, Andrew Scott Baron, & Mahzarin R. Banaji, *The Development of Implicit Gender Attitudes*, 19 DEVELOPMENTAL SCI. 781,786–87 (2016). Ambivalent sexists do not need to hold any negative associations towards women and include any negative associations. *Id.* Stereotypes regarding natural roles, talents, or jobs for women disassociated from positive or negative feeling towards women. *Id.* These positive feeling towards women can lead to moral credentialing. Benoit Monin & Dale T. Miller, *Moral Credentials and The Expression of Prejudice*, 81 J. PERSONALITY & SOC. PSYCHOL. 33, 35–36 (2001). In the context of bias, moral credentialing includes two primary steps. First, the subject must perform a good deed or have positive reactions toward a person or group. *See id.* at 41. This act could be a kind statement, a respectful greeting, having a single friend from a marginalized group, hiring a singular person from a marginalized group, or seriously considering someone from a marginalized group for a promotion. Second, the subject must use the initial positive act as a proxy to show that they are not biased. *Id.* The initial act is used as proof that the subject is not biased because if they were biased they would not have reacted positively to members of the marginalized group. *Id.* The subject may then engage in biased behavior without

Unlike ambivalent sexism, benevolent sexism establishes a hierarchy. Benevolent sexism requires the believer to see women as subordinate.[21] Benevolent sexism also masquerades as innocent or benign because the emotions that accompany benevolent sexism are seen as positive by some.[22] The benevolent sexist believes that women should be cherished, protected, or even revered as long as they adhere to a code of conduct based on virtue.[23] Women are "awarded" the opportunity to be protected under this paternalistic ideology when they have demonstrated the requisite level of virtue.[24] Since benevolent sexists believe they are placing women on pedestals, it is difficult to convince them to meta-cognitively view the belief system as sexist at all.[25] However, upon further analysis the inequities become apparent. Women who occupy the pedestal may still be restricted from occupying competitive roles with men. Men remain the arbiters of who has broken the code of conduct and who has not. The penalty for violating the code of conduct is losing the protection provided by the benevolent sexist against predatory behavior by hostile sexists (*e.g.* decreased likelihood that an accused rapist will be convicted if the victim was dressed

guilt or concern about condemnation. *Id.* The initial positive act is then used as a defense against any accusation. *Id.*

[21] *Id.* at 491.
[22] *Id.*
[23] *Id.* at 493.
[24] *Id.*
[25] *Id.*

provocatively or went alone to the defendant's room before the attack, referred to as the "she was asking for it" defense).

Finally, hostile sexism, as its name belies, seems to lead to the most pervasive and pernicious forms of sexual harassment and abuse. Hostile sexism reverses the seemingly innocent components of both ambivalent and benevolent sexism.[26] Unlike ambivalent sexism, hostile sexism constructs a clear hierarchy.[27] Unlike benevolent sexism, hostile sexism does not use caring or warm emotions to mask the ideology.[28] There is no impetus to protect the object of the sexism. Instead, under hostile sexism, women are a threat and men must protect themselves from women.[29] Hostile sexism is based on the belief that women try to control men and achieve status using either sexuality or feminism.[30] For example, a hostile sexist might point to the Biblical story of the Garden of Eden to show that Eve used Machiavellian machinations to force Adam to relinquish his innocence and better judgement.[31] The Judeo-Christian texts could be used by a hostile sexist as validation for the notion that the fall and demise of humankind was due to a conniving and evil gender.

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[26] *Id*. at 492.
[27] *Id*. at 493.
[28] *Id*.
[29] *Id*. at 507.
[30] *Id*. at 494.
[31] Genesis 3:6–7 (NLT).

Certainly, people can hold parts of each or all three ideologies at the same time.[32] But in many people who hold sex-biased views only one ideology dominates.[33] Scientists have employed tests to determine the presence of a dominant sexist ideology.[34] In one inventory,[35] subjects were asked to rank statements about women and men on a scale of 1 (strongly disagree) to 6 (strongly agree).[36] The statements were many and varied. For example, "[a] good woman should be set on a pedestal by her man" and "[o]nce a woman gets a man to commit to her, she usually tries to put him on a tight leash".[37] Those who strongly agreed with comments about protecting or revering women adhered to the ideology of benevolent sexism.[38] By contrast those who strongly agreed with the statements about women trying to control, fool, or lord over men were categorized as hostile sexists.[39]

It is possible that we value and tolerate different types of sexism and different types of sexist behavior in the workplace. These disparate values can lead to different standards, laws, policies and analysis of facts. Ambivalent, benevolent, and hostile sexism could each reasonably lead to a cognizable claim of sexual harassment. However,

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[32] Glick & Fiske, *supra* note 17, at 494.
[33] *Id.* at 494, 505, 507.
[34] *Id.* at 495.
[35] Glick & Fiske, *supra* note 17, at 491–512.
[36] *Id.* at 512 app.
[37] *Id.* at 512 app.
[38] *Id.* at 492
[39] *Id.* at 505.

the behavior that would serve as the basis for the claim should manifest quite differently. Studies demonstrate that levels of hostile sexism in subjects predict their use of obscene and insulting language directed at women, dehumanization and objectification of women, decreased empathy towards women, increased subjugation of women and increased levels of hostility and aggressiveness towards women.[40]

Numerous studies have been conducted to pinpoint the differential neurophysiologic reactions associated with each type of sexism and the stimulus that triggers the associated behavior. In one such study, scientists used fMRI to scan the brains of people with high scores for hostile sexism, benevolent sexism, and altruistic sexism.[41] They showed men and women four categories of images (*e.g.* fully clothed non-provocative women, non-provocative men, sexualized/scantily clad women and sexualized/scantily clad men).[42] They found, as expected, that the parts of the brain associated with sexual arousal increased in activation when straight men viewed the sexualized woman.[43] These sexual arousal reactions occurred for all of the heterosexual men, regardless of the type or level of sexism, when they viewed the photos of the sexualized women. However, the type and level of sexism

[40] *Id*. at 509–10.
[41] Cikara et al., *supra* note 13, at 540.
[42] *Id*. 545.
[43] *Id*. 547. Sexual arousal reactions include increased neural activity in right inferior frontal cortex, inferior temporal cortex, left anterior cingulate, and right insula. *Id.* at 548.

predicted brain reactions that were not linked to sexual arousal. Notably, specific parts of the brain showed significantly decreased activation only for hostile sexism.[44] The scientists found distinctly different brain reactions among hostile sexists in parts of the brain that are not associated with sexual arousal.[45]

Hostile sexism is linked to specific neurophysiologic reactions that are consistent with dehumanization and subjugation other people.[46] Key parts of the brain that should activate when viewing another human being, failed to activate above zero for hostile sexists when they viewed certain pictures of women.[47] The "medial prefrontal cortex (BA10), dorsal medial prefrontal cortex (BA8), posterior cingulate cortex (BA 23/31), and bilateral temporal poles (BA 38/21)" failed to activate in men with high hostile sexism scores when they viewed images of sexualized women.[48] Conversely, these same parts of the brain that failed to activate in men with high levels of hostile sexism activated easily in men with low levels of hostile sexism when they viewed the same images of women.[49] Hostile sexism leads to the most pervasive and pernicious forms of sexual harassment and abuse. Therefore, those

[44] *Id*. 548.
[45] *Id*.
[46] *Id*. at 550.
[47] *Id*. at 548–49. Notably, the reactions were not the same when the hostile sexist looked at pictures of sexualized men. *Id.*
[48] *Id*. at 548
[49] *Id*. at 550.

who study sexual harassment must pay particular attention to hostile sexism and its neuro-correlates.

Consistently and reliably, scientists find that when the medial prefrontal cortex (BA10), dorsal medial prefrontal cortex (BA8), posterior cingulate cortex (BA 23/31), and bilateral temporal poles (BA 38/21) fail to activate the subjects cannot attribute mental states to the people they are viewing.[50] Attributing mental states to other people is formally called "Theory of Mind."[51] It is also the essential component of seeing another person as human.[52] It is unfortunate when any one part of the neuroanatomy needed to encode someone as fully human fails to activate. However, the phenomenon at play here is the utter and complete failure of almost any pertinent part of the brain necessary to complete human encoding to activate in the hostile sexists when viewing these pictures of women.[53] Even the loss of one part of this system could be devastating, but the loss of all four can be fatal to the person on the receiving end of the sexual harassment manifested through hostile sexism.

In fact, scientists have found that the simple loss of either the ventral medial prefrontal cortex (vmPFC) or the dorsal medial prefrontal cortex (dmPFC) can make a marked difference in how we

[50] *Id*. at 548.
[51] *Id*. at 541.
[52] *Id*.
[53] *Id*. at 550.

judge people leading to a slight dehumanization effect.[54] Scientists found that people use the ventral mPFC to make judgments about people who share their political views and hail from the same region of the country.[55] Conversely, the subjects used the dorsal mPFC to make judgments about people who held different political views and hailed from a different region of the country.[56] The scientists presented a group of subjects with pictures of two people, one could be called Bob and the other Jim.[57] Both pictures were of Caucasian men (*i.e.* gender and race were not factors in the study). Each picture was presented with a description.[58] One person, Bob, was described as an evangelical Christian, a registered Republican from the Midwest, and conservative.[59] The second person, Jim, was described as not particularly religious, a registered Democrat from the East Coast, and liberal.[60]

After the subjects viewed the pictures and descriptions, they were asked to decide which person was most like them and which person was least like them.[61] The scientists used fMRI to scan the

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[54] Jason P. Mitchell, C. Neil Macrae, & Mahzarin R. Banaji, *Dissociable Medial Prefrontal Contributions to Judgments of Similar and Dissimilar Others*, 50 NEURON 655, 657 (2006).
[55] *Id*. at 656.
[56] *Id*. at 657.
[57] *Id*. at 656.
[58] *Id*.
[59] *Id*. at 661.
[60] *Id*.
[61] *Id*. at 656.

subjects' brains while asking them sixty-six questions about each person's preferences and potential behavior, questions such as: Does Bob drive an environmentally-friendly car? Does Bob prefer foreign films? Does Bob want to go home for Thanksgiving to see his parents? or Does Bob enjoy having an international roommate?[62] As the subjects considered the questions they were forced to judge Bob.[63] They were forced to consider his preferences, determine his character, and predict his habits.[64] The subjects were then asked precisely the same questions in exactly the same order but this time about Jim.[65]

When the subjects answered the questions about the person who was most like them, the ventral medial prefrontal cortex activated.[66] The ventral mPFC may activate when subjects make inferences about more human aspects of emotion. Humans may assume that people who are most like them feel human emotion with greater depth. Subjects may assume that people who are not like them feel emotions that are less human. Conversely, when the people answered the same questions about the dissimilar person, the dorsal medial prefrontal cortex activated.[67] The dorsal mPFC may be activated when subjects make judgments about another person's knowledge or beliefs. A series of

[62] *Id*. at 661.
[63] *Id*. at 656.
[64] *Id*.
[65] *Id*.
[66] *Id*. at 657.
[67] *Id*.

studies demonstrate that when people see as another people as "other" or dissimilar they may also see as the other person as less human.[68] Subjects may show less empathy for those they encode as less human. They also may fail to imagine or determine what the other person needs. Finally, when the subjects were asked to answer the same sixty-six questions about themselves, (to predict their own behavior, to determine their own preferences, or to assess their own habits), the ventral medial prefrontal cortex activated.[69] This was the very same part of their brain that they used to judge the person who was most similar to them.[70]

Failing to encode groups of people as fully human is a phenomenon that is apparent when even one part of the multi-part neuro-cocktail is missing. Even when gender is not a factor, in-group and out-group differences can lead to low-level dehumanization. However, hostile sexism does not simply diminish the activation of a single part of the neuroanatomy necessarily for human encoding.[71] Hostile sexism leads to the loss of all of the crucial brain activations necessary for human encoding, making it pervasive.[72] Moreover, the deactivation is severe. The activation levels do not simply diminish slightly; they fall to zero.[73] The dual pervasive and severe reactions

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[68] *Id*. at 660.
[69] *Id*. at 658.
[70] *Id*.
[71] Cikara et al., *supra* note 13, at 548–49.
[72] *Id*.
[73] *Id*.

linked to hostile sexism are also linked to manifestly problematic behavior.[74]

People with high hostile sexism scores demonstrated markedly different behavior in multiple areas.[75] Language association differed for people with higher levels of hostile sexism.[76] Subjects with higher levels of hostile sexism attributed words that confirmed greater agency to non-sexualized/clothed women.[77] These terms included third-person action verbs such as "handles" read as *she* "handles".[78] Conversely, they attributed first-person action verbs toward pictures of scantily clad or sexualized women.[79] These terms included "handle" read as *I* "handle".[80] These reactions were unique to men who scored high on the hostile sexism scale.[81] Men with low hostile sexism scores did not show a difference in how they associated words with pictures of sexualized versus non-sexualized women.[82] Even women with high hostile sexism scores failed to demonstrate a bias in word association.[83] Additionally, men with high hostile sexism scores rated the sexualized women depicted in the photographs "as least 'in control of [their] own life.'"[84]

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[74] *Id*. at 550.
[75] *Id*.
[76] *Id*. at 549.
[77] *Id*.
[78] *Id*.
[79] *Id*.
[80] *Id*.
[81] *Id*.
[82] *Id*.
[83] *Id*.
[84] *Id*. at 547.

An additional step in human encoding involves assessing someone as both warm and competent or nice and smart.[85] If a person is encoded as only warm or nice, these positive feelings in isolation may engender pity or a lack of threat.[86] This is the proverbial puppy reaction wherein warm feelings may emerge but there is no recognition of competence or intellectual prowess.[87] Conversely, encoding solely for competence would be equivalent to reacting to an automaton.

In alignment with their neurophysiologic reactions, hostile sexists demonstrated an inability to encode women as competent.[88] Hostile sexism predicted an individual's ability to recall facts in some categories and increased the ability to recall facts in other categories.[89] In one study researchers held mock job interviews.[90] Men with high and low levels of hostile sexism were told to interview women for a fictitious job.[91] The interviewers were provided with information about the woman's qualifications, biographical history, performance evaluations, and even given some insight into her personality.[92] Of course, the interviewers were able to observe the woman in-person, so

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[85] Susan T. Fiske, Amy J.C. Cuddy, & Peter Glick, *Universal Dimensions of Social Cognition: Warmth and Competence*. 2 TRENDS COGNITIVE SCI. 77–83, 80 (2007).
[86] *Id*. at 80.
[87] *Id*. at 77.
[88] Laurie A. Rudman & Eugene Bordiga, *The Afterglow of Construct Accessibility: The Behavioral Consequences of Priming Men to View Women as Sexual Objects*, 31 J. EXPERIMENTAL SOC. PSYCHOL. 493, 512 (1995).
[89] *Id*.
[90] *Id*. at 499.
[91] *Id*.
[92] *Id*. at 500.

they could collect information about her appearance and body language as well.[93] After the interview, the men were questioned about the information they reviewed and the things they observed in the interview.[94] Hostile sexists recalled far less information about the woman's job qualifications, performance evaluations, and biographical information.[95] However, hostile sexists had superior recall in comparison to men with low levels of hostile sexism in two other categories: the physical appearance of the woman and her physical movements.[96]

In addition to differences in recall, the behavior of hostile sexists toward the woman interviewee was different.[97] In the experiment the researchers afforded all of the men an opportunity to interview the woman a second time.[98] During the second interview the hostile sexist showed increased sexualized behavior toward the woman candidate including sitting much closer to her.[99]

Our biases not only affect the way people process information, but also the way people collect and store information.[100] In a study on accuracy of memory, undergraduate students were asked to partner in

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[93] *Id*.
[94] *Id*. at 500.
[95] *Id*. at 512.
[96] *Id*.
[97] *Id*.
[98] *Id*.
[99] *Id*. at 508; Cikara et al., *supra* note 13, at 540–51.
[100] Cikara et al., *supra* note 13, at 548.

an email conversation with strangers.[101] Each undergraduate student was assigned one of three email addresses that they would use to reach their partner: amy@wjh.harvard.edu; chen@wjh.harvard.edu; or simply ac@wjh.hardvard.edu.[102] During the email exchange the partners told each undergraduate their math and verbal SAT scores.[103] The scores provided were fictitious and always the same for each email conversation.[104] After the conversation ended proctors asked the undergraduate students to recall the math and verbal SAT scores shared by the partner.[105]

The e-mail address used affected the undergraduates' ability to recall Amy's SAT scores accurately.[106] Notably, the students who used the e-mail address "amy" (signaling that the partner was a woman) remembered a lower math score than what they were told and a higher verbal score.[107] Conversely, those who used the e-mail address "chen" (signaling that the partner was Asian American) remembered a lower verbal SAT score than they had been told and a higher math score.[108] Strangely, before the conversation began all of the undergraduate

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[101] Todd L. Pittinsky, Margaret J. Shih, & Amy Trahan, *Identity Cues: Evidence from and for Intra-Individual Perspectives on Positive and Negative Stereotyping*, 36 J. APPLIED SOC. PSYCHOL. 2215, 2226 (2006).
[102] *Id.*
[103] *Id*.
[104] *Id.*
[105] *Id*. at 2227.
[106] *Id*. at 2225.
[107] *Id*. at 2228.
[108] *Id*. at 2228–29.

students were told that they were going to have a conversation with an Asian American woman by the name of Amy Chen.[109] In the employment context, the misremembering effect can assist in the dehumanization process.[110] The studies demonstrate that hostile sexists might recall Amy's scores as lower in both math and verbal categories.[111] Since human encoding requires the brain to activate for feelings of warmth and assessments of competence, the loss of only the competence reaction is not fully fatal.[112] However, hostile sexists also failed to encode women as warm or nice creating a complete dehumanization effect.[113]

In yet another study researchers found that hostile and benevolent sexists attributed negative and positive emotions to women differently.[114] Researchers presented men with high levels of hostile sexism and men with high levels of benevolent sexism with a list of words that described emotions.[115] The list included positive and negative primary emotions as well as positive and negative secondary emotions.[116] The men were asked to choose the emotions they believed

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[109] *Id*. at 2223–24.
[110] *Id*. at 2232.
[111] *Id*. at 2229.
[112] Rudman & Bordiga, *supra* note 90, at 512.
[113] Fiske et al., *supra* note 87, at 79.
[114] G. Tendayi Viki & Dominic Abrams, *Infra-humanization: Ambivalent Sexism and the Attribution of Primary and Secondary Emotions to Women*, 39 J. EXPERIMENTAL SOC. PSYCHOL. 492, 492–99 (2003).
[115] *Id*. at 494.
[116] *Id*.

most typically referred to or described women.[117] Hostile sexists attributed fewer positive secondary emotions to women (*e.g.* compassion, nostalgia, hopefulness).[118] Conversely, benevolent sexists selected more positive secondary emotions in relation to women.[119]

In addition to the dehumanization reactions that caused decreased activation in the medial prefrontal cortex, researchers also saw significantly diminished activation in other regions of the brain for those who showed high levels of hostile sexism.[120] For hostile sexists the posterior cingulate, and temporal poles also decreased significantly in activation when they viewed pictures of sexualized women.[121] Likewise, activation in these regions of the brain has been previously seen to diminish in numerous studies focusing on stigmatized groups.[122] In prior studies subjects sought to avoid these stigmatized groups (*e.g.* homeless people, IV drug users).[123] These groups elicited an additional neurophysiologic reaction for disgust and avoidance.[124] The avoidance and disgust reaction combined with the diminished activation in the

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[117] *Id*.
[118] *Id*. at 496.
[119] *Id*.
[120] Cikara et al., *supra* note 13, at 544.
[121] *Id*. at 548.
[122] *Id*. at 541 n. 3.
[123] *Id*. at 541; *see also* Fiske et al., *supra* note 87, at 80.
[124] Cikara et al., *supra* note 13, at 541.

medial prefrontal cortex, posterior cingulate, and temporal poles.[125] Thus these groups were both dehumanized and shunned.[126]

Hostile sexists had dehumanizing brain reactions towards women in the way that both men and women (regardless of sexism levels or type) had towards the stigmatized groups of IV Drug users and homeless people.[127] However, they did not have the disgust reaction seen when viewing these stigmatized groups.[128] The type of dehumanization engaged in hostile sexism is not avoidance or disgust-driven.[129] To the contrary, the women who were the focus of the dehumanization were also the focus of attraction.[130] This dehumanization is better defined as objectification.[131] Objectification omits disgust response but maintains the deactivation of the key humanizing components of the neuroanatomy.[132]

The brain reactions hostile sexists displayed when viewing women was much more akin to the reactions seen when identifying a tool used for building.[133] Notably hostile sexism, as will be discussed in the next section, involves an anger of aggression component in

[125] *Id*.; Fiske et al., *supra* note 87, at 80.
[126] *Id*.
[127] *Id*.
[128] *Id*.
[129] *Id*.
[130] *Id*.
[131] *Id*.
[132] *Id*.
[133] *Id*. at 549.

addition to the tool-use network, that can invariably affect workplace interactions.[134] Hostile sexists activated tool-use networks when viewing pictures of sexualized women (*e.g.* premotor cortex, posterior middle temporal gyrus).[135]

Of course, hostile sexists do not sexually harass every woman they encounter. This has caused many people who defend harassers to place the blame on the woman who was targeted because she garnered the harasser's attention.[136] Her clothing, her actions or her physical features all become convenient excuses for everything from untoward comments to sexual assault.[137] There may be multiple triggers that motivate the hostile sexist to sexually harass one woman as opposed to another. It does not follow that women should carry the burden to avoid these behaviors and carry the blame for gaining the unwanted attention

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[134] Glick & Fiske, *supra* note 17, at 507.
[135] Cikara et al., *supra* note 13, at 549.
[136] *See* Meritor Sav. Bank, FSB v. Vinson, 477 U.S. 57, 69 (1986) (stating that in a sexual harassment claim, a plaintiff's "sexually provocative speech or dress" is relevant). The Court in *Meritor* held that evidence of the plaintiff's "sexually provocative speech and dress" was admissible to show whether the sexual advances were "unwelcome." *Id.* at 69. "While "voluntariness" in the sense of consent is not a defense to such a claim, it does not follow that a complainant's sexually provocative speech or dress is irrelevant as a matter of law in determining whether he or she found particular sexual advances unwelcome. To the contrary, such evidence is obviously relevant. The EEOC Guidelines emphasize that the trier of fact must determine the existence of sexual harassment in light of "the record as a whole" and "the totality of circumstances, such as the nature of the sexual advances and the context in which the alleged incidents occurred." 29 C.F.R. § 1604.11(a); *see also* Jessica Wolfendale, *Provocative Dress and Sexual Responsibility*, 17 GEO. J. GENDER & L. 599. 599–600 (2016); Courtney Fraser, *From "Ladies First" to "Asking for It": Benevolent Sexism in the Maintenance of Rape Culture*, 103 CALIF. L. REV. 141, 160–164 (2015).
[137] Wolfendale, *supra* note 138, at 660.

of the hostile sexist. If sexualized attire is given a value that serves as a counterweight to the culpability of the harasser, then the harasser will be excused from the abusive behavior.

Moreover, the hostile sexist does not need to create the excuse himself. The benevolent sexist or the ambivalent sexist can validate the counter-weight. A study looking at subjects in nineteen nations found that hostile and benevolent sexism ideologies are mutually supportive.[138] The study included 15,000 subjects across the nineteen nations and found that countries that were high in hostile sexism were also high in benevolent sexism.[139] The benevolent sexist may determine that a woman's choice to wear provocative attire is a violation of a code of virtuous conduct.[140] Once a woman violates this code of conduct the benevolent sexist will withdraw the protections that his condemnation and disapproval provides.[141] The protection is not simply a paternalistic notion of a man standing between the harassed employee and the

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[138] Peter Glick et al., *Beyond Prejudice as Simple Antipathy: Hostile and Benevolent Sexism Across Cultures*, 79 *J. PERSONALITY & SOC. PSYCHOL.* 763, 763 (2000).
[139] *Id.* at 766. The ideologies also go hand in hand on an individual level. A high score for hostile sexism may predict a high score for benevolent sexism for many individuals. Thus, some hostile sexists can use benevolent sexism ideology as an excuse for harassment. When a woman violated a code of virtuous conduct the individual holding both hostile and benevolent sexist views can see this violation as societal permission to harass and abuse the woman.
[140] Fraser, *supra* note 138, at 159.
[141] Dominic Abrams et al., *Perceptions of Stranger and Acquaintance Rape: The Role of Benevolent and Hostile Sexism in Victim Blame and Rape Proclivity*, 84 J. PERSONALITY
SOC. PSYCHOL. 111, 119 (2003) (finding a link between benevolent sexism and belief that rape victims who do not demonstrate virtuous conduct lose the right to protection).

harasser; rather it is the failure to recognize, fairly judge, and enforce the rights of the harassed employee.[142] For a finder of fact (judge or juror), an on-looking coworker, or an employer, condemnation of harassment serves as a disincentive for hostile sexists to engage in abuse behavior.[143] When the condemnation—the protection—is withdrawn the hostile sexist can act with impunity.[144]

Notably, the so-called paternalistic protection provided by benevolent sexists is not the preferred method for eradicating sexual harassment. In fact, it provides nothing more than a new form of oppression. This form may be seemingly kinder or gentler at its inception, but it places restrictions on women that are often untenable and it hands control of women to the judgements of men. Neither outcome is a prescription for liberation. Nevertheless, benevolent sexists may reject the abusive behavior of hostile sexists in the workplace and help shape a cultural norm for unacceptable jokes, insults, and physical assault. The challenge is that this norm would only apply to those women who met the benevolent sexist's standard for virtue and femininity. Thus, the philosophy that obscene or abusive

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[142] *Id.*; Martha R. Burt, *Cultural Myths and Supports for Rape*, 38 *J. PERSONALITY & SOC. PSYCHOL.* 217, 229 (1980). 598 subjects were tested to determine their beliefs that women who dress provocatively, initiate flirting, go to bars alone, or have multiple sexual partners were more likely to invite rape. Subjects who ascribed to these beliefs (also known as Rape Myth) were more likely to find the man accused of sexual assault blameless. *Id.* at 220–223.

[143] *See* Meritor Sav. Bank, FSB v. Vinson, 477 U.S. 57 (1986).

[144] *See* Meritor Sav. Bank, FSB v. Vinson, 477 U.S. 57 (1986).

behavior in the workplace does not have an absolute value but rather a relational value to the acts of the harassed woman can affect assessments of other triggering mechanisms.[145] The woman who happens to be viewed as physically attractive, regardless of attire, will be held partially blameworthy for the harassing conduct[146] (*e.g.* "Well I can understand why he would pursue her, boys will be boys"). However, blaming women for illegal, immoral, or unethical conduct of harassers is a slippery slope. Additional studies demonstrate that sexualized clothing is only one of several triggers for the hostile sexist or for harassing and abusing conduct.[147]

While the level of hostile sexism is one critical factor in the analysis of hostile environment sexual harassment it is not the only critical factor. Job performance or underperformance of the harasser can also contribute to hostile behavior.[148] Sexual harassment may be viewed through the lens of power dynamics.[149] Practices by supervisors

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[145] G. Tendayi Viki et al., *Evaluating Stranger and Acquaintance Rape: The Role of Benevolent Sexism in Perpetrator Blame and Recommended Sentence Length*, *LAW & HUM. BEHAV.* 295, 302 (2004) (finding that subjects who ascribed to "Rape Myth" withdrew male protection).

[146] Wolfendale, *supra* note 138, at 660.

[147] Michael M. Kasumovic & Jeffrey H. Kuznekoff, *Insights into Sexism: Male Status and Performance Moderates Female-Directed Hostile and Amicable Behaviour*, 10 PLOS ONE (2015).

[148] *Id.*

[149] Faragher v. City of Boca Raton, 524 U.S. 775, 803 (1998) ("The agency relationship affords contact with an employee subjected to a supervisor's sexual harassment, and the victim may well be reluctant to accept the risks of blowing the whistle on a superior. When a person with supervisory authority discriminates in the terms and conditions of subordinates' employment, his actions necessarily draw upon his superior position over the people who report to him, or those under them,

or bosses who seek to abuse their power may lend themselves to *quid pro quo* sexual harassment claims. The courts have required fewer harassing acts by supervisors to establish a claim for sexual harassment in comparison to co-workers possibly because those acts translate more easily into a *quid pro quo* cause of action.[150] The acts of coworkers have been found to create a hostile work environment, though the bar is higher.[151]

The rationale for the distinction between coworker and supervisor conduct is, in part, that the supervisor can affect the conditions of employment.[152] If the harassed employee does not capitulate to the harassing conduct by a supervisor she is exposed to a greater risk of losing the benefits of employment.[153] Conversely, in many workplaces the acts of coworkers may have an even more

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whereas an employee generally cannot check a supervisor's abusive conduct the same way that she might deal with abuse from a co-worker.").

[150] *Compare* Quantock v. Shared Mktg. Servs., Inc., 312 F.3d 899, 904 (7th Cir. 2002) (single proposition or sexual advance by company president sufficient), *with* Brooks v. City of San Mateo, 229 F.3d 917, 926 (9th Cir. 2000) (single "highly offensive" touching by a coworker not sufficient to create a hostile working environment where employer "took prompt steps to remove [coworker] from the workplace.").

[151] *See, e.g.*, Reeves v. C.H. Robinson Worldwide, Inc., 594 F.3d 798, 803 (11th Cir. 2010) (coworkers' daily verbal harassing conduct, including use of offensive language referring to women as "bitch" and "slut" created hostile work environment).

[152] *U.S. Equal Emp't Opportunity Comm'n, Notice Number N-915-050: Policy Guidance on Current Issues of Sexual Harassment* (Mar. 19, 1990), https://www.eeoc.gov/policy/docs/currentissues.html [hereinafter *EEOC Policy Guidance*] ("[A] supervisor who makes sexual advances toward a subordinate employee may communicate an implicit threat to adversely affect her job status if she does not comply."); *see also Faragher*, 524 U.S. at 803.

[153] *Faragher*, 524 U.S. at 803.

pervasive effect on the employees.[154] The type of acts that occur outside of the purview of management[155] can have long term psychological, physical and job performance effects on the employee.[156] While some employees have used the process for internal complaints to human resources ("HR") as a remedy,[157] this remedy can be nothing more than a fiction in many workplaces. HR departments who rubberstamp the wishes of the employer to bypass the complaint,[158] or outside firms who conduct investigations that consistently hold the harassing employee and employer harmless may reasonably deter complaints.[159] After an internal complaint is leveled and effectively dismissed the level of hostility in the workplace may become even more palpable. In these circumstances the calculus for the victims of harassment involve

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[154] Rogers v. EEOC, 454 F.2d 234, 238 (5th Cir. 1971) (analogizing psychological effects of sexual harassment to racial harassment: "[T]he phrase 'terms, conditions, and privileges of employment' in [Title VII] is an expansive concept which sweeps within its protective ambit the practice of creating a working environment heavily charged with ethnic or racial discrimination. . . . One can readily envision working environments so heavily polluted with discrimination as to destroy completely the emotional and psychological stability of minority group workers . . . .").

[155] *EEOC Policy Guidance*, *supra* note 154 *(*"The Commission recognizes that sexual conduct may be private and unacknowledged, with no eyewitnesses.").

[156] *Id.*

[157] *Id.* (requiring "[w]hen an employer receives a complaint or otherwise learns of alleged sexual harassment in the workplace, the employer should investigate promptly and thoroughly.").

[158] *See, e.g.*, 1 ALBA CONTE, SEXUAL HARASSMENT IN THE WORKPLACE: LAW AND PRACTICE § 7.02 (4th ed. 2015) ("If . . . the final decision-maker does not 'rubber stamp' the recommendation of a person with knowledge of the protected activity but, instead, bases the decision on an independent investigation, the causal link between the subordinates' retaliatory intent and the plaintiff's terminations would be broken."); Noam Scheiber & Julie Creswell, *Sexual Harassment Cases Show the Ineffectiveness of Going to H.R.*, N.Y. TIMES (Dec. 12, 2017), https://www.nytimes.com/2017/12/12/business/sexual-harassment-human-resources.html.

[159] CONTE, *supra* note 160heiber.

weighing their physical safety and health against keeping a job to have the basic resources to survive by enduring harassment silently. Thus, harassment by coworkers cannot simply be set aside as unimportant. Moreover, the role and position of coworkers can engender harassment. The relationship of supervisors and their supervisees includes an inherent power imbalance,[160] and may eschew meaningful competition in the dyad. Conversely, the relationship between coworkers frequently includes competition at its core.[161] A simple designation for employee of the month in a supermarket, office, or packing plant is a systemic marker for encouraged competition. This competition between peers is designed to increase the performance of all employees not to create a hostile environment.[162] However, the unintended consequences can be grave.

Scientists found that when women out-performed their male peers in a competitive environment, low-performing men became more hostile towards women.[163] One group of scientists tested the male-

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[160] *EEOC Policy Guidance*, *supra* note 154 ("Similarly, a supervisor who makes sexual advances toward a subordinate employee may communicate an implicit threat to adversely affect her job status if she does not comply. 'Hostile environment' harassment may acquire characteristics of 'quid pro quo' harassment if the offending supervisor abuses his authority over employment decisions to force the victim to endure or participate in the sexual conduct.").

[161] *See* PETER CAPPELLI, THE NEW DEAL AT WORK: MANAGING THE MARKET-DRIVEN WORKFORCE 7 (1999) ("Compensation is widely accepted as being the most important mechanism for managing and motivating employees, especially in the United States.").

[162] *Id.*

[163] Kasumovic & Kuznekoff, *supra* note 149.

dominated "online first-person shooter video game" environment.[164] They entered women into "Halo 3" online games and studied behavioral changes when the female players began to out-perform some of the male players.[165] Not all of the men reacted negatively to the entry into or the accomplishments of the women in the game.[166] However, the men who had low scores in the game became increasingly hostile towards the female player as she out-performed them.[167] The men who underperformed used increasing hostile and offensive language when speaking to and about their women competitors.[168] Gender-based offensive words such as "bitch" were hurled at the women-peers with greater frequency as they out-played the under-performing men.[169] Of course the under-performing men were also beaten by other men who were playing the game.[170] In sharp contrast, the under-performing men did not become more hostile towards their male peers as the male peers out-played them.[171] Instead, the under-performing men became increasing submissive toward their male peers as the peers demonstrated their superior skills and video-game prowess.[172]

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[164] *Id.*
[165] *Id.*
[166] *Id.* at 7.
[167] *Id.* at 10–11.
[168] *Id.*
[169] *Id.*
[170] *Id.*
[171] *Id.*
[172] *Id.*

Winning video games activates the reward system in the brain.[173] The neuro-satisfaction of winning is increased when the player believes they are beating a human rather than a computer (*i.e.* ventromedial prefrontal cortex and dorsal striatum activation increased for out-performing a real person verses outperforming a computer).[174] In contrast, losing increases activation of the "somatosensory cortex (postcentral gyrus), supratemporal auditory cortex, and cerebellum."[175]

Moreover, the type of human competitor can have an effect on the neurophysiologic reaction. Competitors who engender less sympathy may be treated differently when they outperform their colleagues and are met with resulting abuse. On-looking coworkers, employers, and judges may permit men to abuse women who outperform them in part because as women become more qualified they may be viewed more negatively. Researchers found that high-achieving men were two times more likely than equally qualified women to receive a job interview when they submitted applications.[176] The impact was even more pronounced in science, technology, engineering, and

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[173] Jari Kätsyri et al., *The Opponent Matters: Elevated fMRI Reward Responses to Winning Against a Human Versus a Computer Opponent During Interactive Video Game Playing*, 23 CEREBRAL CORTEX 2829, 2829 (2013).
[174] *Id.*
[175] *Id.* at 2834.
[176] Natasha Quadlin, *The Mark of a Woman's Record: Gender and Academic Performance in Hiring*, 83 AM. SOC. REV. 331, 331.

math ("STEM") fields where men were three times more likely than equally-qualified women to receive a job interview.[177]

The researchers submitted 2,106 job applications to online employment sites.[178] All the fictitious applicants were either English, business, or math majors who had recently graduated from college.[179] The employers did not know that the applicants were simulated.[180] Two applications with equal qualifications, similar cover letters, gender neutral extra curricula activities, and the same major were submitted for each job.[181] For each job one application would bear the name of a women and the other would bear the name of a man.[182] The researchers also changed the qualifications on the applications, specifically the GPA and college major.[183] When the GPA went up for the male applicants they received more requests for interviews.[184] However, higher GPAs negatively affected the women's chances of receiving an interview for the job.[185] As the GPA went up for the women they received fewer offers for interviews.[186] When their GPAs edged closer to "A" levels they were half as likely as their male counterparts with the same

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[177] *Id.*
[178] *Id.*
[179] *Id.* at 337.
[180] *Id.*
[181] *Id.* at 338.
[182] *Id.* at 339.
[183] *Id.*
[184] *Id.* at 340.
[185] *Id.*
[186] *Id.*

credentials to receive an interview for the job.[187] This effect was even more pronounced in the STEM fields.[188] As women demonstrated greater expertise and achievement on their job applications they were penalized even more.[189] The researchers interviewed hundreds of employers and found that they valued "competence and commitment" in male applicants but sought out "likeability" in female applicants.[190] The researchers posited that the employers assumed (with no supporting evidence) that the women with only moderate qualifications would be more likable and that the high-achieving women would be far less pleasant.[191]

As with other manifestations of hostile sexism, the hostile acts that follow successful job performance by women do not occur in a vacuum. While the benevolent sexist may validate harassment when the victim fails to demonstrate chastity in her style of dress, the ambivalent sexist may validate the harassment in other contexts.[192] For example, when a woman outperforms an under-performing man the ambivalent sexist may empathize with the frustration and shame felt by the under-performing man. By definition, ambivalent sexists believe that men should naturally perform better than women in some roles in the

[187] *Id.*
[188] *Id.* at 353.
[189] *Id.*
[190] *Id.* at 333.
[191] *Id.* at 347.
[192] Monin & Miller, *supra* note 22.

workplace.[193] Thus, the specter of a woman out-performing a man can create a badge of shame that the male employee could not perform his natural male role. The ambivalent sexist could empathize with what he sees as a workplace emasculation. Such an offense or assault on the male employee's pride might engender empathy in the mind of the ambivalent sexist. Therefore, the out-performing woman will also bear some of the onus of responsibility for the reaction of the harasser (*e.g.*, "Of course he was just reacting to a wounded ego, we can understand"). The challenges facing women in the workplace do not always apply equally to all women. Women of all races and ethnicities must grapple with hostile sexism, benevolent sexism, and ambivalent sexism. However, the levels of hostile sexism may increase significantly for women of color; the paternalistic, though hypocritical and temporary, protections central to benevolent sexism may never be afforded to Women of Color, and the stereotyped roles set by ambivalent sexism may be quite different for Women of Color.

While the neuroscientific studies regarding sexism towards Caucasian women are instructive, the studies regarding race are more precise, even in the context of employment discrimination cases. Scientists have studied the neurophysiologic reactions of finders of fact

[193] Kasumovic & Kuznekoff, *supra* note 149.

in employment discrimination cases.[194] They found that certain brain reactions predicted compensatory damage awards for African American women and men plaintiffs in mock race discrimination cases.[195] These reactions have been shown in the past to repeatedly correlate with race bias.[196]

Prior studies showed that people with higher levels of implicit or unconscious racial bias, as measured by computerized tests such as the Implicit Association Test,[197] had specific brain reactions, including activation of the amygdala, when viewing pictures of African American faces as opposed to Anglo-American faces.[198] This reaction links to increased feelings of fear, threat, anxiety, and distrust.[199] Additional studies have shown that the right inferior parietal lobule and the right superior/middle frontal gyrus also activate in those people with higher levels of implicit racial bias against African Americans.[200]

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[194] Harrison A. Korn, Micah A. Johnson & Marvin M. Chun, *Neurolaw: Differential brain activity for Black and White faces predicts damage awards in hypothetical employment discrimination cases*, 7(4) SOC. NEUROSCIENCE 398 (2012).
[195] *Id.* at 404.
[196] *Id.* at 406–07.
[197] A.G. Greenwald et al., *Understanding and Using the Implicit Association Test: III. Meta-Analysis of Predictive Validity*, 97 J. PERSONALITY & SOC. PSYCHOL. 17–41 (2009).
[198] Elizabeth A. Phelps et al., *Performance on Indirect Measures of Race Evaluation Predicts Amygdala Activity*, 12 J. COGNITIVE NEUROSCIENCE 729, 733 (2000).
[199] *Id.* at 733–34.
[200] Kristine M. Knutson, Linda Mah, Charlotte F. Manly, & Jordan Grafman, *Neural Correlates of Automatic Beliefs About Gender and Race*, 28(10) HUMAN BRAIN MAPPING 915, 925–927 (2007); Jennifer Richeson, Abigail Baird, Heather Gordon, Todd Heatherton, Carrie Wyland, Sophie Trawalter, & Sophie Shelton, *An fMRI Investigation of the Impact of Interracial Contact On Executive Function*, 6(12) NAT. NEUROSCIENCE 1323, 1324 (2003).

In the study, subjects were given an opportunity to serve as mock jurors.[201] Subjects were given five employment discrimination case vignettes with different fact patterns.[202] All of the mock cases involved race discrimination claims.[203] Two depicted African American women as the victims and three vignettes depicted African American men.[204] The mock jurors were asked to award compensatory damages to the plaintiff based on their assessment of the claims.[205] The subjects had the option of selecting an award of "zero" to indicate that they would find for the defendant in the case and, therefore, award nothing to the plaintiff.[206] Additionally, each subject was scanned using fMRI technology while they viewed pictures of at least thirty African American and Anglo-American men and women.[207] The mock jurors who showed more activation of the right inferior parietal lobule and the right superior/middle frontal gyrus when they viewed the pictures of an African American face awarded low or no damages to the African American plaintiffs.[208] The higher the level of neurophysiologic racial

[201] Korn, Johnson, & Chun, *supra* note 197, at 400.
[202] *Id.*
[203] *Id.*
[204] *Id.*
[205] *Id.*
[206] *Id.*
[207] *Id.* at 401.
[208] *Id.* at 402.

bias against African American women and men the lower the level of compensatory damages.[209]

The joined forces of the neurophysiological reactions related to sex bias and race bias may create an insurmountable barrier to justice for women of color in hostile workplace claims. Racial bias may be exacerbated hostile sexism.[210] The underperforming man who is affected by hostile sexism may find it even more disconcerting when he is "outperformed" by a Woman of Color. Often racial bias includes the notion that certain racial groups are inferior to others intellectually or morally. If a hostile sexist is also racially biased against African Americans, then his negative reaction to a woman of color may be far greater than his negative reaction to an Anglo-American woman. If a hostile sexist feels threatened and ashamed when an Anglo-American woman beats him, then he may feel even more ashamed and threatened when an African American woman, who he sees as inferior because of her race, outperforms him.

An additional brain reaction can exacerbate this underperforming phenomenon. Besides increasing amygdala, right inferior parietal lobule and the right superior/middle frontal gyrus

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[209] *Id.* at 404–05.

[210] Importantly, the racial bias may include implicit or unconscious racial bias. Implicit racial bias can be correlated to increased activation of the amygdala and anterior cingulate cortex as seen in fMRI studies. Jennifer T. Kubota, Mahzarin R. Banaji, & Elizabeth A. Phelps, *The Neuroscience of Race*, 15(7) NAT. NEUROSCIENCE 940, 941–43 (2012).

activation, racial bias also depletes resources needed for other critical brain functions.[211] Bias in effect diverts the very resources needed to think in an ordered and rational fashion to reason beyond one's bias.[212] This resource depletion has a direct effect on the impairment of the right dorsolateral prefrontal cortex (DLPFC).[213] The DLPFC is central to executive functioning, or the ability to plan, strategize, organize and apply appropriate principles to facts.[214] A functional magnetic resonance imaging study measured impairment of executive functioning in the dorsal lateral prefrontal cortex when Anglo-Americans interacted with African Americans.[215] In the study, some Caucasian participants interacted with an African American person and some with another Caucasian person.[216] Participants then performed a task that should have tapped their executive functioning.[217] The participants who interacted with the African American person before attempting the task performed poorly.[218] Their responses on the task were slower and less accurate.[219] Importantly, those participants who interacted with the African American person showed reduced activation of their DLPFC.[220]

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[211] Richeson et al., *supra* note 203, at 1324.
[212] *Id.*
[213] *Id.* at 1324–25.
[214] *Id.* at 1323.
[215] *Id.* at 1324.
[216] *Id.* at 1326.
[217] *Id.*
[218] *Id.* at 1325.
[219] *Id.*
[220] *Id.* at 1324–25.

If some men face this neurophysiologic reaction when working with African American women, then the behavior borne of hostile sexism may increase exponentially. The underperforming man who harbors hostile sexism may have a hostile reaction to any woman regardless of her ethnicity when she outperforms him. However, if there were an additional neurophysiologic reaction from a racial bias that impedes the performance of otherwise talented men, then the reaction of these men would mirror the reaction of the less talented men who underperform.

Ambivalent sexism may also manifest differently as the stereotypic "natural" roles of Caucasian women may be quite different from the stereotypes of "natural" roles for African American, Native American, Latina, Pacific Islander, Middle Eastern and Asian American women. African American and Latina women, in particular, may be affected by the intersectionality[221] of race and gender when the ambivalent sexist assesses their so-called "natural" roles. If an ambivalent sexist is also affected by racial bias or stereotypes they may assume that an African American woman's "natural" role may include

[221] *See generally* Kimberle Crenshaw, *Mapping the Margins: Intersectionality, Identity Politics, and Violence Against Women of Color*, 43 STAN. L. REV. 1241 (1991) (explaining how intersectional effects cause greater harm to Women of Color).

more tasks requiring more physical strength or aggressiveness than that of a similarly situated Anglo-American woman.[222]

The manifestation of benevolent sexism may also be affected by racial bias. Benevolent sexists may reject the abusive behavior of hostile sexists in the workplace for Caucasian women and thereby shape a cultural norm for unacceptable jokes, insults, and physical assault. However, this norm would only apply to those women who met the benevolent sexist's standard for virtue and femininity. Women of Color may not be provided the so called paternalistic protection afforded to some women in the form of benevolent sexism.[223] Benevolent sexists may set norms for treatment for Caucasian women, but not apply those norms to Women of Color, in particular Latina, African American, Native American and Middle Eastern women. Studies demonstrate that people with high levels of racial bias dehumanize people of color. [224] This dehumanization may remove the imprimatur of womanhood. Additionally, studies demonstrate that many people with a racial bias

[222] Phillip A. Goff, Margaret A. Thomas, & Matthew C. Jackson, *"Ain't I a woman?": Towards an intersectional approach to person perception and group-based harms*, 59 SEX ROLES 392, 393–95 (2008).

[223] *See generally* Nancy K. Lemon, *Access to Justice: Can Domestic Violence Courts Better Address the Need of Non-English Speaking Victims of Domestic Violence* 21 BERKELEY J. GENDER L. & JUST. 38, (2006) (showing that domestic violence courts fail to protect women of color, particularly those who do not speak English, in the same way they do Caucasian women).

[224] Goff et al., *supra* note 225, at 394–95.

against African Americans see African American women as more masculine than their Caucasian counterparts. [225]

Women of Color also bear the substantial burden of losing the support and protection of the second largest group in the American workplace after men, namely White women.[226] Some people may assume that Caucasian women and Women of Color would form a natural partnership in the workplace and there have been times when these two groups have worked together successfully towards their common causes.[227] However, when power dynamics become a factor

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[225] If African American women are not viewed as equally feminine in the traditional sense in comparison to their Anglo-American counterparts this may affect the assessment of benevolent sexists. It may also affect the unconscious assessment of the reasonable woman standard. If African American women are assumed to possess higher levels of physical strength and greater physical skills, then their assessment of threat from men in the workplace would necessarily be different. This would create a reasonable African American woman standard which would be based on nothing more than stereotypes of African American women and biased assumptions. Thus the conclusions will be inherently flawed. The strong association between African Americans and masculinity as well as Eurocentric beauty standards may further contribute to this phenomenon. *Id.* at 394–95.

[226] Caucasian women are paid substantially more on average than their African American and Latino counterparts. "Median wages for Black women in the United States are $36,227 per year, compared to median wages of $57,925 annually for white, non-Hispanic men. This amounts to a difference of $21,698 each year" *Black Women and the Wage Gap*, NAT'L PARTNERSHIP FOR WOMEN & FAMILIES (Apr. 2018), http://www.nationalpartnership.org/research-library/workplace-fairness/fair-pay/african-american-women-wage-gap.pdf. "Among women who hold full-time, year-round jobs in the United States, Black women are typically paid 63 cents and Latinas just 54 cents for every dollar paid to white, non-Hispanic men. White, non-Hispanic women are paid 79 cents and Asian women 87 cents for every dollar paid to white, non-Hispanic men, although some ethnic subgroups of Asian women fare much worse." *America's Women and the Wage Gap*, NAT'L PARTNERSHIP FOR WOMEN & FAMILIES (Apr. 2018), http://www.nationalpartnership.org/research-library/workplace-fairness/fair-pay/americas-women-and-the-wage-gap.pdf.

[227] *See generally* ANGELA Y. DAVIS, WOMEN, RACE, & CLASS (1981) (chronicling the historic support provided by Caucasian women in the United States for the rights of African American women as well as the subjugation of African American women by their would-be allies).

in the relationship, the reactions reveal an uneasy alliance between these two groups. Scientists studied the interactions between African American and Caucasian women in three different dyad configurations.[228] First, Caucasian women were assigned to work in pairs as partners with an African American woman.[229] Second, the Caucasian women were assigned to serve as the supervisor of the African American women.[230] Third, the Caucasian women were assigned to work as the subordinates of the African American women.[231] The African American women did not interact with the Caucasian women.[232] The African American women were presented to the Caucasian women in photographs, and the Caucasian women were told that they would interact online and cooperate to perform a computerized task.[233] The task the women performed was the Implicit Association Test designed to measure unconscious race bias.[234] The experiment was repeated over and over with different subjects.[235]

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[228] Jennifer A. Richeson & Nalini Ambady, *Effects of Situational Power on Automatic Racial Prejudice*, 39 J. EXPERIMENTAL SOC. PSYCHOL. 177, 179 (2003).
[229] *Id.* at 180–181.
[230] *Id.* at 179.
[231] *Id.*
[232] *Id.*
[233] *Id.*
[234] *Id.* at 180.
[235] *Id.* Some may argue that this phenomenon is simply part of a tradition of women sparring with other women in the workplace. Notably, workplace mythology often includes anecdotes about Anglo-American women supervisors discriminating against other Anglo-American women. These anecdotes include the idea that women are generally more punitive toward and less forgiving of other women in the workplace. However, that myth does not bear itself out in the workplace when both women are of the same race or ethnicity. Andrea Vial, Victoria Brescoll, Jamie Napier, John

Repeatedly, the scientists found that the Caucasian women who had been randomly assigned to serve in the superior power role as supervisor showed significantly higher levels of implicit racial bias against African Americans on the IAT in comparison to the women who played subordinate or co-equal power roles.[236]

Women who serve in supervisorial roles are perfectly positioned to monitor and penalize harassers in the workplace. If racial bias increases for Caucasian women when they serve in positions of power, this may decrease their motivation to exercise their power to assist harassed Women of Color. Thus, Women of Color may face exacerbated sexism from men and reduced support from Caucasian women supervisors in the workplace.

IV. PART II:
THE NEUROPHYSIOLOGIC REACTIONS OF THE JUDGE, JUROR, COWORKER AND EMPLOYER WHO ASSESS THE ACTS OF THE HARASSER AND THE INJURY TO THE VICTIM

While it is important to identify the neurophysiologic reactions of the harasser, harassing conduct does not occur in a vacuum. Unlike many forms of sexual assault, abuse, or *quid pro quo* sexual harassment, hostile work environment sexual harassment may have many witnesses. While the harasser acts, there are often onlookers and co-signers who

Dovidio, & Tom Tyler, *Differential support for female supervisors among men and women*, *103(2) JOURNAL OF APPLIED PSYCHOLOGY* 215, 221–22 (2018).

[236] Richeson & Ambady, *supra* note 231, at 181–82.

give tacit approval through laughter, shrugs, or silence. A complicit audience is necessary for severe harassment to become pervasive in the workplace. The neurophysiologic reactions of the audience to the harassment will determine whether or not social permission is given to the harasser to continue the abuse. Similarly, the finder of fact in a court of law must gauge the offensiveness of the acts. The factfinder's decisions send clear signals to the harasser and employer involved in the case, and to other harassers and employers outside of the courtroom, who seek to avoid liability and punishment. Indeed, both the audience and the finder of fact are arbiters of hostile environment claims, just at different stages. Therefore, the neuro-correlates of their decision-making must be explored.

To prove a claim of sexual harassment under the hostile work environment doctrine, the plaintiff must show that the alleged behavior was both pervasive and severe.[237] A cognizable claim must include proof that the environment was sufficiently hostile from both an objective and subjective perspective.[238] The Supreme Court in *Harris v. Forklift Systems, Inc.* set forth the factors that should be used to make an objective determination of a hostile work environment: "These may include the frequency of the discriminatory conduct; its severity;

[237] Harris v. Forklift Sys., Inc., 510 U.S. 17, 21 (1993).
[238] *Id.* at 21–22.

whether it is physically threatening or humiliating, or a mere offensive utterance; and whether it unreasonably interferes with an employee's work performance."[239]

An objectively hostile work environment is one "that a *reasonable person* would find hostile or abusive."[240] The Supreme Court, in *Oncale v. Sundower Offshore Services, Inc.*, stated that this "reasonable person" must be viewed "in the *plaintiff's position* [and] considering '*all* the circumstances.'"[241] The Court seems to expect the finder of fact to construct a reasonable person and view the facts of the case through his or her eyes.[242]

The Supreme Court's explicit statement that the acts must be viewed from the perspective of a person "in the plaintiff's position"[243] implicitly acknowledges that the distinct, limited, or subservient position held by the plaintiff may affect their objective assessment of the acts. Thus, the Supreme Court does not require the facts to be observed from one unwavering perspective of true objectivity.[244] To the contrary, the Supreme Court recognized that two people experiencing the same conduct could validly and "objectively" conclude that the conduct was

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[239] *Id.* at 23.
[240] *Id.* at 21 (emphasis added).
[241] Oncale v. Sundower Offshore Servs, Inc., 523 U.S. 75, 81 (1998) (citing *Harris*, 510 U.S. at 23) (emphasis added).
[242] *Oncale*, 523 U.S. at 81.
[243] *Id.*
[244] *Id.*

sufficiently or insufficiently pervasive and severe.[245] The definition of "position" varies considerably and is not always clearly stated by the courts.[246] Conceivably, the relevant positional differences could include: Person A's position in a secluded workplace where she feels more vulnerable versus Person B's position where she has the protection of a crowd; Person A's position where she holds a subordinate job title to the harasser's versus Person B's position where she supervises the harasser and could threaten the harasser with job loss to control his behavior; or even Person A's position as a woman versus Person B's position as a man.

The Court in *Oncale v. Sundower Offshore Services, Inc.*, implicitly required that the objective assessment of severity include the perspective of women in the workplace.[247] The Court required that the finder of fact's construction of the reasonable person include "careful consideration of the social context in which particular behavior occurs and is experienced by its target."[248] The specific position from which a woman may view the acts would be different from that of a man; therefore, using a reasonable man standard might discount the legitimate perspective and position of a woman.[249]

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[245] *Id*.
[246] *Id*.
[247] *Id*.
[248] *Id*. (emphasis added).
[249] *Id*.

While the Supreme Court did not explicitly state this, most circuit courts have done so.[250] For example, the Ninth Circuit in *Ellison v. Brady* pointed out the inherent bias in the "reasonable person" standard.[251] The court acknowledged that using the perspective of a reasonable victim or reasonable woman would reduce the bias for the finder of fact.[252] The court recognized that the perspectives of men and women are likely to be quite different when assessing behavior in the workplace.[253] If the barometer for the objectively reasonable perspective is set where a man might place it, then the genuine and equally valid objective view of a reasonable woman would be ignored.[254] The court provided a rationale for the differing views:

We realize that there is a broad range of viewpoints among women as a group, but we believe that many women share common concerns which men do not necessarily share. For example, because women are disproportionately victims of rape and sexual assault, women have a

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[250] Fuller v. Idaho Dep't of Corr., 865 F.3d 1154, 1162 (9th Cir. 2017); Clayton v. City of Alt. City, 538 Fed. Appx. 124, 128 (3d Cir. 2013); Gray v. Genlyte Group, Inc., 289 F.3d 128, 134 (1st Cir. 2002); Woods v. Delta Bev. Group, Inc., 274 F.3d 295, 301 (5th Cir. 2001); Davis v. United States Postal Serv., 142 F.3d 1334, 1341 (10th Cir. 1998); Torres v. Pisano, 116 F.3d 625, 632 (2nd Cir. 1997); Hixson v. Norfolk S. Ry. Co., 1996 U.S. App. LEXIS 15421 at *10 (6th Cir. 1996); Dey v. Colt const. & Dev. Co., 28 F.3d 1446, 1455 (7th Cir. 1994).
[251] Ellison v. Brady, 924 F.2d 872, 878 (9th Cir. 1991).
[252] *Id*. at 879. *See generally* Jerry Kang, Judge Mark Bennett, Devon Carbado, Pam Casey, Nilanjana Dasgupta, David Faigman, Rachel Godsil, Anthony G. Greenwald, Justin Levinson & Jennifer Mnookin, *Implicit Bias in the Courtroom*, 59 UCLA L. REV. 1124 (2012) (describing the ways implicit bias effects the path the course of litigation in the criminal defense and employment discrimination contexts).
[253] *Id*. at 880–81.
[254] *Id*. at 879.

stronger incentive to be concerned with sexual behavior. Women who are victims of mild forms of sexual harassment may understandably worry whether a harasser's conduct is merely a prelude to violent sexual assault. Men, who are rarely victims of sexual assault, may view sexual conduct in a vacuum without a full appreciation of the social setting or the underlying threat of violence that a woman may perceive.[255]

The court then set forth a panoply of ways that men and women may objectively view the same behavior as hostile or not, "[a] complete understanding of the victim's view requires, among other things, an analysis of the different perspectives of men and women. Conduct that many men consider unobjectionable may offend many women."[256] These distinctions are generally recognized by the Supreme Court in *Oncale* and specifically by the First, Second, Third, Fifth, Sixth, Seventh, Ninth and Tenth Circuits, correlate with the neuroscientific data.[257] The "social context" and prevailing social norms can dictate the

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[255] *Id*. at 879.

[256] *Id.* at 878 (citing Lipsett v. University of Puerto Rico, 864 F.2d 881, 898 (1st Cir.1988) ("A male supervisor might believe, for example, that it is legitimate for him to tell a female subordinate that she has a 'great figure' or 'nice legs.' The female subordinate, however, may find such comments offensive"); Yates v. Avco Corp., 819 F.2d 630, 637 n. 2 (6th Cir. 1987) ("men and women are vulnerable in different ways and offended by different behavior"); Kathryn Abrams, *Gender Discrimination and the Transformation of Workplace Norms,* 42 VAND. L. REV. 1183, 1203 (1989) (the characteristically male view depicts sexual harassment as comparatively harmless amusement); Nancy S. Ehrenreich, *Pluralist Myths and Powerless Men: The Ideology of Reasonableness in Sexual Harassment Law,* 99 YALE L.J. 1177, 1207–08 (1990) (men tend to view some forms of sexual harassment as "harmless social interactions to which only overly-sensitive women would object")).

[257] *See, e.g.*, Fuller v. Idaho Dep't of Corr., 865 F.3d 1154, 1162 (9th Cir. 2017); Clayton v. City of Atl. City, 538 Fed. Appx. 124, 128 (3d Cir. 2013); Gray v.

objective assessment of the severity and pervasiveness of the harassing acts.[258] Additionally, within this social context, the position of the plaintiff can dictate the objective assessment.[259]

Because the law sets forth a wide breadth of acts that may be sufficiently severe and pervasive, depending on the social context and position of the plaintiff, it may be difficult to analyze the neuro-correlates of the audience, judge and jury's assessments in every category. Thus, an in-depth analysis of one primary and frequently occurring category may be useful. Moreover, in light of the *Harris* Court's explicit statements of the inherent lack of precision in the rule[260] and the *Oncale* Court's admission that there is an inherent lack of precision in the analysis,[261] it would be helpful to evaluate a category of behavior that lends itself to ambiguity and subtleties. In this way, the evaluation may add much-needed clarity and precision to the discourse. Additionally, it would be helpful to select an area that is significantly impacted by the social context and social norms. The category of jokes seems ripe for exploration.

Genlyte Group, Inc., 289 F.3d 128, 134 (1st Cir. 2002); Woods v. Delta Beverage Group, Inc., 274 F.3d 295, 301 (5th Cir. 2001); Davis v. United States Postal Serv., 142 F.3d 1334, 1341 (10th Cir. 1998); Torres v. Pisano, 116 F.3d 625, 632 (2nd Cir. 1997); Hixson v. Norfolk S. Ry. Co., 1996 U.S. App. LEXIS 15421 at *10 (6th Cir. 1996); Dey v. Colt Constr. & Dev. Co., 28 F.3d 1446, 1455 (7th Cir. 1994).

[258] Oncale v. Sundower Offshore Servs, Inc., 523 U.S. 75, 81 (1998).

[259] *Id*.

[260] Harris v. Forklift Systems, Inc., 510 U.S. 17, 23 (1993).

[261] *Oncale*, 523 U.S. at 81.

The neuroscience of humor involves a series of steps and reactions in the context of the prevailing social norms and the individual position of the listener.[262] Comedians might say that there are three steps to a joke: the set-up, the punch line, and the laugh.[263] Neuroscientists would also say that there are three steps the brain must take to understand and respond to a joke: Identifying the incongruence between the set-up and the punchline; resolving the incongruence, and cathartic mirth or laughter.[264] The following joke quoted on the internet (with no known author) may be instructive:

"Q: Is Google male or female?

A: Female, because it doesn't let you finish a sentence before making a suggestion."

Initially, the speaker delivers the set-up. This establishes an initial schema or organized model for a set of acts or circumstances.[265] Next, the punchline is delivered. The punchline creates another schema that is incongruent with the set-up schema.[266] The contradiction between the two schemas creates "bisociation".[267] The brain takes this information and acts on it in three primary steps. First, the listener must detect the

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[262] Fang Tian et al., *Getting the Joke: Insight During Humor Comprehension – Evidence from an fMRI Study*, 8 FRONTIERS PSYCHOL. 1835, 1836 (2017).
[263] *Id*.
[264] *Id*. at 1835.
[265] *Id.*
[266] *Id*.
[267] ROD A. MARTIN, THE PSYCHOLOGY OF HUMOR 7 (2007).

incongruence.[268] This involves the "superior frontal gyrus (SFG), the inferior frontal gyrus (IFG), the superior temporal gyrus (STG), the temporoparietal junctions (TPJ), the hippocampus and visual areas" with the middle temporal gyrus (MTG) serving as a key region.[269] Second, the listener must resolve the incongruence.[270] This involves the frontal and temporal gryri, with the left superior frontal gyrus (SFG) serving as a key region.[271] Third, the listener must engage in humor elaboration, and experience an "insight moment" and mirth with a cathartic release of tension or laughter.[272]

These steps are apparent in the template joke. "Q: Is Google male or female?" serves as the set-up. The schema focuses on Google as a search engine, where the user types in a topic or a question and allows the search engine to find related information or answers. As the first letters of a word or question are typed Google uses these letters as hints of what the entire words or question will be. Google automatically generates multiple suggestions, foreclosing the need for the typist to complete the keyboarding process him or herself. The punchline, "A: Female, because it doesn't let you finish a sentence before making a suggestion" presents an incongruent schema, the stereotype of a pushy

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[268] Tian et al., *supra* note 265, at 1835.
[269] *Id.*
[270] *Id*. at 1836.
[271] *Id*. at 1841.
[272] *Id*.

woman who gives unsolicited suggestions. The incongruence is detected and then, a moment later, resolved. However, the joke is not funny yet. The listener must weigh one more factor—Am I offended?

The incongruence between two schemas in a joke often violates some social norm or moral code.[273] The joke teller must perform a delicate balancing act between violating the social norm enough to be surprising but not enough to be outright offensive.[274] If the violation is too slight, the listener could become bored. If the violation is too great, the joke can illicit disgust.[275] A benign violation with sufficiently incongruent, but resolvable, schemas will create a funny joke.[276] If the listener concludes that this moral violation does not go too far, then the humor will override a minor disgust reaction and laughter may ensue.[277] The listener judges the norm or moral violation based on: whether they have seen prior examples of the specific type of norm violations where the violation was deemed acceptable by others (an alternative norm); the strength of their commitment to the particular moral topic; and the "psychological distance" they can create between their own experiences and interests and the subject of the violation.[278]

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[273] A. Peter McGraw & Caleb Warren, *Benign Violations: Making Immoral Behavior Funny*, 21 PSYCHOL. SCI. 1141, 1142 (2010).
[274] *Id*.
[275] *Id*. at 1145.
[276] *Id*. at 1148.
[277] *Id*. at 1145.
[278] *Id*. at 1141.

In the Google joke, the moral code is violated by the stereotype of women as pushy and providing unsolicited suggestions. This violation may be seen as slight in part because individuals may attribute these same stereotypes to men in a derogatory way. Men are stereotypically portrayed as overly-aggressive interrupters who provide unsolicited solutions instead of empathetic listening. Thus, the moral code violation is minimal because individuals may level the insults in the joke at stereotypes for men and women. However, if the punchline was about rape or domestic violence, genital mutilation, or menstruation the insult could be viewed as one-sided and a more significant violation.

If the violation hits too close to home, the joke will offend instead of entertain. As the *Ellison* court pointed out, women are disproportionately victims of sexual assault.[279] As a result, their position or psychological distance between their own experience and the subject of the violation may be different from that of a man. This would hold true for a woman who was assaulted, as well as for a woman who must constantly live in fear of future assault because she remains aware that she is vulnerable to attack. Therefore, a joke about rape would test the strength of the woman's commitment to the particular moral topic, and there might be an insufficient psychological distance between the

[279] Ellison v. Brady, 924 F.2d 872, 879 (9th Cir. 1990).

woman's "experiences and interests and the subject of the violation."[280] This required distance can be seen outside of the gender context as well. Public tragedies are often fodder for comedians. Immediately after the tragedy occurs jokes about the tragedies are often considered inappropriate. However, after time has passed the offense of the joke is reduced as more temporal distance is placed between the event and the joke.[281] Additionally, there are some tragedies so severe that a joke will elicit a disgust response for long periods of time.[282] A joke about 9/11 will still be seen as unacceptable by many people; a joke about Pearl Harbor may find more acceptance, and a joke about the Battle of Bunker Hill would more likely elicit acceptance and laughter.

The listener sets the tipping point to determine if the violation of the social norm or moral code is so egregious as to render the joke untenably disgusting and offensive.[283] The tipping point may be set differently by men and women.[284] Additionally, the level and type of sexism mediates the tipping point for the level of disgust or offense.[285] People with high levels of hostile sexism weigh the violations of social norms and moral codes differently when telling and when judging a

[280] McGraw & Warren, *supra* note 276, at 1147.
[281] *Id.* at 1146.
[282] *Id*. at 1141–42.
[283] *Id*. at 1147.
[284] Dara Greenwood & Linda M. Isbell, *Ambivalent Sexism and the Dumb Blond: Men's and Women's Reactions to Sexist Jokes*, 26 PSYCHOL. WOMEN Q. 341, 342 (2002).
[285] *Id*.

joke.[286] They are less offended or disgusted by jokes that disparage women and, therefore, find these jokes more humorous.[287]

The neurophysiologic dehumanization effect discussed previously, also impacts moral decision-making.[288] When the brain fails to encode a group as fully human, it becomes morally acceptable to sacrifice them, their well-being, or simply their right to work in a safe and fair environment.[289] The dehumanization effect may be strong and comprehensive for hostile sexists.[290] The trolley dilemma is often used by scientists to test moral decision-making.[291] The trolley dilemma has many iterations, but the Footbridge[292] version has become increasingly popular in neuroscientific studies. The Footbridge example presents the following scenario and choice:

An empty runaway streetcar speeds down the tracks toward five people. Joe, from an overpass, sees this accident unfolding. If Joe chooses, he can shove a bystander off the overpass to block the streetcar,

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[286] *Id*. at 348.
[287] *Id*; Caroline A. Thomas & Victoria M. Esses, *Individual Differences in Reactions to Sexist Humor*, 7 GROUP PROCESSES & INTERGROUP RELATIONS 89, 89.
[288] Cikara et al., *supra* note 13, at 550.
[289] *Id*. at 540.
[290] *Id*. at 550.
[291] Mina Cikara et al., *On the Wrong Side of the Trolley Track: Neural Correlates of Relative Social Valuation*, 5 SOC. COGNITIVE & AFFECTIVE NEUROSCIENCE 404, 405–06 (2010).
[292] *See id*. (citing Philippa Foot, *The Problem of Abortion and the Doctrine of the Double Effect*, 5 OXFORD REV. 4 (1978)).

saving the five people. How morally acceptable is it for Joe to push the bystander off the overpass?[293]

When people decide to take affirmative steps to sacrifice a single person in order to save many, they activate "a neural network associated with resolving complex tradeoffs, the medial PFC (BA 9, extending caudally to include ACC), left lateral OFC (BA 47) and left dorsolateral PFC (BA 10)".[294] This neural network activated in the experiment when people decided to sacrifice someone from a stigmatized group that they failed to encode as fully human (*e.g.*, homeless people and IV drug users).[295] Conversely, these neural networks did not activate when subjects considered sacrificing middle-class White men, and as a result, they opted to save the middle-class White men, even at the expense of the other four lives.[296] People who do not have high levels of hostile sexism may serve as arbiters of the hostile work environment, as onlookers or as jurists. They must engage in moral decision-making. If they engage in even minimal dehumanization of the victim, their moral decision-making could be encumbered. They would be more likely to sacrifice the rights of the victim to protect and preserve the interests of the harasser.

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[293] *Id.* at 405.
[294] *Id.* at 410.
[295] *Id.* at 410–11.
[296] *Id.* at 411–12.

To construct the reasonable person/victim/woman the finder of fact must determine how injured the reasonable plaintiff should be. The finder of fact must determine how much pain the plaintiff should have reasonably suffered as the result of the harasser's words or deeds. When we empathize with another person's pain it allows us to assess how reasonably threatened, offended, insulted or demeaned they feel in response to harassing acts. If we cannot empathize with another person's pain, then no matter how objectively reasonable their assessment of the hostile environment may be, we will be unable to see it. Humans can feel empathy for another person's physical or psychological pain. The brain can show these empathy reactions. The neuro-correlates of physical pain empathy best dramatize the phenomenon.

In a series of studies Black and White subjects viewed videos of needles penetrating different sets of hands.[297] The video depicted three hands, the hand of a White person, the hand of a Black person and a violet hand.[298] Implicit race bias levels predicted how much pain empathy people felt for individuals of their own race versus individuals of other races.[299] Neurophysiologic dehumanization reactions are

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[297] Ruben Azevedo, Emiliano Macaluso, Alessio Avenanti, Valerio Santangelo, Valentina Cazzato, & Salvatore Aglioti, *Their Pain is Not Our Pain: Brain and Autonomic Correlates of Empathic Resonance with the Pain of Same and Different Race Individuals*, 34(12) HUMAN BRAIN MAPPING 3168, 3170 (2012).
[298] *Id.*
[299] *Id.* at 3175–76.

linked with these bias levels.[300] Individuals who displayed higher levels of implicit bias against Black people showed lower levels of pain empathy as they watched the needle penetrate the skin of the person of African descent.[301] The anterior insula is most likely the "brain region that better reflects the subjective feeling state associated with the vicarious experience of pain."[302] The scientists found that "[g]reater implicit racial bias predicted increased activity within the left anterior insula during the observation of own-race pain relative to other-race pain."[303] The studies also showed that subjects with bias against people of African descent had greater levels of pupil dilation when they saw the White hand get poked.[304]

Reduced pain empathy may limit the arbiter's ability to conclude that the pain felt by the sexual harassment victim is valid and reasonable.

V. PART III:
THE EPIGENETIC EFFECTS OF THE HOSTILE WORK ENVIRONMENT ON THE HARASSED EMPLOYEE

Understanding the neurophysiologic reactions of the harasser is critical to understanding why harassment occurs. Understanding the neurophysiologic reactions of the employers, coworkers, and judges is

[300] *Id.* at 3177–78.
[301] *Id.* at 3178.
[302] *Id.* These differential levels of pain empathy were found in both the United States and Italy.
[303] *Id.* at 1368.
[304] *Id.* at 3177–78.

critical to understanding why harassment persists. Understanding the neurophysiologic reactions of the victim is critical to understanding why harassment harms.

The *Harris*[305] Court required that in hostile work environment claims the harassing acts must be both objectively and *subjectively* perceived to be hostile or abusive.[306] Unlike the objective assessment, the subjective assessment does not require the finder of fact to construct a fictitious reasonable person.[307] Rather, the plaintiff must prove that they *actually* believed the acts were hostile and abusive.[308] The level of this subjective perception relates to the actual injury incurred.[309] The injury, in turn, affects the calculation of compensatory and punitive damages.[310]

The assessment of subjective perception and damages is often based on the psychological distress (*e.g.*, anxiety and depression), lost wages, or even visible and immediate health effects (*e.g.*, headaches, exacerbated stomach ulcers, etc.).[311] However, the psychological harm can be connected to more far-reaching, long-term, physiological, intergenerational and devastating health effects. The courts have

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[305] Harris v. Forklift Systems, Inc., 510 U.S. 17, 21–22 (1993).
[306] *Id.* at 21–22.
[307] *See id.* at 22.
[308] *Id.*
[309] *See id.*
[310] *See id.* at 24 (Scalia, J., concurring)
[311] *Id.* at 23 (noting that a determination regarding hostility looks to "all the circumstances").

consistently failed to connect the psychological harm to these health effects in part because they have failed to understand the depth of injury that sexual harassment can cause. Additionally, the courts have not attempted to quantify or recognize the transgenerational effects of a hostile work environment on the children of women subjected to harassment. All of these injuries are rooted in epigenetic changes[312].

The term epigenetic is deceptive. Epigenetic changes are not changes to the underlying genetic sequence of the DNA.[313] Blue eyes don't turn brown as a part of epigenetic alterations. The Greek derivation gives us insight into the true meaning of epigenetics. The Greek word "epi" means on or on top of, and "genetics" means relating to genes.[314] Thus, epigenetics refers to changes on top of or outside but related to, genes.[315] Epigenetic changes are alterations in gene *expression*.[316] During a lifetime genes can express themselves in many ways.[317] While the underlying make-up of the gene does not change, the gene expression can be altered, silenced or activated.[318] Epigenetics

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[312] Epigenetics is "the study of molecular processes occurring on and around the genome that regulate gene activity without changing the underlying DNA sequence." Daniel E. Adkins, Kelli M. Rasmussen & Anna R. Docherty, *Social Epigenetics of Human Behavior in* OXFORD HANDBOOK OF EVOLUTION, BIOLOGY & SOC'Y 379, 380 (Rosemary L. Hopcroft ed., 2018).
[313] *See id.*
[314] Epi, DICTIONARY.COM, http://www.dictionary.com/browse/epi- (last visited April 24, 2018).
[315] Adkins et. al., supra note 315, at 380.
[316] *Id.*
[317] *See id.*
[318] *Id.* at 380–81.

focuses on how regulatory proteins and other agents may be modified to activate or silence particular genes to alter how those genes express themselves.[319]

Psychological injury leads to neurophysiologic reactions[320] which in turn create epigenetic effects.[321] The key epigenetic changes include cortisol level reduction; telomere length reduction; glucocorticoid level increase; and DNA methylation.[322] Unlike immediately detectable headaches, sleeplessness, or exacerbated stomach ulcers that the courts focus on in these claims, the environmental exposure to biased events can profoundly change the function of genes long after the resolution of the triggering event.[323] Moreover, epigenetic changes and the damage they cause "can be transmitted across generations."[324] These effects include changes in

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[319] *Id.* at 385.
[320] *Id.* at 10 (stating that "targeted research on brain-derived neurotrophic factor (*BDNF*) has also been informative").
[321] *Id.*
[322] Dan A. Notterman & Colter Mitchell, *Epigenetics & Understanding The Impact of Social Determinants of Health*, 62 PEDIATRIC CLINICS N. AM. 1227, 1228 (noting that "[H]ealth across the life span is strongly linked to [and adversely affected by] social disadvantage"). *See also* Adkins et. al., *supra* note 315 at 380.
[323] Adkins et. al., *supra* note 315, at 379 (noting that "It is well established that extreme social adversity can lead to negative health outcomes decades after the resolution of the precipitating environmental insult").
[324] *Id.* The idea of intergenerational trauma not first discussed in the context of epigenetics. Instead it was first discussed in the context of the extraordinary brutality and oppression suffered by Native Americans. Maria Yellow Horse Brave Heart & Lemyra M. DeBruyn, *The American Holocaust: Historical Unresolved Grief Among Native American Indians*, 8(2) AM. INDIAN AND ALASKA NATIVE MENTAL HEALTH RES. J. 56 (1998); Maria Yellow Horse Brave Heart, *Gender Differences in the Historical Trauma Response Among the Lakota*, 10(4) J. HEALTH & SOC. POL. 1 (1999).

disease rates for diabetes, stroke, heart disease, hypertension, low birth rate, higher susceptibility to post traumatic stress disorder, and clinical depression. [325]

A key chain-reaction, the release of cortisol, dramatically links psychological trauma to neurophysiologic effects to epigenetic or gene expression changes. Reduced cortisol levels can create devastating effects including increasing vulnerability to post-traumatic stress disorder.[326] In perhaps the most-discussed, modern-day example, researchers studied women who were pregnant and in New York City on the day of the September Eleventh Attacks on the World Trade Center.[327] Researchers found that the women who suffered from PTSD after the attack had epigenetic changes. The changes resulted in reduced cortisol levels.[328] Surprisingly, researchers found that the babies born to these mothers also had lower levels of cortisol.[329] Thus, one

[325] *Id.* (explaining that *"*Genome-wide patterns of DNA methylation and chromatin structure are not static throughout life but, rather, undergo specific, coordinated changes across developmental stages").
[326] *See* Rachel Yehuda et al., *Transgenerational Effects of Posttraumatic Stress Disorder in Babies of Mothers Exposed to the World Trade Center Attacks during Pregnancy*, 90 J. CLINICAL ENDOCRINOLOGY & METABOLISM 4115–4118 (2005).
[327] *Id.*
[328] *Id.*
[329] *Id.* at 4117. The intersection of race and gender bias also effects pregnancy and preterm births. *See* Mini Myers Card, *Racial Stress on Pregnant African-American Women: The Impact of Racial Stress on Pregnant African-American Women and the Effects on Them and Their Babies*, 19 J. HEART-CENTERED THERAPIES 63, 63 (2016) ("[T]he stress of racism has contributed to negative impacts on African-American females during their preconception period and also during pregnancy. Pregnancy in itself presents many stressors for women in general, no matter what race they are. This paper proclaims that the additional stress factor of racism is the catalyst that increases preterm birth risk in African-American women. This racial stress factor has been passed down from generation to generation."); Richard J. David & James

generation passes the physiologic effects of the traumatic event to the next.[330]

Additionally, the babies born to mothers who were directly exposed to the September Eleventh Attacks weighed less than the babies of non-exposed mothers at the same gestational age and born during the same period.[331] This links directly to several prior studies showing that pregnant women's stress levels led to the production of "glucocorticoids."[332] Prior studies found that exposure in-utero to higher levels of glucocorticoids led to higher levels of disease when the exposed babies became adults.[333] These adults showed higher incidents

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W. Collier, Jr., *Differing Birth Weight among Infants of U.S.-Born Blacks, African-Born Blacks, and U.S.-Born Whites*, 337 NEW ENGLAND J. MED. 1209, 1213 (1997) (asserting that the disparities in weight between U.S.-born white babies and U.S.-born black babies are not due to socioeconomic or genetic differences but rather racial differences). *See also* Carmen Giurgescu et al., *Stressors, Resources, and Stress Responses in Pregnant African American Women: A Mixed-Methods Pilot Study*, 27 J. PERINATAL & NEONATAL NURSING 81, 82 (2013) ("Chronic stressors may also lead to dysregulation of cortisol levels and higher levels of proinflammatory cytokines (eg, interleukin [IL]-6). During chronic stress, cortisol is less effective at suppressing inflammation. These physiological stress responses may change the structure and function of collagen tissue, which the cervix comprises. Collagen remodeling of the cervix involves local inflammation and makes it possible for the cervix to dilate.").

[330] Daniel E. Adkins et al., *supra* note 315, at 381 ("Another feature of epigenetic modifications is that they are typically preserved during mitotic cell division during the lifespan of the organism. And although epigenetic modifications do not generally persist across generations of organisms, if they occur in a germline cell (e.g., sperm or egg) that becomes fertilized, these changes can be transferred to the next generation through a process referred to as transgenerational epigenetic inheritance.").

[331] Yehuda, *supra* note 329, at 4117.

[332] *Id.*

[333] *Id.*

of "hypertension, insulin resistance, and hyperlipidemia . . . [and] depression" in adulthood.[334]

This phenomenon is not found only in women who have suffered single macro-traumatic events on the level of the September Eleventh Attacks. A series of micro-events, called micro-aggressions, can create the same effect.[335] These micro-aggressions can focus on gender, and manifest in a sexual harassment claim.[336]

Jokes, comments, posting of pictures, slight touches, and long stares have been the basis for successful hostile work environment claims. Both verbal and non-verbal actions have repeatedly found to be sufficient for a claim of hostile work environment sexual harassment including:

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[334] *Id.* ("[H]ypothalamic-pituitary-adrenal activity appears to be programed by early life influences . . . Maternal exposure to glucocorticoids during pregnancy can result in lower birth weight and higher glucocorticoid levels in offspring, leading to adult disease (*e.g.* hypertension, insulin resistance, and hyperlipidemia) . . . and depression.").

[335] Dr. Derald Wing Sue famously coined the term racial micro-aggressions and demonstrated how constant micro-insults, micro-assaults and micro-inequities can create an untenable environment. Kevin L. Nadal et al., *The Manifestation of Gender Microaggressions*, *in* MICROAGGRESSIONS AND MARGINALITY: MANIFESTATIONS, DYNAMICS, AND IMPACT 193–216 (Derald W. Sue ed., 2010).

[336] Rachel E. Gartner & Paul R. Sterzing, *Gender Microaggressions as a Gateway to Sexual Harassment and Sexual Assault: Expanding the Conceptualization of Youth Sexual Violence*, 31 J. WOMEN & SOC. WORK 491–503 (2016); *See also* Kevin L. Nadal et al., *The Manifestation of Gender Microaggressions*, *in* MICROAGGRESSIONS AND MARGINALITY: MANIFESTATIONS, DYNAMICS, AND IMPACT 193–94 (Derald W. Sue ed., 2010); Derald Wing Sue et al., *Racial Microagressions in Everyday Life: Implications for Clinical Practice*, 62 AM. PSYCH. 271-296 (2007).

Unwelcomed touching (*e.g.*, brushing or rubbing up against plaintiff's body);[337] propositions for sex;[338] leering at plaintiff's breasts;[339] repeated or daily use of obscene language to refer to women such as "bitch" and "whore;"[340] regular viewing of hard-core pornography on workplace computer;[341] inappropriate "jokes, innuendos, profanity, and foolishness;"[342] and inappropriate messages of a sexual nature regarding plaintiff and her husband.[343] These types of acts have been often defined as micro-aggressions.[344] The physiological effects of these long, repeated, biased events have been studied in-depth.[345]

Long-term or chronic stress from bias events like micro-aggressions leads to accelerated degradation of telomeres (the tips of the "X" shaped chromosomes).[346] Telomere length is directly connected to aging and inflammation in the body.[347] Younger people have longer telomeres.[348] As people age the ends of their telomeres (*i.e.*, the four

[337] Faragher v. City of Boca Raton, 524 U.S. 775, 782 (1998).
[338] McKinzy v. Nat'l R.R. Passenger Corp., 836 F. Supp. 2d 1014, 1024 (N.D. Cal. 2011).
[339] Billings v. Town of Grafton, 515 F.3d 39, 50 (1st Cir. 2008).
[340] Reeves v. C.H. Robinson Worldwide, Inc., 594 F.3d 798, 803 (11th Cir. 2010).
[341] Patane v. Clark, 508 F.3d 106, 114 (2d Cir. 2007).
[342] Hargrave v. Cty. of Atl., 262 F. Supp. 2d 393, 404 (D.N.J. 2003).
[343] Graves v. Dayton Gastroenterology, Inc., No. 3:14cv00067, 2014 U.S. Dist. LEXIS 114358, at *4 (S.D. Ohio Aug. 18, 2014).
[344] *Racial Microaggressions in Everyday Life*, *supra* note 336.
[345] *Id.*
[346] Notterman & Mitchell, *supra* note 325, at 1227.
[347] *Id.*
[348] *Id.* at 1236.

tips of the X chromosomes) degrade.[349] Telomeres control inflammation in the body and can determine how easily a person will heal after an injury or during the course of a disease.[350] As the telomeres reduce in length the inflammation in the body increases.[351] This explains why a 15-year-old sprains their ankle and is healed in a day or two, a 35-year-old suffers the same injury and limps for two weeks, while a 65-year-old suffers the same injury and complains of pain and swelling in the ankle for years thereafter.[352] Stress, including social stress, accelerates this effect so that the inflammation in the stressed individual increases.[353] Social adversity and societal disadvantage can lead to this telomere damage.[354]

Scientist have isolated sexism as a "pervasive inequalit[y]" and a "stressor" that leads to numerous negative health outcomes, including cardiovascular disease.[355] Strangely, cardiovascular heart disease rates for females exceed those of males in the United States.[356]

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[349] *Id.* at 1237.
[350] *Id.*
[351] *Id.*
[352] *See id.*
[353] *Id.*
[354] *Id.*
[355] Lisa Molix, *Sex Differences in Cardiovascular Health: Does Sexism Influence Women's Health?*, 348(2) AM. J. MED. SCI. 153-55 (2014).
[356] *Women & Cardiovascular Diseases*, AM. HEART ASS'N, https://www.heart.org/idc/groups/heartpublic/@wcm/@sop/@smd/documents/downloadable/ucm_319576.pdf (last visited Apr. 9, 2018) "In 2009, 34,094 females died from HBP. They represented 55.2% of deaths from HBP. The 2009 overall death rate from HBP was 18.5. Death rates were 14.4 for white females and 38.3 for black females." *Id.*

Notably, these epigenetic changes may reveal the fallacy of the eggshell plaintiff doctrine. If the harassment itself creates epigenetic changes that make plaintiff's more vulnerable to physiologic and psychological illness, then the harassment (not the plaintiff) was the cause of the vulnerability and ensuing injury. The harassment erodes the victim's physiologic defenses leaving only a thin shell of protection. The subjective assessment of the abuse in hostile work environment claims links to these epigenetic changes. If courts focused on these changes, then the assessment of the subjective perception would be more precise. Courts could see the changes on a micro-level.

Additionally, if the epigenetic and resulting disease rates were included in the analysis of, and education about, these claims, then employers, on-looking coworkers, and harassment victims would have a better understanding of the physiologic significance of the harassing events. Perhaps employers would intervene earlier, onlookers would remove tacit assent, and victims would be better able to protect themselves.

VI. CONCLUSION

For years, the courts have formulated and analyzed the elements of hostile work environment claims with an imprecise and fluctuating methodology. Courts have used the fact that each case is different to engage in differential analysis. The ever-changing application of the

standard has simply been accepted as inevitable, unavoidable and irreplaceable. Hard science adds precision and deepens understanding of the cause and effect in hostile work environment claims. Applying the neuroscientific and epigenetic data can lead to a more precise analysis of the claim and determination of the solution.