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Nature on trial in California's legal battle for same-sex marriage

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ABSTRACT
Popular and political discussions of sex differences often appeal to biology in misleading ways. The briefs filed in the trials leading up to and including the recent U.S. Supreme Court ruling on *Hollingsworth* v. *Perry* (the case dealing with an anti-same-sex marriage law in California, known widely as Proposition 8) perseverate on biological bases of sex differences to argue that the state should restrict marriage to opposite-sex couples. The arguments in these briefs depict sex-linked traits as static, opposing entities, ignoring the contexts in which such traits develop, committing what I refer to as contextual whitewashing. In doing so, the proponents of Proposition 8 reveal their logic to be not only out of touch with the biology that they misappropriate, but also inconsistent, as their depictions of the relationships between culture and biology as well as environments and trait development are contradictory. As such, the briefs filed on behalf of the proponents of California's Proposition 8 provide a clear case study in science being misused to ideological ends. This essay highlights new modes of critiquing deterministic narratives of sex differences by emphasizing the importance of understanding the relationships between social environments and the development of sex-linked traits.

KEYWORDS
California Proposition 8, U.S. Supreme Court, same-sex marriage, sex differences.

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INTRODUCTION

When ideologues look to bolster their positions with the veneer of scientific legitimacy, one of the first places they often turn is biology. When it comes to discussions of differences between men and women, pseudoscientific portrayals of the sources of sex differences are not only commonplace in private conversations and popular media, but also in our political and legal systems. The same-sex marriage debates throughout the United States have been hotbeds for such discourse. In the legal briefs and decisions in the cases leading up to and including the high profile Supreme Court case ruling on California's controversial Proposition 8 in the 2013 Court season (*Hollingsworth* v. *Perry*), many arguments relied on claims of biological differences between men and women.

California voters approved Proposition 8 in November 2008, which re-defined state recognized marriage as a union between a man and a woman. This sparked a series of legal challenges to Proposition 8 filed by same-sex couples in California and subsequent appeals filed by opponents of same-sex marriage, eventually leading to the U.S. Supreme Court in June of 2013. Ultimately, the U.S. Supreme Court ruled that the proponents arguing on behalf of Proposition 8 did not have standing (i.e., that these non-state parties did not have the legal grounds to appeal previous rulings), which effectively upheld a district court's ruling that Proposition 8 is unconstitutional and reinstated same-sex marriage in the state of California.

Many of the legal arguments for the case centered around the interpretation of the Equal Protection Clause of the 14th Amendment of the U.S. Constitution, which asserts that no state can "deny to any person within its jurisdiction the equal protection of the laws" (U.S. Constitution, Amendment XIV). To determine whether or not a particular law violates this clause, courts must pass the legislation in question through a judicial review process, the stringency of which varies depending on the group or interest at issue (which will become important later). At the heart of this review process is determining the legislative interest behind the law and whether there is a legitimate relationship between the interest and the way the law fulfills it. The briefs filed by or on behalf of the proponents of Proposition 8 thus had to demonstrate the government's interest in limiting marriage to opposite-sex couples to encourage procreation and child rearing in an environment that preserves the benefits resulting from the complementarity of mothers and fathers.

Such was the playing field for parties interested in defending Proposition 8, and the arguments made by proponents of Proposition 8 provide a clear case study of biology being used to support ideology. Throughout the briefs, the proponents depict sex differences in deterministic ways to argue for the importance of opposite-sex marriage to child rearing; however, in doing so they obscure the biological reality that the environments in which sex differences develop play large roles in the formation of those differences. By failing to mention the ways that social environments influence differences between the sexes, the proponents of

Proposition 8 commit what I will refer to as contextual whitewashing. The internal contradictions in the ways that the proponents portray the relationship between biology and human behavior demonstrate that their arguments are fundamentally informed by ideology and misinformed about science.

Although relying on biology to argue for or against legal rights is problematic, as science cannot inform discussions that are ultimately about morality, what biologists *have* revealed is the fundamental importance of organisms' environments. Thinking of trait differences within the context of environmental variation challenges us to ask different questions about the nature of sex differences and their value in society. Instead of taking sex differences for granted, we can ask "how do these differences come about?" and "how do environmental factors increase or decrease the size of these differences?". Political and ethical decisions about whether such differences are worth preserving or eliminating should not be based on a misconception of the deep-rootedness of a trait, but rather on an understanding of how sex differences vary across cultures and generations.

OPTIMAL PARENTING, SEX DIFFERENCES, AND THE LEGITIMATE STATE INTEREST IN MARRIAGE

Complementarity of the sexes, procreation and beyond

The principal concern for the proponents of Proposition 8 was making a case that the state has an interest in upholding a definition of marriage that excludes same-sex unions. Accordingly, many of the briefs filed in support of the proponents outline deterministic sex differences and the consequent complementarity of the sexes as entities the state has a legitimate interest in preserving *vis-à-vis* their role in child rearing (e.g.,"Amici curiae brief of Robert P. George, Sherif Girgis, and Ryan T. Anderson in support of Hollingsworth and Bipartisan Legal Advisory Group addressing the merits and supporting reversal"; "Amicus brief of the state of Michigan in support of petitioners", "Amicus curiae brief of Coalition for the Protection of Marriage in support of Hollingsworth and Bipartisan Legal Advisory Group addressing the merits and supporting reversal"; "Brief addressing the merits of the states of Indiana, Virginia, Alabama, Alaska, Arizona, Colorado, Georgia, Idaho, Kansas, Montana, Nebraska, North Dakota, Oklahoma, South Carolina, South Dakota, Texas, Utah, West Virginia and Wisconsin as amici curiae"; "Brief amicus curiae of United States Conference of Catholic Bishops in support of petitioners and supporting reversal"; "Brief of amici curiae High Impact Leadership Coalition, the Center for Urban Renewal and Education, and the Frederick Douglass Foundation, Inc., supporting the defendants and the defendant-intervenors-appelants in favor of reversal"). Incidentally, proponents argue that although same-sex marriage would not challenge the complementarity of opposite-sex marriages, changing the definition of marriage would ultimately result in a lowered rate of opposite-sex marriages centered on procreation and parenting (see "The culture/biology paradox and responsible procreation" below).

In most instances, the authors of these briefs discuss the importance of complementarity in ways that appeal to a tacit understanding of sex differences. One brief ("Amici curiae brief of Robert P. George, Sherif Girgis, and Ryan T. Anderson in support of Hollingsworth and Bipartisan Legal Advisory Group

addressing the merits and supporting reversal"), for example, cites a sociologist who states that "the two sexes are different to the core, and each is necessary—culturally and biologically—for the optimal development of a human being" (Popenoe, 1996). Similarly, other briefs argue "the two sexes bring different talents to the parenting enterprise" (p.16, "Brief of amici curiae, Robert P. George, Sherif Girgis, and Ryan T. Anderson, in support of reversal and the intervening defendants-appelants"). Or, from the "Amici curiae brief of scholars of history and related disciplines in support of petitioners" : "Intuition and experience suggest that a child benefits from having before his or her eyes, every day, living models of what both a man and a woman are like" (citing *Hernandez* v. *Robles* 2006). In the same vein, several briefs cite part of the opinion of a 1946 U.S. Supreme Court case (*Ballard* v. *United States*) which states "The truth is that the two sexes are not fungible; a community made up exclusively of one is different from a community composed of both" ("Amicus curiae brief for Catholics for the Common Good and the Marriage Law Project in support of petitioners"; "Amicus curiae brief of Coalition for the Protection of Marriage in support of Hollingsworth and Bipartisan Legal Advisory Group addressing the merits and supporting reversal"). Generally, the authors' arguments do not outline specific biological roots of sex differences; rather, they rely on a societal set of ideologies that tacitly assert that the sexes are different by nature and these differences are a *sine qua non* for proper parenting.

A few briefs do go on to spell out specific mechanisms linking sex differences and child rearing. A brief from the Liberty Counsel, JONAH Inc., and the Campaign for Children and Families argues, "[a]round eighteen months, the boy is able to begin to see the difference between male and female. At this time the father becomes more significant and the boy tries to reach out to him, and thus form a closer bond with the father" (p.16, "Proposed amicus brief in support of defendant-intervenors-appelants"). Another brief outlines similarly speculative connections between sex differences and parenting, at one point going so far as to extol the importance of fathers by stating "fathers provide the larger share of household income" (p.20, "Brief of the American College of Pediatricians in support of appelants"). These briefs argue in highly typological terms, presenting deterministic views of the sexes (which is made clear by the repeated use of terms such as "natural" and "biological" in these and other briefs), in spite of the fact that they are speaking only of behavioral traits associated with male-ness and female-ness—traits that are shaped throughout development by complex interactions with individuals' environments.

The major argument of these briefs is that sex differences are fundamental to child rearing and thus the state has a legitimate interest in giving a seal of approval to unions that promote parenting environments that keep these sex differences intact. The problem with this logic is that it treats sex differences as static, polar opposite entities, pouring forth from the nature of the sexes, which ignores the complexities of trait production and gives the false impression that there is a scientific consensus about sex differences that is separable from the culture in which these differences appear.

Sex differences in plain view

As seen above, many of the briefs use biological rhetoric to portray differences between male and female traits as innate. By either referring to sex-limited traits as being deep within our genes ("[t]he genetic relationship between a parent and child [is rooted in] the most basic instincts embedded in the DNA of the human species", p.106, "Defendant-intervenors-appelants' opening brief") or in deep history ("Unlike opposite-sex marriage, same-sex marriage is not fundamental to the existence and survival of the human race", p. 33, "Amicus curiae brief of Eagle Forum Education & Legal Defense Fund in support of appellants in support of reversal"), many briefs overtly evoke nature to support their arguments against same-sex marriage. Here, I will examine a few such briefs that develop biologically based arguments about sex differences.

A brief filed by Catholics for the Common Good and The Marriage Law Project relies on presumptively biological logic throughout. For example:

> "Even without recourse to the burgeoning fields of genetics and neuroscience, common sense and the collective wisdom of eons of human history tell us that human beings who carry the XY-pair of chromosomes are different in important ways from those whose bodies, minds, and perspectives are shaped by the XX-pair." (p.6, "Amicus curiae brief for Catholics for the Common Good and the Marriage Law Project in support of petitioners")

Later, they go on to defend California voters' decision to differentiate between opposite-sex and same-sex unions by stating, "emerging scientific research on the human brain confirms that male and female brains are different in significant ways" (p.7, "Amicus curiae brief for Catholics for the Common Good and the Marriage Law Project in support of petitioners"). Finally, they devote a section of their brief to the claim that "the people of California are entitled to consider and reject the hotly-disputed proposition that sex and gender are 'social constructs". Using the language of science, they conclude that marriage between men and women preserves an innate, biological entity built around sex difference.

Another brief by "scholars of history and related disciplines" filed by the Marriage Law Foundation also relies heavily on biological rhetoric, appealing to the deep history of sex differences: "This linking of marriage's male-female nature to children's needs has deep biological and sociological roots, extending perhaps to prehistoric developments" (p.4, "Amici curiae brief of scholars of history and related disciplines in support of petitioners"). Throughout, they present anthropological rhetoric to make the point that "the universality of marriage is related to *basic realities of sex difference* and the related procreative capacity of male-female couplings" (p.11, "Amici curiae brief of scholars of history and related disciplines in support of petitioners", emphasis added). Moreover, they cite parts of other works that refer to marriage variously as "primeval", "neuro-hormonal", "part of the phylogenetic heritage of our species", and having an "ultimate origin long before the dawn of the Pleistocene" (see their citations). They argue that the deeply rooted nature of sex differences and marriage as a social contract support the

California voters' assertion that the definition of marriage should be restricted to unions between opposite-sex partners.

In both of these briefs, the authors build an argument around the ways in which biology informs and is written into our culture. In other words, the authors treat marriage as a cultural phenomenon that is rooted deeply in our biology, in both contemporary (i.e., as a union that preserves the complementarity of biological sex differences) and evolutionary (i.e., as a union that is an ancestral trait in the human lineage) senses. The problems with these arguments become clearer upon understanding the way that traits (both physiological and behavioral) come to be.

HOW "NATURE" WORKS

The seeds of sex differences

Understanding how environments interact with genotypes (the underlying, inherited genetic architecture that contributes to a particular trait) is fundamental to discussing traits. Studies of the ways in which variation in individuals' environments influence traits have demonstrated a very large environmental influence on trait development, especially for complex behaviors. Thus, in terms of characteristics that are associated with sex differences, decisions about which sex differences are "cause for celebration" (*United States* vs. *Virginia* et al. (94-1941), 518 U.S. 515, 1996, quoted in "Amicus curiae brief for Catholics for the Common Good and the Marriage Law Project in support of petitioners") and which are worth striving to eliminate are ultimately ethical decisions outside of the scope of biological expertise.

A seed provides a good starting point for illustrating these concepts. It contains the genome of a tree, but it obviously cannot develop without external resources, ranging from the endosperm surrounding the developing tree within the seed to the soil and sunlight that will facilitate its growth. A tree unfolds from the seed by converting its environment into itself, and this process of conversion is perpetual. Moving past this perhaps obvious relationship between genotype and environment, imagine that different parts of our hypothetical tree receive different amounts of sun. To adjust to changes in light availability and make the most out its environment, the tree can change its shape (e.g., by dropping branches and/or biasing new growth toward areas that receive more sun), and the leaves themselves can change shape; leaves near the tops of trees are generally smaller and denser than leaves that inhabit shadier conditions (Sack et al., 2006). There are two important points here: (1) two genetically identical seeds, with two different environments, could develop into markedly different forms and (2) even within a tree, leaves with exactly the same genotype can have fundamentally different forms as a result of contact with their environments. Furthermore, the degrees and forms of responses to and interactions with environments can themselves be variable across individuals; biologists have long recognized this and describe the relationships between genotypes and environments using graphs called reaction norms. By examining variation in the shapes of these reaction norms, we can understand trait development in populations as resulting from the interactions between genotypes and environmental cues. What does it mean, then, to speak of the "biology" or "nature" of leaves, in the absence of information about that tree's

environment? Or without having a sense of the range of possible variation in all trees of the same species? Ignoring the environment results in what I call contextual whitewashing, or discussing traits typologically despite research showing that those traits are flexible in important ways.

Moving from arboreal architecture to human behavior, context is no less important. Indeed, there is a rich history of scholarship investigating how environmental inputs can act to create and exaggerate sex differences (Eagly & Wood, 1999; Hyde, 2005; Hyde & Mertz, 2009). Perhaps the most important environmental factors that set the stage for the development of sex differences in humans are "gender schema ," or the underlying "set of implicit, or nonconscious, hypotheses about sex differences" that we all possess (p.2, Valian, 1999; see also Bem, 1981). Gender schema are in action when our expectations for sex differences become self-fulfilling prophecies. In a study investigating gender schema, for example, researchers sent curricula vitae to various professionals with either a typical male name or a typical female name at the top. Based on no difference other than gender, both male and female reviewers deemed applicants with male names to be employable more often than applicants with female names (Steinpreis et al., 1999). Similar studies have unearthed similar results: our unconscious expectations for women's advancement in professional fields are different from those for men, and these expectations actually shape the world we live in (Moss-Racusin et al., 2012; Wennerås & Wold, 1997).

Concern about the underrepresentation of women in STEM (Science, Technology, Engineering, and Mathematics) fields has motivated many research programs aimed at understanding sex differences in math ability. As such, this research provides a great case study of the interaction between environments and genotypes because there are several studies, both observational and experimental, demonstrating that aptitude differences are highly sensitive to gender schema. Our expectations of girls' and boys' success in mathematics have played a large role in shaping their abilities, a phenomenon known as stereotype threat (Spencer et al., 1999). In one study of stereotype threat, researchers presented women with various essays that articulated ideas about women's aptitude in mathematics immediately prior to administering a math exam. Participants who were presented essays emphasizing women's intrinsically poor math abilities scored worse on the exam than women who read essays stating that there are no differences between the sexes in math ability (Dar-Nimrod & Heine, 2006); women's expectations for themselves determined how they performed. The ways that gender schema exacerbate sex differences are evident in studies examining variation over time and across cultures. In the United States, for example, differences between male and female school children in math ability have shrunk to zero since initial reports from the mid 20th century (Meece & Parsons, 1982; Hyde et al., 2008; Hyde & Mertz, 2009), corresponding to large-scale societal changes in perceived roles of men and women. Furthermore, several studies looking across cultures show that the more similar opportunities for men and women are within a culture, the smaller the differences between them in mathematical ability (Andreescu et al., 2007; Hyde & Mertz, 2009).

In yet another line of evidence that the sources of sex differences between men and women are not straightforward, other researchers have tried to directly quantify the proportion of variation in mathematical ability that can be explained by genes, either by studying differences between identical and fraternal twins (which should, in theory, have similar environments and only differ in half of their genome) (Geary, 1993; Kovas et al., 2007) or by using modern genomic techniques to directly examine particular genetic variants that are correlated with math ability (Docherty et al., 2010; Docherty et al., 2011). Both of these methods demonstrate that the degree of heritability is highly variable from study to study (anywhere between 20% and 90%, Docherty et al., 2010), leaving much room for the environment to be important. Note that evidence for genetic bases to traits does not constitute evidence for a sex difference. Rather, it serves only to illustrate the importance of environments in shaping traits in both sexes.

So, to talk about mathematical ability as an innate difference between the sexes is to disregard the overwhelming body of evidence that this difference is highly sensitive to environmental influences. In other words, such sex differences, instead of being discussed as products of biology, are best conceptualized as products of the "process of gender" (Fausto-Sterling, 2000), which is ongoing and very sensitive to environmental inputs. Yet some prominent figures have claimed that the disproportionate representation of women in the top tiers of academic scientific disciplines results from an innate difference in the variability of men and women in mathematical ability (e.g., Pinker, 2003; Summers, 2005). In doing so, they commit contextual whitewashing by not referring to the immense body of work showing how strongly gender schema can influence sex differences.

Given the importance of the multitudinous environmental inputs leading to the development of traits that may differ between the sexes, it is reasonable to ask which of these environments forms the bases for claims of biological roots of sex differences in the amicus briefs filed on behalf of the proponents of Proposition 8. In her book *Brain Storm*, Rebecca Jordan-Young states:

> "[B]ecause the nature of sex difference depends on specific environments, the environments that produce more pronounced sex differences are defined in a circular manner as "ideal" or "natural". But…one must ask on what basis is that environment considered ideal?" (p. 279, Jordan-Young, 2010).

Thus, contextual whitewashing is an ideological tool for obfuscating relevant variation by focusing only on certain environments and ignoring others.

Modern brains and Pleistocene parents, revisited

In the brief filed by Catholics for the Common Good and The Marriage Law Project described above, the authors argue that sex differences in brain morphology are an important source of the complementarity of males and females in opposite sex marriages. They use such evidence to make the claim that California voters rejected the idea that sex and gender are social constructs. Although once viewed as fixed in development, brains are now seen as plastic, changeable entities (Eliot,

2010). As such, any discussion of the difference between males and females in brain morphology without concomitant discussion of the environments in which these differences arose perpetrates contextual whitewashing. Although not clearly laid out by the authors of the brief, presumably this reference to brain differences between the sexes serves to illustrate the point that there are physiological differences between men and women that translate into important parenting behaviors (thereby demonstrating a state interest in favoring opposite-sex unions). Yet, the relationship between brain morphology and behavior can be tricky—in fact, morphological brain differences may act to diminish rather than accentuate behavioral differences (de Vries & Södersten, 2009) if such morphological differences compensate for other physiological traits that differ between the sexes (e.g., circulating sex hormones). Furthermore, it is probable that differences that do exist (small though they most often are, Fausto-Sterling, 2000; Eliot, 2010; Derks & Krabbendam, 2013) are largely influenced by gender schema—our social environments can impact our brains profoundly (Eliot, 2010, 2011). Accordingly, psychologist Cordelia Fine asserts, "when researchers look for sex differences in the brain or the mind, they are hunting a moving target" (p. 236, Fine, 2010). Whether the environments that create difference are just or a "cause for celebration" is not a question that can be addressed by simple biological observations; it is instead a question for moral and political debate.

The brief written by "scholars of history" places sex differences in a historical context, arguing that the deep-rooted nature of sex differences demonstrates the importance of the opposite-sex unions. In many of the briefs, but particularly clearly here, the authors commit the naturalistic fallacy (Moore, 1903) in implying that what is found in nature is right or good. Specifically, the appeals to anthropological and evolutionary psychology literature demonstrate that they conflate adaptation with morality—a form of the naturalistic fallacy (in fact, they do not actually demonstrate adaptation, and the ability of the field of evolutionary psychology to do so has been the target of many critics, e.g. Fausto-Sterling et al., 1997; Gowaty, 1997; Lewontin, 1999; Eagly & Wood, 1999; Pigliucci, 2010; Zuk, 2013). As above, the authors of this brief fail to mention how variation in the environment influences the cultural practices of marriage and child rearing. Arguing that there is one set way of raising children that has remained static throughout human history is another instance of contextual whitewashing. For example, the plethora of ways that individuals other than parents, including relatives and other members of communities, contribute to child rearing is missing from these briefs (e.g., Hrdy, 1999, 2009; Kramer, 2011). Furthermore, in committing the naturalistic fallacy, the proponents of Proposition 8 fail to articulate the metric by which a marriage can be deemed "moral". If child-rearing is what is important, as most proponents argue, then there is no evidence that same-sex couples are sub-optimal co-parents or that the children of same-sex couples are worse off than the children of opposite-sex couples (Crouch et al., 2014; Farr & Patterson, 2013; Golombok et al., 2014). In light of this and other evidence, several pediatric organizations have endorsed same-sex marriage for same-sex parents raising children (e.g., American Academy of Pediatrics, 2013).

While the amicus briefs filed on behalf of the proponents of Proposition 8 make many claims about the biological nature of differences between men and women that privilege opposite-sex unions as optimal child rearing units, they omit a fundamental part of biology: the environment in which these traits develop. Given that these environments are saturated with social and political rhetoric emphasizing differences between the sexes from the very beginning of development (Valian, 1999; Fine, 2010), it is not surprising that such differences exist. The flexibility of behavior across different environments demonstrates that sex differences are impossible to understand out of context, and determining which context is just from a legal or ethical standpoint is a decision with which biological rhetoric should not be involved.

THE EXCEPTIONS THAT PROVE THE RULE

The culture/biology paradox and responsible procreation

Further revealing the ideological undercurrents of the proponents' arguments are inconsistencies in the ways in which discussions of biology unfold—inconsistencies that betray weaknesses in the ideologies themselves. Above, I have outlined many ways that the proponents of Proposition 8 have tried to root culture in biology to articulate the state's interest in distinguishing between same-sex and opposite-sex unions. Yet in many of these same briefs, the authors at times claim that culture serves to thwart biology, demonstrating their confusion in trying to separate nature cleanly from nurture (which, as demonstrated above, cannot be done) and betraying their claims as ideology, not biology. The paradox is as follows: on the one hand, the authors commit contextual whitewashing to portray marriage as a union that preserves and celebrates the biologically rooted complementarity of the sexes. On the other hand, culture is at odds with biology, and so the law exists to prevent the instinctual philandering that would otherwise compromise coupled child rearing.

The argument for using culture to tame biology, known as the "responsible procreation" or "accidental procreation" argument, follows from proponents' claims that marriage is an institution for channeling reproductive impulses into a state-recognized union that would otherwise not occur, rather than as a state-issued "'capstone' or reward for establishing a 'soulmate' relationship with another adult". (p.3, "Brief of amicus curiae Helen M. Alvaré in support of Hollingsworth and Bipartisan Legal Advisory Group addressing the merits and supporting reversal"). One brief succinctly states:

> "Marriage links potentially procreative sexual activity with child rearing by biological parents. Through civil recognition of marriage, society channels sexual desires capable of producing children into stable unions that will raise those children in the circumstances that have proven optimal." (p. 32, "Brief of states of Indiana, Virginia, Louisiana, Michigan, Alabama, Alaska, Florida, Idaho, Nebraska, Pennsylvania, South Carolina, Utah, and Wyoming as amici curiae in support of defendants-intervenors-appellants Dennis Hollingsworth, et al. and in support of reversal")

This logic appears in brief after brief ("Amici curiae brief of scholars of history and related disciplines in support of petitioners"; "Amicus curiae brief of Coalition for the Protection of Marriage in support of Hollingsworth and Bipartisan Legal Advisory Group addressing the merits and supporting reversal"; "Brief for amici curiae The Coalition of African American Pastors USA, The Center for Urban Renewal and Education, The Frederick Douglass Foundation, Inc., and numerous law professors in support of petitioners and supporting reversal"; "Brief of amici curiae Judicial Watch, Inc. and Allied Educational Foundation in support of petitioners"; "Defendant-intervenors-appelants' opening brief"; "On writ of certiorari to the United States Court of Appeals for the Ninth Circuit"). The proponents quote 18th century British judicial scholar William Blackstone's work *Commentaries on the Laws of England*, which describes philandering as a "natural impulse [that] must be confined and regulated" ("Brief of amici curiae Judicial Watch, Inc. and Allied Educational Foundation in support of petitioners"; "Defendant-intervenors-appelants' opening brief"; "On writ of certiorari to the United States Court of Appeals for the Ninth Circuit") That Blackstone wrote in a time when marriage was inextricably intertwined with property rights (Abrams & Brooks 2009) is not addressed in these briefs. Yet, not only is this argument inconsistent from a logical, legal, and historical standpoint (Abrams & Brooks, 2009; Nice, 2013), it is internally incompatible with the idea that our biology is written in our culture. This confusion is evident within as well as among briefs. The "scholars of history" brief, described above as extolling the virtues of children having male and female role models, also discusses marriage as channelling promiscuity into responsible procreation. In one context, manhood/womanhood are cause for celebration, and in another, they are drives to be suppressed and channelled. This internal paradox again demonstrates that biological rhetoric is being used only insofar as it supports the proponents' arguments.

Homosexual immutability and the Equal Protection Clause

As detailed earlier, one of the central questions in *Hollingsworth* was whether Proposition 8 violated the Equal Protection Clause of the 14th Amendment by singling out same-sex individuals as ineligible to marry. To determine whether or not a law violates this clause, the court must pass it through one of three levels of judicial review. The most stringent of these levels is "strict scrutiny", which requires the government to demonstrate that a legal classification is narrowly tailored to achieve a compelling state interest. In terms of Proposition 8, this means that the proponents would have had to defend the relatively larger case that same-sex unions somehow interfere with the state's interest in marriage. According to legal precedent, one way for a group singled out by a law to obtain this stringent level of judicial review is to make the case that they constitute a "suspect class" (e.g., race and religion are treated as suspect classes). One way for a group to obtain "suspect class" status is to demonstrate their immutability, or inability to change.

Accordingly, in many of the briefs filed on behalf of the proponents of Proposition 8, there are arguments challenging the classification of homosexuals as a "suspect class", based on observations of flexibility of homosexual behavior. For instance, some briefs cite the existence of gay people that become straight after conversion therapy ("Amicus curiae brief of Parents and Friends of Ex-Gays & Gays in support

of Hollingsworth and Bipartisan Legal Advisory Group of the U.S. House of Representatives addressing the merits and supporting reversal"), while others discuss the observation that many individuals change sexual orientation over time, sometimes more than once ("Amicus curiae brief of Dr. Paul McHugh in support of Hollingsworth and Bipartisan Legal Advocacy Group addressing the merits and supporting reversal"; "Brief amicus curiae of Paul McHugh, M.D., Johns Hopkins University Distinguished Service Professor of Psychiatry, in support of defendant-intervenors-appellants urging reversal"; "Brief of amicus curiae, National Association for Research & Therapy of Homosexuality (NARTH), in support of the intervening defendants-appellants"; "Defendant-intervenors-appelants' opening brief"; "Proposed amicus brief in support of defendant-intervenors-appelants"). Similarly, many briefs remark upon the difficulty of defining homosexuality, given the vast range of human sexual expression, as evidence that "homosexuality" does not constitute a clear classification for equal protection (e.g., "Brief amicus curiae of Paul McHugh, M.D., Johns Hopkins University Distinguished Service Professor of Psychiatry, in support of defendant-intervenors-appellants urging reversal"; "Proposed amicus brief in support of defendant-intervenors-appelants"). A brief by philosopher Daniel N. Robinson goes into a lengthy discussion of measurements of heritability, which partition variation in trait expression into environmental and genetic components, demonstrating a nuanced understanding of the relationship between environments and complex behaviors. For example:

> "It is abundantly clear from the foregoing that virtually no aspect of 'homosexuality' has been shown to be 'genetically determined' or immutable. The factors that shape and direct one's feelings, inclinations and conduct are numerous, interacting, complex, probably shifting and beyond any reasonable attempt at precise measurement and specification." (p. 28, "Brief as amicus curiae of Professor Daniel N. Robinson, Ph.D. in support of petitioners and supporting reversal")

To the same end, another brief cites a report "finding genetic effects explained . .34-.39 of the variance in men and .18-.19 of the variance in women and concluding that 'same-sex behavior arises not only from heritable but also from individual specific environmental sources" (p. 21, "Brief amicus curiae of Paul McHugh, M.D., Johns Hopkins University Distinguished Service Professor of Psychiatry, in support of defendant-intervenors-appellants urging reversal", citing Långström et al., 2010).

The point here is not that homosexuality is immutable — certainly homosexual behavior is flexible both within and among people (whether that flexibility should be grounds for denying certain legal protections is a legal issue that is beyond the scope of this paper). However, it is illuminating that the same side in certain instances engages in contextual whitewashing to describe male and female behavior in narrow, deterministic ways while at others discusses in detail variation among homosexuals and the evidence for environmental components of sexual orientation. One brief, for example, has a section entitled "emerging evidence suggests that homosexuality is not an innate characteristic like race or gender" ("Brief amicus curiae of Paul McHugh, M.D., Johns Hopkins University Distinguished

Service Professor of Psychiatry, in support of defendant-intervenors-appellants urging reversal"). Here, the authors portray gender, which decades of scholars have defined as the socially constructed components of sexual behavior, as innate and invariable, while homosexuality is not (see "Brief as amicus curiae of Professor Daniel N. Robinson, Ph.D. in support of petitioners and supporting reversal" for a similar formulation). Furthermore, in many instances, as with the paradox of responsible procreation, this denunciation of the notion of immutable homosexuality appears in the same briefs as narrow explanations of gender ("Defendant-intervenors-appelants' opening brief"; "Proposed amicus brief in support of defendant-intervenors-appelants").

The proponents of Proposition 8 have developed arguments that rely on understanding vast amounts of behavioral variation and the lack of evidence for a genetic basis for homosexuality. The fact that they have not also imagined how the same sorts of environmental variation may have influenced the complex suite of behavioral traits that they associate with differences between the sexes undermines the logic of their arguments. Such contradictions demonstrate that their arguments are incoherent and scientifically unsound, in spite of sounding scientific.

CONCLUSIONS

Whether in advertisements or on the courtroom floor, scientific sounding language is often used to persuade audiences that an argument is legitimate and backed by scientific rigor (Pigliucci, 2010). One does not have to search far to find other examples of science being used to defend prejudice and define difference (e.g., in descriptions of racial differences, Frank, 2001; Leslie, 1990; Royal & Dunston, 2004). Yet both the science that occurs (e.g., Haraway, 1989; Karlsson Green & Madjidian, 2011) and the way that people misuse science are informed by the societies in which we live. It is perhaps no surprise, then, that in our society, stereotypical portrayals of sex differences appeal to a tacit and pervasive understanding of typological views of men and women. Feminists have long been critical of claims rooted in deterministic portrayals of the sexes (e.g., McCaughey, 2008; Millett, 1970; Rose, 1983). In her 1970 text *Sexual Politics*, for example, Kate Millett states:

> "[p]atriarchal religion, popular attitude, and to some degree, science as well assumes these psycho-social distinctions [between men and women] to rest upon biological differences between the sexes, so that where culture is acknowledged as shaping behaviour, it is said to do no more than cooperate with nature." (p.26, Millett, 1970)

This remains true today in the briefs filed on behalf of the proponents of Proposition 8; their authors claim that marriage is founded deep within our nature, our biology. In doing so, they contextually whitewash by dichotomizing nature and nurture. Accordingly, they alternate between portraying culture as both cooperating with and thwarting nature. Ironically, where a fine-grained understanding of the large role of the environment in behavioral development supports their arguments, many of the briefs speak in great detail about the multitude of sexualities both across and within individuals. These rhetorical contradictions demonstrate that these briefs

recruit scientific evidence in contrasting ways as it suits their arguments and complies with their particular ideologies.

Nor am I free from ideology, as a gay man who may one day reap the benefits of the ultimate failure of the proponents. I do not aim to simply replace one set of ideologies with another, progressive set. Instead, I aim to point out that understanding the important role that our cultural and social environments play in creating and exaggerating differences between the sexes allows us to ask more nuanced questions about sex differences than we have in the past. Such a formulation makes it clear that we have good cause to question whether such differences are a cause for celebration, much less cause for denying access to same-sex marriages. Going back to the aforementioned body of work on women's mathematical abilities, we would not want to take the stand that girls should be educated differently than boys in mathematics due to innate differences in aptitude (Smith, 2012). Given the large role that the social context (from the culture at large to the ways that girls perceive their own abilities) plays in the demonstration of mathematical ability, through an understanding of these environmental influences we can begin to address the disparities between the sexes that disproportionately advantage boys. Analogously, sex differences in parenting are hardly worth lauding upon acknowledging vast variation among individual men and women who themselves grew up in varied environments.

Views of gender and sexuality in western societies have changed dramatically over the last decades and these changes have had profound impacts on the structure of family life. Instead of recognizing these changes as shifts in environmental inputs that act to diminish sex differences, the proponents of Proposition 8 claim that outdated modes of thinking about gender and sexuality reflect genuine, biologically accurate gender roles optimal for rearing children, and that progressive culture thwarts nature's intentions.

In an ironic footnote to a claim for the importance of opposite sex parenting due to differences in male and female pheromones, one brief states:

> "It should be noted that any lack of consensus concerning the source of gender differences is of little relevance. The source of the gender-based variances in parenting style observed in the literature and studies discussed above may be biological difference, cultural pressure, an outgrowth of evolutionary adaptation, or some combination thereof. The State may legitimately recognize the existence of gender differences, and account for their existence when fashioning policy, without endorsing every cultural, social or biological input that may have given rise to the differences in the first place." (p. 23, "Brief of the American College of Pediatricians in support of appelants")

In other words, despite using biological rhetoric to demonstrate the state's legitimate interest in opposite-sex unions, the authors also assert that at the end of the day, the natural bases of traits are unimportant. I agree. Questions about the

government's interest in preventing same-sex marriage should not be answered by appealing to the biological underpinnings of differences between the sexes. The production of such differences is highly context specific, and which differences we embrace, and why we embrace them, "is not a scientific issue, but a political one" (p. 290, Jordan-Young, 2010). In encounters with arguments that rely on preserving differences between groups of people, we should be wary of contextual whitewashers who misrepresent science to ideological ends and instead critically examine the social, cultural, and environmental forces that are at work to either create or diminish difference.

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