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Gauging Gender

By Stephen T. Asma

"How many genders or sexes are there?" Jaak Panksepp asks his students.

Panksepp, who is the father of affective neuroscience and currently Baily Endowed Chair of Animal Well-Being Science at Washington State University, waits patiently for them to overcome their confusion and venture the obvious answer: "Two."

"No, there are at least four, and probably many more," he informs them. The standard setup is, of course, a male brain in a male body or a female brain in a female body, but we regularly find a brain-body mismatch; feminized brains in masculinized bodies and vice versa.

When I was an undergraduate, studying the humanities, we were taught that being gay was not a biological phenomenon, nor was gender, for that matter. Professors of the humanities and social sciences saw all biological explanations of human behavior as reductionistic and deterministic. If anyone tried to suggest brain-based or neurochemical avenues of explanation, a detour would be erected to take the students into the terrain of psychoanalysis, or social constructionism, or if the professor became too frustrated he would just remind students of social Darwinism, eugenics, and finally stop all such explorations by mentioning Hitler.

Now that I'm a professor, I'm saddened to find that not much has changed in the attitudes of my humanities colleagues—many of whom still vilify biological explanations of human behavior and culture. The Harvard professor of English Louis Menand, for example, a Pulitzer Prize winner, warned humanities departments, in his 2004 MLA talk "Dangers Within and Without," to stay away from biology. But while not much has changed in the humanities

and social sciences, a lot has changed in biology. While humanists weren't looking, biology (genetics, embryology, evolution, neuroscience, etc.) left behind many of its deterministic pretensions and embraced the indeterministic developmental logic of epigenetics—the complex interface of nurture and nature. Biology now recognizes the immense domain of external triggers and influences (from intrauterine environment to social structures) that shape phenotypic expression of genetic possibilities. Biology has become dialectical.

How did the humanities and social sciences miss this exciting transformation? In the 1970s and 80s, feminists drew an important distinction and created a new language for fruitful discussion. The distinction drew a line between sex and gender. Sex referred to the reproductive categories of male and female, and it was a useful biological concept, applicable to humans, nonhuman animals, and plants. Gender, on the other hand, indicates the socially constructed roles, behaviors, and traits of male and female. Gender categories may correspond to sex categories, but they need not. This useful distinction, and subsequent academic conversation, were fuller realizations of Simone de Beauvoir's famous 1949 statement, in *The Second Sex*, that "one is not born a woman, one becomes one." This existential rejection of essentialism sought to break the oppressive tendencies of anybody who used the "nature of woman" as an excuse for mistreatment.

An academic division of labor resulted from this distinction. Sex remained a productive topic (excuse the pun) for biologists, who are interested in the genetic, developmental, and chemical pathways of male/female dimorphism. People in the social sciences and humanities, by contrast, made gender, not sex, the subject of their work. In gender studies, we learn about the ways that men and women "perform" their respective roles—people of male sex can perform as female gender, and vice versa, by adopting modes of speech, dress, behavior, and even values. There is no talk of innate instincts or brain differences in gender studies.

In the 1980s and 90s, psychoanalysis was used to connect gender to early developmental dynamics in the family. Evelyn Fox Keller, for example, argued that men are more detached, objective, and stereotypically scientific, because their identity formation has to

detach twice from the mother, while women have to detach only once. We all separate ourselves from mother and thereby attain an ego—a self. But as a boy, I must also detach again, in an unconscious realization that I am not even the same kind of thing as my mother (i.e., I've got this thing between my legs, etc.). Male identity, in this view, is alienated twice from the mother, producing human beings who are more remote, more distant. That is just an example of the sort of dominant, nonbiological explanation of difference that flourished in gender studies.

In addition to these theoretical approaches to gender, much of gender studies focused on the many ways that prejudice informs gender positions and relations. Gender is a politically and socially coerced category, and patriarchy is considered to be an ever-looming threat. Subsequently, issues of power are at the forefront of gender studies, and many theorists have applied the Marxist class-struggle lens to gender issues, substituting men for the bourgeoisie. Contemporary cultural studies, for example, has given itself over almost completely to that approach.

In this division of labor between nature and nurture, psychology found itself in a middle position. The life of the mind is sometimes considered the most autonomous domain, free of deterministic physical forces. According to this view, evolution stops at the neck. But, on the other hand, brain science and genetics in the 1990s and 2000s began giving us some impressive evidence that higher-level thinking and behavior are products of biological causation.

Unfortunately the loudest of the new biological psychologists were the most extreme—the wildly popular evolutionary psychologists (e.g., Steven Pinker, John Tooby, and Leda Cosmides) who added a hyperadaptationist ingredient to their reductionism and tried to usurp every aspect of the humanities and social sciences. For those scientists, most everything about us, including gender, is biologically determined. The evolutionary psychologists were, and are, everything the humanists and social scientists feared. Never mind that they weren't real biologists and worked with a cartoon version of Darwinism—they still got giant grants, wrote best-selling books, and became go-to authorities for many media outlets.

During the same period, many feminists and social scientists (e.g.,

Elisabeth Lloyd, Sandra Harding, and Donna Haraway) started striking back at this sort of reductionism, but rather than hold the line on the sex/gender distinction (a line that was wise and prudent, in my view), they sought to go further and deconstruct the sciences themselves. Over the past two decades, they have tried to bring biology itself into the odious lineup of "suspects" accused of being abusive "power discourses." These more recent foes of biology have tried to cast aspersions on science, arguing that it's just as constructed as any social reality (often forgetting the distinction between the logic of discovery and the logic of justification). From their own side, these deconstructionists have pursued an isolationist approach, arguing that nothing is innate—that gender, race, sex, and nature itself are just realities constructed by those in power.

The French philosopher Michel Foucault set the agenda when he lamented, as early as 1976, that "the notion of sex made it possible to group together, in an artificial unity, anatomical elements, biological functions, conducts, sensations, and pleasures, and it enabled one to make use of this fictitious unity as a causal principle." Following this approach, more-recent theorists like Anne Fausto-Sterling and Judith Butler have argued that even the biological categories of sex are just artificial inventions, designed to keep women and intersexed peoples down. Society, they suggest, decides which of us are males and which are females—pushing everyone into rigid binary categories.

There are two main arguments that are usually offered in defense of this controversial thesis that sexual dimorphism is political rather than ontological. One is based on a general critique of knowledge (an epistemological argument), and the other on a specific picture of reality (a metaphysical argument). I will offer counterarguments to both.

First, let's look at the epistemological idea, stemming from a general skepticism about human knowledge, that sex categories are socially constructed. Butler's view, in her book *Gender Trouble* (Routledge, 1990), that all identity categorization is inherently hegemonic, is symptomatic of the basic logic. Proponents of that notion argue that since all knowledge comes through the senses, and sensory data are always mediated by our perceptual equipment and our political agendas, then we can't have direct access to reality. Add to this the

now classic postmodern view of language—that words or signs are never fastened to their referent but hang suspended in the eternal fog of *différance* (i.e., Jacques Derrida's always deferred meaning). Now complete the skeptical picture with some loose talk of Thomas Kuhn's paradigms (conceptual frames that shape and filter our knowledge), and the foes of biology have all the putative ingredients for a complete skepticism about scientific objectivity. Applied to sex categories, this means that we can't know what constitutes a real man and a real woman (beneath their appearances, morphology, behavior, etc.) because we can't have knowledge of any objective reality. I submit that this is an unwarranted and melodramatic position.

Like the social constructionists, many of us critical realists accept the fact that knowledge is mediated. Everyone has known this since Immanuel Kant showed how all experience is shaped in part by our mental and perceptual faculties. The 20th century rightly added the influence of language to this list of mediating influences. But the fact that experience is open to different interpretations does not eliminate objectivity, and the fact that science is fallible and lacks certainty does not render it just another political power discourse. Yes, even so-called facts have some mediated aspects (e.g., mathematical symbols or values like parsimony—science prefers Occam's-razor simplicity when it comes to metaphysical assumptions). But while a theory, for example, of blood circulation might employ metaphors and models, it's not the same as a political ideology or a performative creation. Rather, it's a corroborated causal theory that tells us how the body works, independent of any politics.

Science has always functioned just fine without certainty. The expectation that science should be an indubitable mirror of nature—and that it has failed to live up to that expectation—betrays a naïve view of science (most recently held by our constructivist friends). We may not have a God's-eye perspective on nature, but that does not mean we are blind. The mediation of our knowledge may prevent perfect reflections of nature's exact contours, but nature does come to us in discrete forms. Sex is one of those discrete forms (a natural kind), and only radical skepticism suggests that we must arbitrarily impose sex categories because we can't be certain about

our perceptions of males and females.

The metaphysical argument brought by the foes of biology is different, but also based on skepticism of traditional categories. It has become standard dogma in gender studies to cite Anne Fausto-Sterling's statistics about intersexed people. An intersexed person is one who displays intermediary or atypical combinations of male and female anatomy. Ambiguous genitalia, for example, can make it difficult for doctors to determine a sexual category for a newborn, and frequently a sexual-assignment surgery will be done to "clarify" the sexual identity (constructing a more definitive vagina or penis, for example). Intersexuality describes a person whose sexual genotype (actually chromosomal makeup) or phenotype (genitalia) is neither exclusively male nor exclusively female. It is rare to find both testicular and ovarian tissue in one individual. But more commonly, a person will have a male chromosomal pattern XY but then have hormonal abnormalities in utero (e.g., adrenal-gland problems), causing the growth of external female genitalia. And vice versa: XX females will get abnormal doses of virilizing hormones in utero and develop a mock penis.

The existence of intersexed people has been well known throughout human history; they have enjoyed elevated social status in some societies but more often been persecuted (e.g., early Roman law required them to be drowned upon discovery). But in all previous times, it had been assumed that such exceptions, such intermediary sexes, were rare. They were exceptions. They were atypical.

More recently, however, Fausto-Sterling has argued that such intersexed people are much more widespread in the population than previously believed. She has led a new wave of social constructionists to argue that the male/female sexual binary is really just a shaded continuum—the poles of which represent traditional masculine and feminine physical equipment, while the vast middle ground is all manner of biological ambiguity. If that is true, it lends credence to the idea that even biological sexual identity is by convention. We are all biological intermediaries, and there are no fixed kinds. The metaphysical assertion is: Nature comes to us like undifferentiated cookie dough, but we apply science (and, of course, prejudice), as the cookie cutters, to create discrete categories of male and female.

Is sexual dimorphism just an artificial imposition on a metaphysical continuity? Fausto-Sterling originally put the figures of intersexuality very high: almost 12 million in the United States (4 percent of all births), while Leonard Sax, with the Montgomery Center for Research in Child and Adolescent Development, puts the figure at around 50,000. Sax argues that Fausto-Sterling has inflated the numbers by including groups who are not truly intersexual. A high number would help validate Fausto-Sterling's belief that gender is a "social construction" rather than a biological fact. But the scholar Carrie Hull has definitively shown that Fausto-Sterling's numbers are indeed inflated. In her book *The Ontology of Sex* (Routledge, 2006), Hull points out that Fausto-Sterling subsequently revised her numbers down, from 4 percent to 1.728 percent. When Hull checked the math of the new figure, however, she found significant error, and (using Fausto-Sterling's own data) placed the proportion at a mere 0.373 percent. That clarification suggests that intermediaries are indeed very rare, and that the traditional categories of male and female are accurate pictures of nature.

Science does, however, give us some fascinating insight into genuine sexual ambiguity. In addition to the very real intersexed bodies (albeit a smaller population than we thought), there is the much more prevalent brain/body mismatch that Panksepp and others have investigated. Mammal brains and bodies, including ours, start out originally as a female template. Then, in utero, testosterone triggers the masculinization of both brains and bodies, via two different chemical sequences. Estrogen, facilitated by the enzyme aromatase, mediates the influence of testosterone on the brain, and dihydrotestosterone (DHT) and the enzyme 5-alpha-reductase do the same for the body. Panksepp, who experiments on rats and other mammals, explains that "both humans and rats can have female-type brains in male-type bodies (if DHT was present in sufficient quantities but estrogen was not) or male-type brains in female-type bodies (where estrogen was present but DHT was not)." Some provisional data suggest that people who get sex-change operations show a structural mismatch between brain and body sexuality.

The masculine brain differs from the feminine brain in several ways.

The male brain lacks the hemispheric coordination of the female brain, in large part because the female has greater connectivity of the corpus-callosum fibers. Less well known are important differences in the subcortical areas that activate during sexual behaviors, like the interstitial nuclei of anterior hypothalamus (INAH) or the corresponding preoptic area (POA) in rats. Those areas, which are enlarged from masculinizing hormones during development, are highly activated during male pursuit of females and subsequent copulation. And a recent Swedish study has confirmed that the amygdala of the human homosexual brain more closely resembles that of the opposite sex.

Beyond mere anatomical differences, biological experimentation has also taught us interesting facts about the development of sexual preference in mammals. In repeated and corroborated tests, stress in rat mothers has been shown to produce significantly more male homosexual offspring in her litter. Ordinarily the male portion of a normal litter comprises 80-percent studs, who mature during puberty to engage in male sexual behaviors, and 20 percent that are asexual, displaying neither male nor female sexual behaviors. But if the pregnant mother is put under stress (bright lights, foot-shock, overcrowding), then only 20 percent become studs, 20 percent remain asexual, and 60 percent become either bisexual or exhibit exclusively female sex behaviors. This well-confirmed test indicates that stress can actually suppress brain masculinization. Such tests are not meant to "solve" the causal question of homosexuality, sexual dimorphism, or brain/body mismatch. The causes will be complex, varied, and unique. But such experiments do illustrate the relevance of naturalistic biological influences on sex and even gender categories.

Of course, linking interesting correlations between sex-based brain difference and complex human psychology is a risky move that needs a cautious, sensitive, and enlightened approach. Gender consciousness cannot be reduced to the influences of testosterone on brain and body, but we also can't ignore or write off such influences. Testosterone is necessary but not sufficient for understanding sex and gender difference.

The real reason that some humanities scholars want to throw doubt on science generally and "female nature" specifically results from a

long history of prejudiced essentialism. When sex categories are supposed to be fixed, then anyone who does not fit neatly in the boxes is seen as an outcast. That is a lamentable conservative history, but recognizing that nature has definable contours and categories is not inherently conservative. It can easily buttress a liberal, tolerant ideology as well. In fact, Fausto-Sterling's scientifically informed original suggestion, that we should adopt five sexes instead of two, was in keeping with both a liberalizing ethos and scientific findings. Her five sexes were based on genital anatomy. But more-radical rejections of sexual categories by the foes of biology influenced Fausto-Sterling to withdraw from the ontological middle ground and disown her earlier claims of distinct kinds. She was made to feel, apparently, that she hadn't gone far enough with her deconstruction of sex. And, unfortunately, she accepted that criticism.

The solution is not to argue that there is no such thing as "male/female" or "normal/abnormal" or "typical/atypical." Instead of arguing that nothing is normal and we're just making it all up, we should learn how to celebrate diversity and uniqueness for what it is. People who do not fit into traditional gender or sex categories should be able to say, I'm different, and different is great. There are ordinary sex categories, but we should celebrate the extra-ordinary. In that way, we don't have to dismiss reality just to make sure people are treated with respect.

Tolerance is premised not on a denial of reality, but on a better interpretation of the facts. Perhaps we should start to adopt Panksepp's suggestion of four categories or combinations of male/female traits—which are based on brain/body configurations—and merge those with Fausto-Sterling's original genitalia-based five sexes. In any case, we should not follow the foes of biology. We should probably retain the useful distinction of sex and gender, and accept that biology gives us significant access to human nature and even male and female natures—but also that gender studies gives us understanding of the rich diversity inside those malleable natures.

Thankfully, increasing numbers of humanities scholars—ignoring Louis Menand's warning—are slowly getting over biophobia. What's needed, however, is a smart fusion, not just any fusion (see the often dumb reductionism of both evolutionary psychology and literary

Darwinism). Academics might follow the clearheaded analysis of Natasha Vargas-Cooper's recent *Atlantic* article, "Hard Core: The New World of Porn Is Revealing Eternal Truths About Men and Women" (Jan./Feb. 2011). Vargas-Cooper, who calls egalitarianism about sex/gender an "intellectual swindle," may get some things wrong, but at least she is trying to understand the biological roots that feed the cultural fruits.

Evelyn Fox Keller, who spent her earlier career disentangling gender from sex, may now be showing us the way forward by re-entangling them. In her recent book *The Mirage of a Space Between Nature and Nurture* (Duke University Press, 2010), she emphasizes the plastic relationship between genes and environment, and tries to counteract our tendency to privilege one cause over another by emphasizing "developmental pathways" rather than just bottom-up (molecular) explanations or top-down (structural) explanations. Regarding the sex/gender issue, then, we should be asking, among other things: Which traits are malleable, and to what degree? The answers will come from a prudent marriage of biocultural analysis, because developmental pathways don't recognize academic divisions.

Stephen T. Asma is a professor of philosophy and a fellow of the Research Group in Mind, Science, and Culture at Columbia College Chicago. His latest book is Why I Am a Buddhist (Hampton Roads, 2010). His book On Monsters: an Unnatural History of Our Worst Fears has just been released in paperback by Oxford University Press.


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blindboy 12 months ago

I have nothing to add to the analysis which is excellent and should be required reading in any gender studies course. What I would point out is the importance of addressing these biological

complexities in high school sex education. The fear of difference feeds homophobia. Clear explanations of how those differences arise can change peer group attitudes and increase tolerance and active inclusion. The gender studies approach encourages blaming and increases divisiveness.

7 people liked this. [Like](#)



Guest 12 months ago in reply to blindboy

Nope. You're wrong. Homophobia comes from lots of different places, not just fear of difference. And even if it was only "fear of difference," explaining the difference doesn't eliminate the fear -- it actually makes everybody focus on the differences and speculate about each other even more. "Peer group attitudes" will change if you tell people "I'm gay because my mom was stressed out when she was pregnant -- just ask the scientist who studied pregnant rats"? I don't think so.

I am a humanities scholar (English) and proud to say I reject every single assertion in the article above and will never include any of this in a discussion on gender or sexuality. I believe in something called free will and do not think we are robots programmed by hormones and genes to act in specific ways. Besides, I don't believe a word of this biological causality gospel. And I'd rather talk about interesting stories, not gay rats.

3 people liked this. [Like](#)



Zoe Ellen Brain 12 months ago in reply to Guest

I think you are confusing behaviour with identity. Free Will implies a choice of action, of behaviour. Such choices are constrained by biological and physical limitations.

Example - you cannot, by an act of will alone, double your IQ, and thus enable yourself to win a Nobel Prize in Literature, or write a PhD thesis overnight. Should you suffer a brain injury, it may be that games of Patty-Cake are beyond your ability too. Your physical neuro-anatomy provides obvious constraints on your externally-observable behaviour.

At puberty, it is likely that your mind changed. We have control over our actions, but not our attractions. We cannot easily overcome basic reflexes, such as shivering when cold. Free Will has limits, as anyone who has tried to stifle a sneeze, or tried not to blink, should know.

This article attempts to define those limits more precisely. To deny that they exist on ideological grounds, and to erect a straw-man that if any such limits exist, that we are merely automata, flies in the face of objective reality. You have limits; you are not a robot; therefore having limits does not imply roboticism.

May I suggest that you take a course in logic?

38 people liked this. [Like](#)



ellenhunt 11 months ago in reply to Zoe Ellen Brain

How do you know he's not a robot? ;-)

Oh, the everglades of philosophy beckon to me like a destitute sandwich on a blustery day that I might navigate the alligators of Jesus beside the swamplands of pythons whispering in the trees. Put hair on it and call it a heezle! Floss my teeth with said hair and my patent examiner will heave. ;-)

Are you a zombie? Am I? How could we tell? (A philosophical zombie without a soul, just acting like a human.) Does I exist? What are qualia?

But then, I am illiterate. It has been declared humpfily by a certain doughty fella on the Chron. So what could I possibly have to say? I, illiterate, doctorate.

Maybe it's true. Maybe I be a zombie. 'Twould not fare me ill in the twill of academe. Most especially not on this All Hallow's Eve.

3 people liked this. **blindboy** 12 months ago

Lopez I hardly know where to start with a "scholar" prepared to preach ignorance and make no mistake that is exactly what you are doing. There is a well studied condition in which children born as "girls" change into boys at puberty. What story are you going to tell about that without including biological causality? Biology doesn't have to be destiny and an understanding of it increases our ability to control our lives. Come out of that comfortable 19th century hole you have dug yourself into and enjoy the intellectual benefits of the biological revolution!

15 people liked this. **Zoe Ellen Brain** 11 months ago in reply to blindboy

He's an English Major. It's unreasonable to expect him to know about conditions such as 5-alpha-reductase-2 deficiency, or 17-beta-hydroxysteroid-dehydrogenase-3 deficiency, the two most common causes of natural sex changes from female to male. We're lucky if he knows that the Earth is spheroidal, rather than spherical or flat.

He has his ideological beliefs; mere facts don't interest him, and won't change those beliefs. Ideas that challenge those beliefs are to be suppressed instead.

"I am a humanities scholar (English) and proud to say I reject every single assertion in the article above and will never include any of this in a discussion on gender or sexuality."

Such ideas are not to be refuted by disputation; they are to be silenced. Post-modernism when it becomes pathological results in that - it's all about power. Ideas are to be valued not in accordance with how they correspond to reality and observation, but only by how well they support a pre-determined position.

Hence Bruno Latour's words:

"I myself have spent sometimes in the past trying to show the "lack of scientific certainty" inherent in the construction of facts. I too made it a "primary issue." But I did not exactly aim at fooling the public by obscuring the certainty of a closed argument—or did I? After all, I have been accused of just that sin. Still, I'd like to believe that, on the contrary, I intended to emancipate the public from a prematurely naturalized objectified fact. Was I foolishly mistaken? Have things changed so fast?

In which case the danger would no longer be coming from an excessive confidence in ideological arguments posturing as matters of fact—as we have learned to combat so efficiently in the past—but from an excessive distrust of good matters of fact disguised as bad ideological biases! While we spent years trying to detect the real prejudices hidden behind the appearance of objective statements, do we have now to reveal the real objective and incontrovertible facts hidden behind the illusion of prejudices?

...

And yet entire Ph.D programs are still running to make sure that good American kids are learning the hard way that facts are made up, that there is no such thing as natural, unmediated, unbiased access to truth, that we are always the prisoner of language, that we always speak from one standpoint, and so on, while dangerous extremists are using the very same argument of social construction to destroy hard-won evidence that could save our lives. Was I wrong to participate in the invention of this field known as science studies? Is it enough to say that we did not really mean what we meant?"---R.O.P Lopez is apparently the product of such a system. He proclaims he prefers "interesting stories" to dry, dusty evidence. He's an English Major, so perhaps he has enough of a broad education in Latin (an obvious essential in understanding English), and can understand these words, and if we're lucky, their context: "Epur si muove".

15 people liked this.



ellenhunt 11 months ago in reply to Zoe Ellen Brain

Oh, though semanticist of my Korzybskian heart!
 Oh, Latin-a skewer gimlet of my role!
 Fly with me above the sands of half-digested igknowledge.
 Our flee brains shall abide
 Snorting mild asides
 And undergrads shall learn anew the truths
 That the savor-toothed curriculum rides asnde!

Forsooth! And forelock. My illiterate brain doth swore-lock.
 Hie me hence in a fettle foreclosed astride Al Hitchcock.

1 person liked this. [Like](#)



tappat 11 months ago in reply to Zoe Ellen Brain

I thought that was Italian -- certainly the conventional expression is Italian. But let's not bother with that sort of fact, I suppose, and just call it Latin, since we think Galileo spoke Latin rather than Italian, I guess.

[Like](#)



profdave 11 months ago in reply to tappat

I may be incorrect in recalling this, but it seems to me that what we call "Italian" did not really exist in Galileo's day, or if it did, it was not widely spoken. The modern Italian language was selected from among many languages and dialects spoken by people who live in Italy.

[Like](#)



steverankin 11 months ago

I agree with the commenters who positively evaluate this piece as well-reasoned and fair. I would only add that, in addition to paying attention to interdisciplinary conversations between the sciences and the humanities, we also recognize the moral questions involved in thinking about sexuality. Even in Professor Asma's piece, moral suggestions appear, "...we should learn how to celebrate diversity and uniqueness for what it is." There is an "ought" in this sentence, based on the "is."

The public discussions about sexuality, particularly how we express sexuality through our behaviors, is both enormously contentious and absolutely crucial. And we need to do so with moral sensitivity and awareness. There is a cultural tendency, I think, to avoid "morality" because too many people associate the word with using specific principles for social control. But the point is, we cannot avoid adopting certain moral principles for social control. We can only evaluate the predominant ones and advocate for change if we don't like them. Either way, we need to know what we're doing.

12 people liked this. [Like](#)



Gopher40 11 months ago in reply to steverankin

I'm far from an expert in these matters, but I see a lot of confusion in the general populace (and apparently among the experts too) about sex/gender identification resulting in ignorance, prejudice, ostracism, and even threatened violence. Horror stories of sex misidentification are all too common if indeed infrequent. Locally, we have a case where a "male" elementary student decided she had female identity and wanted to use the girl's bathroom. Overt

prejudice emerged, especially from a guardian of another student and the family was forced to move elsewhere in the state. Unfortunately such absolutist and alleged "moral" attitudes are all too common in society, even in a college town (and of course absolutist/certainty attitudes and opinions also exist on a number of other topics).

2 people liked this. [Like](#)



steverankin 11 months ago in reply to Gopher40

Your putting quotation marks around the word "moral" makes clear that you find "such absolutist 'moral' attitudes" immoral. And that's my point. We cannot get away from having moral opinions about these matters, even while we engage science and the humanities. If we're ever going to make progress between beyond two untenable positions (unqualified moral approval for virtually any sexual expression that can be deemed natural, or unqualified condemnation of people who don't fit society's moral norms), then we need to re-engage the moral dimension of this conversation and get that dimension more out into the open.

3 people liked this. [Like](#)



djas2847 11 months ago

Asma may be a fine philosopher, but he is a terrible historian. "Evolutionary Psychology" is merely the combination of evolutionary biology and cognitive psychology. The works of Cosmides & Tooby, and Pinker, are based on work done in biology (both empirical and theoretical) decades/years before. I'm not sure what makes someone a "real biologist" but their works are certainly grounded in "real biology" (okay, now that I think about...maybe he is a terrible philosopher, too: simple thought experiment, if brains were blank slates, how could they acquire culture? There would have to be software programs in place for the brain to process the environment inputs that constitute "learning"...not to mention memory capacity to store those inputs, etc.).

Also, to say that evolutionary psychologists are "biological determinists" is empirically false. Cosmides and Tooby in particular have been pioneers in the field of *cognition and culture* (note the subtitle of their classic edited volume THE ADAPTED MIND: EVOLUTIONARY PSYCHOLOGY AND THE GENERATION OF CULTURE). NO ONE, and I mean NO ONE in evolutionary psychology believes culture plays no role in development. That is just silly. The really interesting problems to solve, in fact, are those that try to sort out what roles culture and biology (including neuro-biology) play in human and social development. Too bad that Asma misses these very important points.

10 people liked this. [Like](#)



memills 11 months ago in reply to djas2847

Correct you are -- evolutionary psychologists are nature-nurture interactionists (not naturists as the nurturists falsely proclaim). See an excellent post re this distinction by John Johnson:

<http://www.psychologytoday.com...>

And my own humble proposal to disentangle the sex/gender confusion:

<http://www.psychologytoday.com...>

6 people liked this. [Like](#)



bflo82 11 months ago

Science requires us to not prove theories but to disprove the existing ones. And that requires using the scientific method which asks us to make predictions and then test out whether our predictions can come true and then, after that to replicate the study. What I am getting to is this. You may want to eliminate psychodynamic explanations for sexual behavior and identification (gender is not

psychological but sociological)but consider this.:

To date,no one has yet disproved the idea that sexual identification and sexual behavior is caused in some major way by what happens in the family at a very early age.To think that parents do not have a major and powerful affect on these things goes against common sense.

You may want to prefer other explanations which is fine and dandy but anyone who wants to talk about this also has to disprove the developmental theories of human development and sexual behavior.You can not simply dismiss this theory by labeling it reductionistic.Simply prove or disprove theories --not with intellectual discussions but by empirical studies.It is that simple.

In other words,this matter of sexual identification and sexual behavior is not a matter of different "theories" but by empirical investigation.Prediction and replication.That is the way you find out whether or not something is true or not.Everything in the world is not subjective,a matter of "opinion".

Science ,whether you like it or not, is being sacrificed on the altar of political correctness.

3 people liked this. [Like](#)



ellenhunt 11 months ago in reply to bflo82

Yes they have so proven. See sex reassignment. Case closed.

3 people liked this. [Like](#)



bflo82 11 months ago

How about not engaging in intellectualizing and theorizing but to do some empirical research-- known as science and trying to come close to some facts.To overlook,as I have said before,why on earth doesn't anyone think that the way a child is raised by his parents or so-called parents has anything to do with how we turn out?.Even in part.??

[Like](#)



ellenhunt 11 months ago in reply to bflo82

Relative to sex?

There have been multiple studies from attempts at sexual reassignment that destroyed that idea. You can remove a boy's genitalia, remodel him as an infant to appear female, raise him in dresses and giving him dolls, and give him estrogen in puberty. He will not think he is a girl. If you persist in trying to make him live as a girl there is an incredibly high probability he will commit suicide.

See the case of Joan. That is just the most prominent.

8 people liked this. [Like](#)



j_dubb 11 months ago in reply to bflo82

There has been empirical research on parenting, and much of it points out that parenting is less important than we thought. We probably praise or blame parents too much for how their kids turn out. Peers are important, and of course genetic predispositions are important. And everything interacts with everything in a very complex way.

[Like](#)

**afaustos** 11 months ago

Hi: a couple of corrections. First I (anne fausto-sterling) never argued that 4% figure. A careful reading of the original source reveals that i cited an interview with John Money, who used (and later denied that he had) that 4% figure. The larger 1.7% figure comes from a survey of ALL non dimorphic sex development (chromosomes, genitals, internal organs, secondary sex characteristics). Again, if you went to the original paper, you would see that I did NOT argue for a continuum, although I have been interpreted that way. The graphic of my data is pretty discontinuous, in fact, since only two % fits in that non dichotomous space. Still, that is a large number at a population level. Somebody who is good at statistics and is willing to carefully read the original debates can comment on subsequent revisions of my calculations. The will be revised as new data come in, because the data bases that I searched were incomplete and inadequate in more ways than I can count, a fact I pointed out in the original literature.

Finally, starting with my book in 2000 and in publications since (see my website annefaustosterling.com) I, like Evelyn Fox Keller, have insisted on a dynamic developmental approach to gender embodiment. There is no doubt that sex differences have a material basis. The question is, how does that materiality develop over the life span? What are the contributing bits and pieces? How do they form part of an indissoluble cultural-biological system? How does that system work?

These are the important questions going forward.
Anne Fausto-Sterling

15 people liked this. **ellenhunt** 11 months ago in reply to afaustos

Um. The only mention of 4% is in this comment. Can you clarify what you are concerned about here in context of the article? The article talks about 4 sexes and perhaps 5.

As a biologist, the contention of more than two sexes is ridiculous to me. Mixtures of sexual traits and quite probably mixture of physical sexes is not. But those are a quite different thing.

**profdave** 11 months ago in reply to ellenhunt

ellenhunt - See paragraph 21 of the article. The author derives 4% from Fausto-Sterling's reported count of intersexed births.

1 person liked this. **penumbra84** 11 months ago

I must say I appreciate the impulse to combat reductive understandings of biological science in the humanities, but it seems to me that a lot of the argument here treats deconstructive accounts of gender in a reductive manner.

The fundamental problem in some of the critique here, it seems to me, is this: just because Butler et al. argued that the *discursive* category of sex is socially constructed doesn't mean that there aren't material realities of the individual body (never Butler's point, see BODIES THAT MATTER on this), but RATHER that anatomical sex is nothing more nor less than a (very powerful and largely accurate) explanatory model for how objective reality functions (like, say, VSEPR theory in chemistry is a model to explain how atoms function). The problem gender studies scholars--not all of whom are trained as scholars of the humanities (e.g. Donna Haraway)--critique is the slide from scientific/empirical theory that does not claim to be total or final becomes a philosophical/ontological argument about the fixed nature of the universe. Witness this sentence: "that clarification suggests that intermediaries are very rare, and that the traditional categories of male and female are accurate pictures of nature." Yes, statistically and for many purposes empirically speaking, this "picture" (which is an incredibly interesting and unremarked

word in this sentence) is "accurate" and helps us understand nature. There is great utility in this depiction of nature, too.

The main problem arises when this scientific understanding bleeds into discourse in sentences like, "more commonly, a person will have a male chromosomal pattern XY but then have hormonal abnormalities in utero (e.g. adrenal-gland problems) creating external female genitalia. And vice versa...a mock penis." Abnormal, certainly, but in what sense is this an "adrenal-gland problem," and in what sense is intersexed genitalia a "mock penis"? For the purposes of scientific categorization or medical science, these terms make sense, but they're already moving into a discursive territory rather divorced from their limited technical applicability into a discourse of the good and the bad (the real and the mock, the unproblematic and the problematic), where they become shorn of the context in which they are meant to have a specific scientific utility.

I certainly don't speak for all humanities scholars, but I would never seek to deny that empirical science is a valid and useful method of intellectual inquiry, nor that it investigates a material reality that may be fundamentally outside of human control. The point is, rather, that historically the results of this inquiry have been uprooted from their intellectual context and used to do things like coerce individuals who make up that very small percentage of people outside the norm into conforming with a view of "nature" that is far from the nature that science itself investigates.

And I must say that the counterargument to the gender studies critique of this process here, that we simply "celebrate diversity," is deeply unsatisfactory and weak, for reasons like the sharp backlash against diversity in the contemporary political arena; I truly think it would be wonderful if intersexed people COULD say "I'm different, and different is great," but it seems naive to me to argue that our final goal is to allow a minority its dignity, something the human race has rarely been particularly good at.

22 people liked this. [Like](#)



ellenhunt 11 months ago in reply to penumbra84

Butler is wrong. Period.

[Like](#)



penumbra84 11 months ago in reply to ellenhunt

Evidence?

6 people liked this. [Like](#)



larissaennis 11 months ago in reply to penumbra84

I heartily second penumbra84's assertion regarding the discourses into which discussions of sexual difference almost inevitably slide. I flinched when reading Asma's assertion that glandular "problems" in utero lead to creation of a "mock penis." The connotations Asma leaves attached to his ideas are that non-normative sexualities are a problem; a body outside the norm makes a mockery of a proper body.

So, while science might have the potential to be objective, the language with which we describe it and communicate its findings is not.

2 people liked this. [Like](#)



amazonjn 11 months ago

Unfortunately, most administrations at most public colleges and universities and those of nearly all for-profit and christian colleges reflect the hateful ignorance expressed by some above. Although my students appreciate me, deans and presidents have run me out of JesusLand (USA). To my

brothers and sisters reading this, unless you are the very top in everything you do or unless you are at an outstanding university, then save yourself much grief and go to Europe, Australia, or other places that are advanced in e.q. Even many "liberals" in the US will objectify you.

By the way, scholars, check out how many sexes were recognized by many "primitive" societies before the Onward Christian Soldiers arrived.

2 people liked this. [Like](#)



profdave 11 months ago in reply to amazonjn

Your comments are representative of the danger in positivism. Scholars with those attitudes arrogantly assign to humans like themselves total control of nature and the sole ability to explain it correctly. I remind you that the Dark Ages were marked by the same sort of arrogance (coupled with literacy only among the specially educated) of the Catholic Church.

A new Dark Ages is in evidence wherein the high priests of knowledge are secular humanist PhDs. The only difference between the medieval and postmodern Dark Ages' is the latter's total rejection of any higher power or intelligence.

2 people liked this. [Like](#)



amazonjn 11 months ago

Sadly, take it from someone who is connected and knows: Most administrations at most public colleges and universities in the US and nearly all administrations of for-profit and for-jesus schools are very narrow and no matter how much the students appreciate us, those who do not fall within very narrow definitions will be treated more shabbily than you can imagine. No other minority has to put up with the horrors that we do, ESPECIALLY in the hypocritical academe.

To my brothers and sisters who may read this and do not yet know, unless you are at an outstanding university or are recognized as in the elite 2% in your field, do yourself a favor and relocate out of the US theocracy to a friendlier country in Europe or Australia. You deserve a happy life as much as those around you.

For you scholars, check out how many sexes were recognized by many peoples BEFORE the onward christian soldiers arrived.

1 person liked this. [Like](#)



scourey 11 months ago

Assuming that we accept the considerable scientific evidence that sexual attraction is neurologically hardwired, and that it can lead to body/brain gender incongruity, then we are still left with a basic question: If a behavior is caused by brain chemistry, does that automatically mean that the behavior is desired? To be sure, in one camp are the over-simplified, scientifically ignorant responses such as; "Sexual preference is a choice"! But the other form of simplicity is to say, "Here is the evidence, it is scientifically determined. This person is this way, science has spoken, celebrate it". Both views demean the dignity of the individual who is not only at war within him/herself, but is often being ideologically tossed about by warring "camps". Human compassion for those who are caught in a sexual identity struggle demands that each side wrestle with the inadequacies of their own assertions. "It's just a choice" folks need to shut up and just listen with an ounce of compassion to someone who struggles with gender confusion and realize that it ain't so simple. But so too, can scientists not wrestle with the possibility that a person who has a female brain but a male body might be deeply saddened by this uncontrolled reality? Or even more, that he may deeply desire to learn what it means live as a man, even though his brain chemistry makes it way harder than most men? Just because neurology causes same-sex attraction doesn't mean that a person should be forced to "celebrate" it. Or are scientists so humanistic-ally close-minded to suggest that such a person has "clearly" been culturally intimidated by the "it's only a choice" simpletons?

4 people liked this. [Like](#)



ellenhunt 11 months ago in reply to scourey

It greatly disturbs me is one doesn't see the outrageous suicide statistics among people who undertake sex change operations. The significance of this is that people who attempt to align their bodies with their attraction or feeling of sexual identity do not do nearly as well as often portrayed. For this reason, when I can, I counsel young people with gender/attraction issues to focus on accepting themselves as they are.

As a scientist, while I understand that someone could be quite upset about their unasked for circumstance, it is still the best course to make peace with it. People make peace with everything from multiple sclerosis and Lou Gehrig's, to OCD, addiction and death. Our lives and loves are not fair. Each person has a unique situation, each of us is in some way a genetic mutant, and for some of us that situation is quite difficult. Human maturity requires that we face our lives as they are and do our best with them. We do not choose how we were made.

For some women, a life with a man who is quite feminine or homosexual is preferred. Many women have deep issues with more masculine men. So, as long as they couple is really happy, I see no reason to interfere.

For some men with feminine characteristics, it is practical, and it may be easiest, to simply school themselves. For others, it may not be possible no matter how hard they try. There is a wide variance and a near continuum of attraction levels. I think that men choosing to live as straight when they have homosexual attractions are ok. But a man who is capable of that option should not presume that every other homosexual can be trained or discipline themselves into a relatively happy life with a woman.

3 people liked this.



kgodwin 11 months ago in reply to ellenhunt

Just a point of clarification...

Folks who "undertake sex change operations" aren't usually doing it to "align their bodies with their attraction". There may be a few, but the vast majority of us (and I do mean "us" - I'm in that group) undergo surgery to get the rest of y'all to recognize us for who we are - members of the "opposite" gender/sex.

Who you (want to) have sex with is an entirely different thing from what gender you belong to.

7 people liked this.



ellenhunt 11 months ago in reply to kgodwin

A reasonable point. I modified my post above since I was also thinking of gender identity.

Either way, the statistics are horrendous for suicides in this group who undertake such hormonal and surgical intervention. This is why I counsel people who feel they are in the wrong gender body to accept themselves with all their conflicts. Most physicians who do these surgeries are not forthcoming about such matters - if they even know.



scourey 11 months ago in reply to ellenhunt

You speak as a scientist who is willing to look squarely at realities your profession unearths and admit that, at times, certain discoveries may defy concrete solutions. Thank you. Perhaps the old Serenity Prayer has merit beyond AA gatherings...it may well improve our scientific dialogue.

1 person liked this. [Like](#)**cosmo10** 11 months ago in reply to ellenhunt

Please be careful not to confuse gender identity with sexual orientation.

2 people liked this. [Like](#)**profdave** 11 months ago in reply to scourey

You raise an interesting point. What about other "undesirable" behaviors that can be traced to brain chemistry - addictions, for example? There are cases of people who have overcome such conditions with sufficient motivation. Can "gender identity disorder" be overcome as well?

1 person liked this. [Like](#)**scourey** 11 months ago in reply to profdave

Yes, I appreciate your honest question - it seems plain enough and yet is so politically incorrect. I find that what is just as demeaning as morality-trumpeting judgement is the other side of the same coin: using scientific facts to "tell" a whole group of people that they should not "fight" their hormonal inclinations. Many moralists wrongly hate gays. But it is also true that many scientists blatantly hate entire groups of people who seek a guiding standard that is higher than science, even when they do so non-judgementally. We all do well to look for the log in our own eye. But then again, my log is no more empirically measurable than my humility is gained by ingesting a pill.

[Like](#)**robcrowe00** 11 months ago

There are some interesting summaries of biological research into the interrelation of sex and gender, which perhaps would well inform high school sex education, or college classes in sociology gender and ethics. But what these distinctions have to do with interpreting literature and culture is anything but clear. Too bad the Chronicle did not take out the asides against English studies, since they add nothing to the author's argument. Yes, there are instances of scholars dampening the enthusiasm of some to (mis)apply evolutionary psychology to literary study, but that wariness is well deserved. The interrogation of the distinction between sex and gender certainly found a home in English studies, as well as other departments, and like any founding thought, is full of the missteps that indicate its origins. But the original anti-science posture was well earned since, as the author notes, the founders were fighting a well dug in essentialism. Now that bioscience has come to validate the fluidity of gender, which Freud, Jung and Lacan all their way pointed towards, some revisionist scholars go on to claim that cultural interpretation should simply give way to the tools that have reached their original conclusions. This is first premature, since interpretation, no more than biology, alters its methods when its practitioners reach a consensus, and interventions simply indication that discussions are occurring. But more critically, there is simply a disconnect between the goals of science and the goals of cultural interpretation. Science is by definition concerned with regularities, since to be proven it must be reproduced. It would be too strong to suggest that interpretation is concerned with singularities, but it is concerned with instances, with epiphenomena rather than the thing itself. Practically speaking, too, divining how certain synapses firing has to do with particular cultural expressions such as "War and Peace" would be simply, silly. Either the synapses are of interest themselves or "War in Peace" is in its historical and formal context. Confusing the two only results in bad science and worse criticism.

3 people liked this. [Like](#)

**blindboy** 11 months ago

My initial point was that students deserve to be informed about the biology of sex determination and that this would benefit society as well as the individual by increasing tolerance. The simplest way of understanding the interaction of genes and environment, which is the reductive version of the discussion, is that genetics sets limits within which the environment can exert its influence. In this case, for the vast majority, those genetic limits include a traditional male or female sexuality, within that number a percentage would also have the possibility of other forms of sexuality. Beyond the majority a small minority would have genetic limits that precluded either traditional role. Someone suggested that science could only proceed in this area by some sort of epidemiological study on the influences on sexuality. I do not think this is true. The investigation of biochemical pathways is legitimate evidence particularly when the physical impact of those changes on the genitalia is readily observed.

I have been teaching in this area for over thirty years and year after year I see the impact this level of explanation makes on the attitudes of young people. It is one of the pleasures of the profession to see that smug certainty of prejudice shaken from time to time.

3 people liked this. [Like](#)**robcrowe00** 11 months ago

I appreciate where some are coming from in finding this helpful as a cultural intervention, and I certainly hope that scientific findings about gender fluidity would help in a class on high school sex education or in a college ethics class. I gather the idea is to say that choice is not in it, and students seeing that peers don't choose how they present, physically (and culturally?), would tolerate those who present differently. But would they? Not in high school sex education as currently configured, where for a start presenting these findings as fact would itself start a discussion. A discussion could be had, as Panskepp's suggestion is an *interpretation* of his findings, however much they are grounded in reproducible experiment, but also because the way what is fact is determined in high school curricula is a political process, certainly this is the case when there is complexity rather than clarity in the actual science. And would knowing that peers don't choose--let us not unpack that for the moment--actually make prejudices go away? For much of US history, the common version of Christianity was Calvinist, and destiny was determined. To some being marked as Other, means you are Marked. Choice simply doesn't come into it. Of course, Calvin has subsided, but the tendency to judge by appearances--well if it is not rampant in US culture, I cannot explain the persistence of reality TV and scandal sheet journalism.

I write this not to endorse this situation, but to say that scientists live in a bubble when it comes to how public knowledge is made. In this case, it's clear scientists are getting out of the bubble, but in doing so, they confront two facts: (1) many "truths" are mobilized metaphors, i.e., while science deals with determining data points and carefully linking particularities, the truth most of us live by are much bigger aggregations--science is not nominalist, but it is slow; (2) truth is political, particular those truths promulgated by "biopower", and while facts do come into it, they are selected and sifted to fit particular visions, leaving aside the fact that certain visions prefer to ignore facts.

I can imagine--some day--that we could come up with a "critical realist" explanation for why this is the case for large groupings (and not so large) of our species, and that genes interacting with environment had determined our consciousness thusly. It would take a very big computer, but maybe. But where would this leave us, so the converse strategy is that persuasion--rhetoric--is an important art to study and the most modern tools--deconstruction among them--should be used. Foucault when he invoked Nietzsche's patient gray practice of genealogy meant something along these lines.

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