



III

Trilogy

Disassembling anti-rights narratives through biology  
and science

# Unscientific biological reductionism in Anti-Gender Movements



Akāhatā

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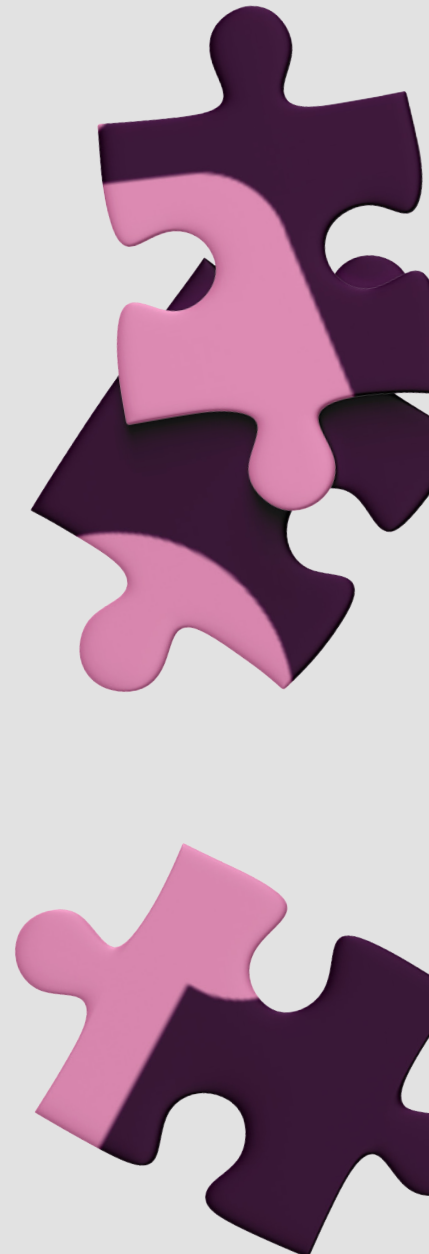
Coordination: **Maria Luisa Peralta**

Design: **Jorge Palma**

**2024 - Akāhatā**

Published by **Akāhatā**  
**Equipo de Trabajo en Sexualidades y Géneros**

Website: [www.akahataorg.org](http://www.akahataorg.org)



# PROLOGUE

"The sex of a body is too complex a matter.  
There is no black or white, but degrees of difference."  
Anne Fausto Sterling

A ghost haunts the world, the ghost of gender....

Some people suspect that gender is a way of talking about women's inequality and simply assume that gender is equivalent to women. Others suspect it is a veiled way of referring to homosexuality. For others it is a different way of talking about sex. There are feminisms that struggle with the distinction, associating sex with biology and legal birth registration and gender with assumed social and cultural norms based on sex. There are endless debates from LGBTIQ+ activist movements; feminisms and other political stakeholders that do not end up agreeing on a single approach to grasp and understanding gender. And neither does sex.

The issue that concerns us here is precisely the arguments that both from anti-rights discourses and from conservative and trans-exclusionary feminisms dispute over and over again the legitimacy of the ways of living, existing and being of many people. They do so from essentialist premises about sex. Postulates that interpret biology as an a priori truth; ahistorical and abstract and not as a science made by people who are part of a culture and who are included in certain paradigms.

From Akāhatā we share the trilogy "Disarming anti-rights narratives: a look from biology and science" Throughout each of the installments, the authors dismantle pseudo-scientific and essentialist arguments used by anti-rights sectors and exclusive trans feminisms. We consider that the task of political advocacy requires an approach to scientific knowledge;

and to the process of construction of knowledge from different disciplines that endorse or repudiate certain policies. Especially because anti-rights, conservative and ultra-right actors appeal to a systematic attack against scientific knowledge and those who produce it, fertilized with fake news, misrepresentations and an alarming lack of rigor in their arguments and supposed "counterevidence". Our LGBT, feminist and allied movements have to improve their knowledge on these issues and be encouraged to give the biological discussion from an informed place, because it is the only way to counteract the proliferation of misrepresentations and pseudoscience propagated by conservative and anti-rights sectors.

Based on philosophical reflection, Siobhan Guerrero Mc Manus argues that the construction of scientific knowledge responds to the political and economic powers that hegemonize each historical context and that have nurtured biologicist essentialism. Appealing to the medical sciences, Marina Elichiry discusses the construction of common sense in the field of health that manages the sexual and social control of bodies and their subjects. Finally, Lu Ciccia points out three conflicts in the interpretation of the cerebral origin of the binary organization of sex.

One coordinate runs through this work: anti-rights discourses first install sexual panic over gender. A form of alarmist response to the destabilization of the colonial and racist regime that classifies, normalizes, pathologizes and criminalizes people, their bodies, families, sexuality and lives according to a dogma based on a deterministic, reductionist and essentialist idea of science, including biology.

Heir to racist colonialism, the use of an obsolete biology - which does not respond to the current development of that science - as a weapon of justification of a supposed natural aristocracy, appears veiled or explicitly in anti-scientific narratives that express concern. On the other hand, from the right in relation to the threat to masculinity, the disappearance of the family and the values of the West. Conservative feminisms contribute to this when they use the essentialist argument of the erasure of the sexes to warn about the loss of the category of woman as a subject of feminist struggle.

Behind hatred there is the threat of loss, says Sara Ahmed. And that phrase resonates in the offensives that time and again evoke and seek to institutionalize symbols, notions and regulations that justify mechanisms of power that reinforce policies of the colonial, neoliberal regime, which in its centrifugal force expels to the margins everything that does not adhere to its civilizing order.







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**2** Psychological Life<sup>1</sup>

**3** Biological interpretation in the molecular era


**4** The limits of the biological to explain the mental

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# 1 INTRODUCTION

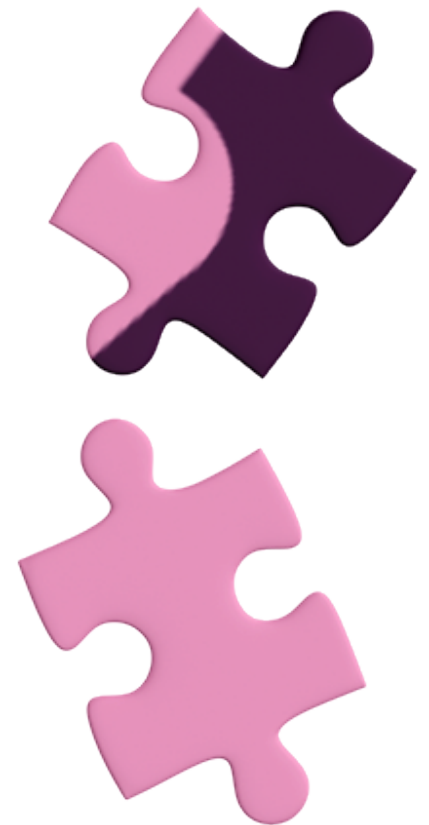
A common denominator of those who join the so-called anti-gender movements is the assumption that reproductive possibilities act as a natural-inevitable frame of reference from which to classify ourselves. This idea recovers certain intuitions of the medical-scientific discourse, from which an identity relationship between reproductive possibilities and the male-female binomial is usually naturalized through the assignment of gender at birth. This naturalization rests fundamentally on a biological interpretation of our mental life. My objective will be to show the flaws of this interpretation to account for the aforementioned frame of reference, that is, the existence of men and women - cisgender. In contrast, I will develop other approaches that escape the order of biology to give ground to the field of the normative. I will show that these approaches are more compatible with findings in molecular biology than scientifically unfounded biological readings.

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# 2 PSYCHOLOGICAL LIFE<sup>1</sup>

It is common for narratives about who we are to end up emphasizing what we do. Let's think about when we present ourselves before a group of people: in the so-called presentation round we often start by making our place of utterance explicit - I am Lu, a non-binary lesbian - and we go on to talk about what we do for a living or what we like to do. That is, we usually describe certain generalities. Undoubtedly, our places of utterance and what we do are involved in our subjectivity. However, subjectivity is not exhausted in the describable and observable: two people could enunciate themselves in the same way, even do the same thing for a living, but no one would assume that because of this we have the same subjectivity or, in other words, we live in the same way. It is intuitive then to assume that what accounts for our particularities is how we live our places of utterance and how we do what we do. And, of course, in those hows there is also macroscopic data: from the way we dress, speak and make gestures, to the way of performing a certain action. Undoubtedly, it is especially in these data where the singularities of the one who enunciates and/or executes a certain action appear, and those singularities reflect other characteristics, no longer so tangible, but rather metaphysical. I mean that singularities imply implicit verbs: how we feel, love, believe and desire what we are/do. Verbs that are part of our mental life, and that is why they are characterized as psychological verbs (Pérez, 2013).

It depends on how we understand the connection between our physical experience (which involves biological descriptions and concrete actions) and the psychological verbs that accompany it (the hows), whether we will be faced with biological interpretations or not of our mental life. This fact is not a minor fact, since in the next sections it will be evident that the biological readings are not objective but work to legitimize that there are bodies that are worth more than others.



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<sup>1</sup> For the purposes of this essay I will consider mind, psychological life, behavior, and conduct, as interchangeable notions. For subjectivity I will simply refer to our way of living.



3

**BIOLOGICAL  
INTERPRETATION IN  
THE MOLECULAR ERA**



In general, for biological readings we usually refer to those that argue that our biology conditions our behaviors, either in a strict sense - biology determines-, or in a more lax sense - biology predisposes -. But in the molecular era this conceptualization is insufficient: the phenomena of plasticity and epigenetics, concepts developed to capture the flexibility of our biology, lead us to reformulate what we mean by biological reductionism.

If the idea of plasticity refers to how our biology changes through our practices and habits, the notion of epigenetics reflects the ways in which these changes occur. Specifically, this term refers to the regulation of our genes: a regulation sensitive to our behaviors, and which assumes that the genes that are expressed in our cells, and to what extent they do so, is not a prenatally programmed event. In contrast, the forms of regulation vary throughout our lives, they are reversible processes, and they dialogue with our social experience.

Therefore, no one in the scientific field today would deny that our biology is dynamic. However, the ways of interpreting this dynamism have served to update the classical biological readings in terms of plasticity. That is, the idea prevails that there is a cause-effect logic between biology and behavior: our biology would cause psychological states, but now it is not only biology determined in a pre-social and irreversible way, on the other hand, it is also considered that certain biological conditions can be acquired according to our social practices. In short, in the molecular era we can redefine biological reductionism as the idea that a certain biological characteristic - whether innate or acquired- is sufficient to explain the appearance of a given behavior (Ciccia, 2022). In a way, this interpretation is embraced even by the authors who subscribe to the new materialisms (Frost, 2020; Pitts-Taylor, 2016).

The cause-effect logic mentioned presumes necessarily the existence of strict psychobiological laws (Davidson, 1979). That is, biunivocal relationships between biology and behavior or, what is the same, that a certain biological configuration always implies a given psychological state, and vice versa. Thus, for example, a type of reproductive possibility must always be associated with a certain gender identity, and a certain gender identity with the same biological description. Identity that supposes not only a classification in itself, but a classification that describes certain ways of being in the world and doing what we do. That is, classifications are based on their power to describe causal connections.

Indeed, it is those causal connections that identity implies on which the assignment of gender at birth is based: if there were no causal interpretations and, therefore, *vulva* and *woman* were two identical descriptions, from the current biological paradigm there would be no reason to sustain the category *woman*, since it would have been displaced by the mere biological description<sup>2</sup>.

This explains why, if we were to ask scientists dedicated to studying sexual difference today where in our biology lies being a woman - being a man, I assure you that no one is going to point out external genitality. Instead, what prestigious behavioral neuroendocrinologists like Melissa Hines (2020) will point out is the brain. Of course, for them, reproductive possibility acts as a predictor -the cause- of brain types.

The above is nothing new, we would have found this answer even in Darwin himself. What changed is the nineteenth-century explanation with respect to the current one: if before there was a blind connection between reproductive possibility and the brain, in the mid-twentieth century a certain theory from the neuroendocrinology of behavior described an empirical connection

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<sup>2</sup> We will see that this is not possible because cisgender women are not equal to each other, even if they have fairly similar vulvas in general terms.

mediated by the hormone testosterone; this explanation became ubiquitous to this day, and from it, it is legitimized that the woman-man categories result from brain sex (Ciccia, 2022).

Brain sex would not only cause what neuroendocrinology itself recognizes as gender identity, but an identity intrinsically linked to certain cognitive-behavioral, and even affective capacities. Female sex represents natural abilities for caregiving, while male sex represents the capacity for abstraction and the development of physical strength, mediated by mental impulses. If we look, this discourse makes identity and occupation equivalent: that is, who we are and what we do would be causally linked. Likewise, by defining attributes such as aggressiveness and empathy, for example, brain sex would to some extent imply how we do what we do. From an evolutionary perspective, it is trivial that identity and occupation are codependent, since the ultimate purpose of this codependency would be the roles in reproduction: classifications in biological sciences focus on the forms of reproduction and the implications that these forms would have on behavior.

As I described before, the categories woman-man are not displaced by mere biological descriptions, and the reason is because they do not reveal absolutely homogeneous behaviors between cisgender women, on the one hand, and between cisgender men, on the other, much less the specific ways in which those behaviors unfold. That is, although prenatal conditions are insisted on, the actions that are associated with how I am a woman-how I am a man do not seem to follow instinctive patterns of behavior. Well, instinct is the same way of doing things among the individuals of a species, and it is truly innate. Take for example the toad hunting strategy: all toads hunt in exactly the same way; they take the same time, and their tongue has the same hunting angle. It is evident that no toad teaches mathematics to another, they simply do so: instinct does not need learning,

and in a way neither does memory. Obviously, there could be toads that for different reasons show other hunting times, or stick out their tongue at a different angle, and therefore will be considered exceptions to what these instinctive patterns of behavior are.

In our species this type of generalization does not exist: that most people with vulvas are women, and most people with penises are men, does not mean that they are the same way. For example, no two women live the same way or walk the same way. That is, beyond that classification itself, what is done and how it is done is widely variable among those who are assigned to the same group. The behavior most closely associated with female-male attachments is sexuality-heterosexuality-.

So linked to brains is identity and sexuality, that it is considered that, for example, trans women have a feminized brain. In the same way, cisgender lesbians would have some cerebral masculinization, but butch lesbians would have a greater masculinization than fem lesbians. Likewise, and consistent with codependency, the preferences of all of them would be linked to their brain sex (so usually what they played as children is investigated). Something very striking that emerges from this presumption is that brain sex would explain the degrees of femininity-masculinity in terms of a continuum that goes from lower to higher levels of testosterone in the prenatal stage, respectively (Ciccia, 2022). Trans, non-binary and sexual diversity are understood as deviations-exceptions of cerebral feminization-masculinization according to the processes of genital differentiation. Although, from what has already been said, these are not forms of existence that deviate from a certain instinctive pattern of behavior.

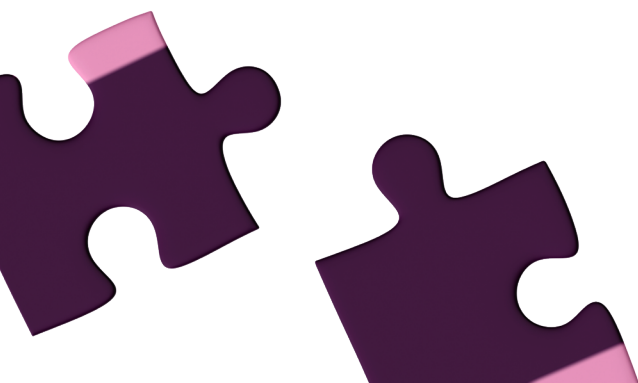
However, like the problems described in making generalizations about identity, beyond the classification itself, the generalities for sexuality seem to follow the same direction: that there is a close relationship between women and male-oriented sexuality does not mean that all heterosexuals have the same way of relating sexually-affectively, or that they do the same and in the same way with their subjects of desire. However, under these categories, neuroscientific discourse usually considers certain things we do to be generalizable, and how we do them. Remember that the meaning of classification is to predict behavior.

It is important to note that interpretations centered on the idea of brain sex suppose an individualistic idea of our mental life: certain generalities, such as ascription to woman-man groups and the behavioral patterns associated with it, seem to admit explanations that are independent of transcultural contexts.

In short, accepting that biology causes being a -heterosexual- woman-man entails assuming, in the first place, the idea of brain sex and the inherent codependency between identity and certain cognitive-behavioral abilities. Second, this biological reading leads to the contention that there has to be one biology per person to explain the variations within this general behavioral pattern about identity, sexuality, and cognitive-behavioral skills. Indeed, this could be compatible with the idea that brains are not susceptible to being classified according to two populations: our great plasticity, especially in our brains, prevents us from doing so. For this reason, the mosaic brain hypothesis has been proposed (Joel et al 2020), from which it is argued that each brain is a unique combination of factors.

Thus, a biological reading compatible with the absence of instinctive behaviors in our species and with the molecular findings that imply variability, plasticity, and dynamism, must consider that, although there would be general psychological/biological descriptions, there should be unique biologies that explain the cause of individual heterogeneity in behavioral terms.

In other words, a biological reductionism consistent with the molecular age must hold that brain variability causes behavioral variability. Thus, the question that concerns us to question the biological readings in the molecular era is the following: is it possible to find in our biological materiality the cause of our psychological life?

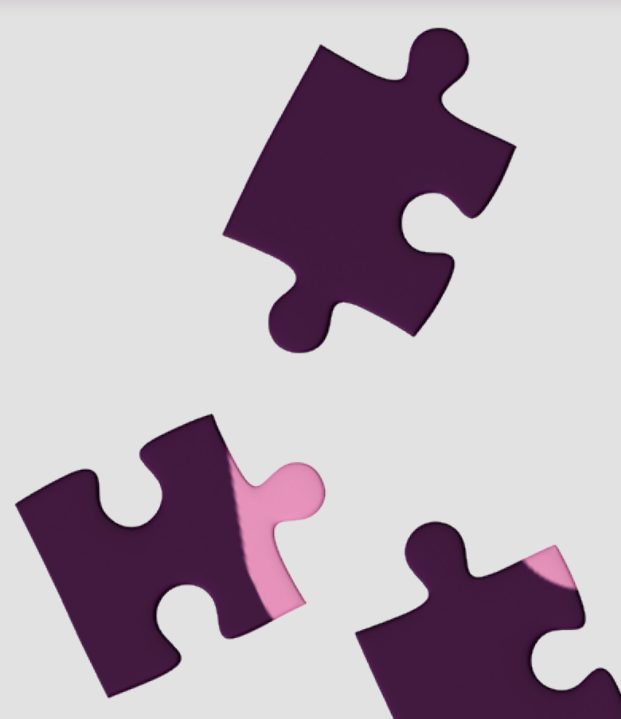


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## **THE LIMITS OF THE BIOLOGICAL TO EXPLAIN THE MENTAL**

The above question will be answered by making explicit at least three of the conflicts that must be overcome to sustain biological readings in our contemporary molecular societies:

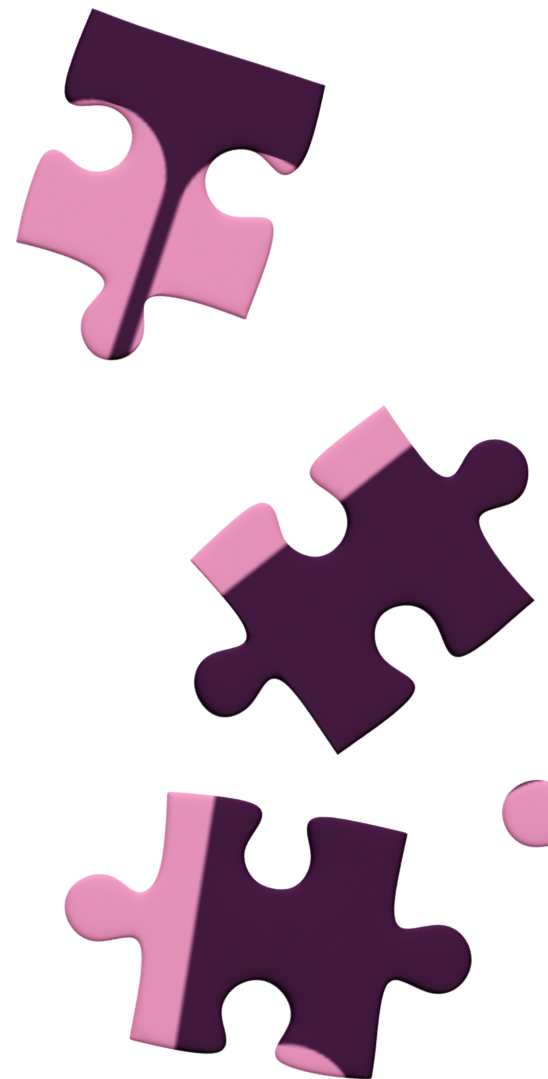
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# The first conflict

Is how to sustain the idea that there are strict psychobiological laws in the molecular age. The causal relationship between biology and behavior developed from the idea of rigid and determined biologies<sup>3</sup>. Regarding the notion of biological flexibility, maintaining the existence of strict psychobiological laws, something necessary to legitimize biological readings, requires assuming that every time something changes in my biology, something in my mental life must change: our biology changes constantly, and with respect to parameters today considered fundamental to explain the existence of male-female -cisgender -, but our psychological states do not seem to vary along with these changes. Take for example endurance athletes who, due to their type of training, today we know that they tend to reduce their testosterone levels by up to 50% (Hackney, 2020).

This phenomenon is known as "hypogonadism in male athletes", and explains that there are overlaps between the testosterone levels of elite athletes who are dedicated to this type of event. Now, should they "become gay" or "women"? Even if we accept that these notions describe general patterns programmed prenatally via the brain, more particular psychological changes associated with testosterone variation during adult life, such as in so-called sexual libido, should be observed. If we accept that we can describe such variations in the testosterone levels of these athletes, how accurately can we translate them into variations in their sexual libido? Well, here we are based on asking people how they feel in this sense, not on descriptions that we can make regardless of their perceptions. However, these athletes usually claim that their libido is not altered.

The point made suggests that at least for these cases there are no strict psychobiological laws: a biological state has no univocal relationship with a psychological state (as is intended in the well-known idea that low testosterone would cause low sexual libido). Likewise, it also shows that how they live their sexual desire is difficult to translate in terms of text-centric gradients.



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<sup>3</sup> And that it was accompanied by strong social restrictions that meant homogenizing behaviors, and even clothing, in public space. Sustained restrictions on the idea of strict psychobiological laws.



# The second conflict

Is how today, from biological readings, limits can be established regarding what sex explains and, therefore, is included in general patterns of behavior. That is, from scientific knowledge it is maintained that biology related to sex prenatally causes identity, sexuality, and certain cognitive-affective and behavioral capacities in general terms, but does not account for other equally general behaviors, even directly linked to roles in reproduction: why would sex explain being female, heterosexual, and empathetic, while it would not explain why certain women choose not to reproduce? Including this behavior in the idea of brain sex would mean considering that those who do not want to be mothers today are deviations, and this assertion seems somewhat problematic, since those who decide not to be, are not even exceptional. In addition, if a codependency between women and motherhood were sustained from the scientific discourse, those who are infertile would not be women. Rather, we would not hesitate to acknowledge that there are sociocultural factors in these types of decisions, and that infertility does not determine how a person identifies themselves.

What I want to show is that the cut-off point to decree what biology explains according to what we call sex and what it does not, to consider it as part of the variability that exists within people of the same sex, is arbitrary. Indeed, during the nineteenth century scientific discourse argued that female sex (cisgender, white) was intrinsically linked to being a mother (Ciccia, 2022). The change in current neuroscientific discourse was not due to the finding that female sex does not necessarily imply motherhood. In contrast, it reflects how this discourse historically dialogued with the contexts in which it was articulated, contexts that have implied cultural changes consistent with certain rights won by heterosexual white cisgender women and feminist movements.

The codependency that continues today with respect to reproductive possibility and the aforementioned cognitive-behavioral capacities, which involve the very fact of being a woman and sexual orientation, does not follow a logic substantially different from the previous one: these connections are not based on the finding of causal relationships between the brain and identity-sexuality-behavior (Ciccia, 2022), but on the description of normative connections (Pérez and Ciccia, 2019), and which involve how we should develop our beliefs and desires in relation to the assigned gender. That most people with vulvas are women and most people with penises are men does not result from prenatal arrangements, from instinctive patterns of behavior, like nothing else in our species. Instead, it's about these language-mediated normative connections.

The discourses emanating from the anti-gender movements seek to restore a series of normative connections that on the idea of sex, and race, as a biological category prevailed in the nineteenth century: the intrinsic relationship between heterosexual white cisgender women and motherhood (they must reproduce to guarantee national identity and not be influenced by feminists, who are responsible for these women reproducing less); the innate virility of white cisgender masculinity, also eroded by feminisms; white racial superiority (racialized bodies reproduce more and threaten the whiteness of the United States and Europe, phenomena called "white genocide" and the great replacement, respectively); the marginalization, pathologization, or denial of the existence of the LGBTQI+ community (which perverts traditional values of family and reproduction).

# The third conflict

Strengthens the previous two since both our particular characteristics and those general categories imply a set of beliefs: our mental states are not individual, but work in a network. This has been characterized as the holistic of the mental (Davidson, 1981). That is, my belief about my place of utterance, whether or not I feel low libido, is simultaneous with a network of beliefs that, via our learning and memory, gives intelligibility to my current belief about who I am, what I do, and how I feel. If we were even to abandon the idea that the biological causes the mental, but insist that it at least reflects our psychological states, since these are not “simple” but are intrinsically connected, there should be a biological description for this network of beliefs. The problem is that the biological explanations we could give will always be finite (based on certain patterns of neural activation, on a continuum of testosterone concentrations, etc.), and our subjectivity is not: my ideas, feelings and thoughts have no physical limits; mental concepts far exceed our biological concepts. This implies an asymmetry between the biological and the mental: although the biological enables our mental life, it does not determine it (Davidson, 1981). The implications of this are fundamental, because if our biology changes, our mental states will not necessarily change<sup>4</sup>. Something that, in effect, more assertively describes the normal libido of athletes with hypogonadism.

With what has been reviewed so far, it is easy to deduce that the current biologists’ readings give continuity to the naturalization of the privileges of heterosexual white cisgender masculinity, and do not currently have any biological foundation. In contrast, with the conflicts described I evidenced that between our biologies and our mental life there are no causal connections, and our psychological life goes beyond the limits of the biological: being a woman-being a man implies the understanding of certain concepts - what is a woman/what is a man-, the learning and memory of a set of beliefs, crossed by our singular experience, and the agency to ascribe or dis-ascribe to those groups. It implies, therefore, certain linguistic competences and symbolic capacity, all in contexts crossed by the sociocultural history of concepts and our affective experiences (Pérez, 2013).



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<sup>4</sup> But if the mental changes, it will necessarily change our biology, something fundamental to keep us out of Cartesian dualisms. I will not stop here at how our psychological life is biomaterialized. For what concerns us, I am interested in showing that it is more assertive to consider, according to our own experience and the plasticity that characterizes us as a species, that every time the biological changes, the mental does not change. That is, current knowledge in Molecular Biology shows that there are no strict psychobiological laws.



# 5 FINAL CONSIDERATIONS

Our physical descriptions, which imply both our own biological materiality and those tangible and concrete actions, suppose, at the same time, normative descriptions, meaning, descriptions that are in the distinctive realm of the mental (Davidson, 1981). That is, they assume psychological concepts and verbs that cannot be translated into a biological language. It is above all in these normative descriptions that we find the uniqueness that characterizes us. And it is in our singularities that we most easily experience the absence of strict psychobiological laws.

As for the general categories, I showed that the cut-off point that scientific knowledge maintains to delimit what of our mental life is due to sex and what it is not, is completely arbitrary, resulting from the biases involved in legitimizing the existence of causal connections between reproductive possibilities and our ways of being in the world. Legitimation that prescribes who we can be/do. The brain is necessary to have a mind, but not enough: our mental life is fundamentally relational, and how we live and want to be recognized, our subjectivity, our agency, what makes us human, does not emerge causally from any biological data, but from a shared language that makes us intelligible, and that, in the words of Pérez and Gomila (2022), accounts for the irreducibility of our psychological life.



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