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# Trans Women Are (or Are Becoming) Female: Disputing the Endogeneity Constraint

Matilda Carter 

Department of Philosophy, King's College London, Strand, London, WC2R 2LS, England  
Corresponding author. E-mail: [Matilda.2.carter@kcl.ac.uk](mailto:Matilda.2.carter@kcl.ac.uk)

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## Abstract

The dispute between the transgender-rights movement and “gender-critical” activists represents a stark division in British public discourse. Although the issues of contention are numerous and require their own philosophical treatment, a core metaphysical concern underlies them. Gender-critical activists, such as Kathleen Stock, tend to argue that recognizing trans women as women requires erasing the category of biological sex. This implies that all trans women are male, and thus recognizing them as women rips female biology from the root of the category “woman.” In this article, I argue that this view is mistaken. As exogenously produced sex characteristics should count toward a person’s sex classification, all trans women are (or are becoming) female.

## I. Sex Matters

At the time of writing, there is an intense dispute in British public discourse between a group of journalists, academics, and activists who label themselves “gender-critical,” and the transgender-rights movement. No one article could resolve the conflict in its entirety, as the issues of contention are numerous: access to women’s spaces, the criteria for participation in women’s sports, and the implications of affirming trans identities for sexuality (Joyce 2018; Navratilova 2019; Grove 2020). Nevertheless, there is an underlying misconception that, if corrected, would assist in the search for solutions.

Gender-critical organizations, such as Woman’s Place UK, often frame the trans rights movement as a threat to “sex-based rights,” charging it with aiming to erase biological sex as a social and political category (Woman’s Place UK 2019). If achieved, this goal would be troubling to many gender-critical activists, who tend to adopt a Beauvoirian approach to the relationship between sex and gender, according to which sex is a material reality and gender is a set of social expectations through which it is interpreted (Sveinsdóttir 2011, 48–49). Indeed, this framing is not without grounding, as many trans activists adopt a Butlerian approach, according to which the very idea that there are male and female people “was always gender” (Butler 1999, 11).<sup>1</sup>

Although this is a stark metaphysical divide between the camps, then, there is implicit agreement that a decoupling of sex from gender or, indeed, erasing the former

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entirely, is *necessary* to support the affirmation of trans identities. In other words, both camps seem to hold that, to affirm a trans woman as a woman, the Beauvoirian approach must be abandoned. Consequently, both camps also seem to agree that, whatever transition does, it *does not change a person's sex*. In this article, I argue that this ostensible consensus is mistaken; the identities of trans women can be affirmed within a Beauvoirian framework, because trans women are (or are becoming) female.<sup>2</sup>

This (likely controversial) claim is intended, in part, to be definitional. In other words, it states that what it is to be a trans woman is to have been through, be going through, be intending to go through, or desire to go through a process that results in a change of a person's sex to female.<sup>3</sup> It may be possible that there are some self-declared trans women who do not fit this description. If so, the view I develop here does not dispute the sincerity of their self-understanding but does imply that they are mistaken if they believe it overlaps with those of trans women who seek medical transition. If such a group exists, this may be an upsetting contention, but I must confess that in my personal experience as part of the trans community, I have never met a trans woman who would be excluded by this definition.<sup>4</sup>

The argument develops as follows. First, I offer one possible argument in favor of retaining the Beauvoirian approach, drawn predominantly from the work of Alison Stone. This argument is not intended to be definitive, but illustrative: highlighting the kind of concerns underlying gender-critical arguments. Then, I sketch out the *cluster model* of biological sex, which Stone proposed to maintain the concept in the face of natural complexity. I note that gender-critical activist Kathleen Stock has endorsed it, but highlight her undefended addition of an *endogeneity constraint*. By stipulating that characteristics must be developed endogenously to count toward a person's sex categorization, Stock's version of the cluster model holds that *no* trans woman is female. Drawing on the work of gender-critical activists, I consider possible defenses of this constraint, but argue that none is convincing. As some of this group may balk at the suggestion that it is possible to change sex, I then consider but ultimately reject some arguments made by Holly Lawford-Smith in favor of a necessary-condition model.

Beyond demonstrating that upholding trans identities need not be detached from female sexual biology, however, I do not state a precise view on the definition of the word *woman*. By implication, the article offers support for the view that, insofar as we have reason to treat *all* trans women as women, it is in virtue of their relationship with a process that changes their sex. Nevertheless, though this is a view I have sympathy with, it is not one I argue for here. Instead, this article focuses on biology and the body, with the aim of bringing conceptual clarity to the process and results of medical transition.

## II. Why the Beauvoirian Approach?

Both the Beauvoirian and Butlerian approaches, broadly speaking, agree that there are concepts we call sex (male and female) and gender (man and woman). The core distinction, I take it, is one of direction. On the Beauvoirian approach, sex is prior to gender, such that the concept of woman is understood as a series of roles and norms that are interpreted from and imposed upon people who are female. On the Butlerian approach, on the other hand, gender is prior, such that we categorize bodies as male and female in order to fit the socially constructed roles of man and woman.

In public discourse, growing acknowledgment of two related sources of indeterminacy seems to have prompted many to adopt the latter view. First, the existence of intersex people is thought by some to undermine the idea that there are two, distinct

biological sexes (Fausto-Sterling 1993, 21). Second, because of such intersex conditions, alongside changes that occur with age and through medical intervention, some think that no *single* necessary condition for human femaleness or maleness can avoid unintuitive exclusions. For instance, if XX chromosomes are necessary for human femaleness, then persons with XY chromosomes and complete gonadal dysgenesis are not female, even though they develop female secondary sex characteristics and are, at least in some circumstances, capable of pregnancy (Dumic et al. 2008).

This imprecision caused by human diversity might be thought to give weight to the claim that the concepts of male and female represent nothing more than an attempt to make a complex distribution of bodily traits fit the binary ideas of manhood and womanhood. Accordingly, it is increasingly popular to suggest that sex is a spectrum that resists simple categorization (Montañez 2017). A Butlerian might welcome this, perhaps arguing that, if we cease to categorize by sex, the gender norms and roles that concern feminists would be undermined or at least no longer be imposed upon people based on their physical traits.

This version of the approach, however, may be too idealistic. As noted by Paul Griffiths, human reproduction consists of two distinct strategies: the production of small gametes (sperm) and the production of large gametes (ova) (Griffiths 2020). Griffiths does not commit to a particular view of the relationship between sex and gender. However, it does seem that the possession of this capacity exists prior to gender and, moreover, it seems so fundamental to our survival that we cannot possibly avoid categorizing people by it.

A Butlerian might respond that this capacity does not neatly overlay the categories of male and female, as presently constituted. Many people congenitally categorized as male do not produce sperm because of injury or age. The equivalent is also true for people who are categorized as female. They could, thus, respond that there is such a thing as *reproductive* sex, but that it is a property that only some possess, and that those who possess it do so temporarily. For the sake of clarity, I am sure they would acknowledge that ova-producers face disadvantages, such as period poverty and social shaming but, presumably, the view is that these can be tackled on their own terms, without the need to refer to a broader distinction between male and female bodies. Indeed, Griffiths might tend to agree, as he questions whether mere reproductive strategies can bear the weight of all that is entailed by sex categorization in our society (Griffiths 2020).

Nevertheless, it does seem that our understanding of what it is to be a woman is, at least in part, based on its association with a particular reproductive strategy. Moreover, as Stone notes, this capacity arises, in the vast majority of cases, with a series of other observable distinctions in, for example, external genitalia, capacity to build muscle mass, pattern of body hair, and distribution of body fat. Because of these observable, physical distinctions, Stone argues that it is unlikely a society could ever avoid categorizing people according to these distinct forms of embodiment (Stone 2007, 49). If this is right, abandoning the Beauvoirian approach seems unwise, because social categorization along these lines will, inevitably, involve particular practices, norms, and dynamics that must be analyzed and, if they are unjust, challenged.

The Butlerian approach can, of course, accommodate some analysis of these phenomena but, in both denying the inevitability of and advocating for the cessation of social categorization by the material distinctions they arise from, it may fail to fully capture their character. It seems implausible to think, for instance, that norms relating to the gender division of labor arise from the capacity to produce ova in isolation. Rather, it seems highly intuitive to think that they arise because ova-production usually

accompanies characteristics like the capacity to gestate, the capacity to breastfeed, and greater difficulty in building muscle mass.

One way of grounding the value of the Beauvoirian approach, then, is that it can capture two aspects of gender that are less easily understood in Butlerian terms: that gender norms arise from and are applied to people based on *observable, bodily differences* and that they do so *in aggregate* rather than in isolation. If this is right, then we would have good reason to find a concept of sex that can maintain the account in the face of biological complexity.<sup>5</sup>

### III. Enter the Endogeneity Constraint

Prompted by these kinds of concerns, Stone recommends that sex is best thought of a *cluster concept*, consisting of traits that usually (but by no means always) encourage one another's presence. From this point of view, being a particular sex is merely a matter of having *enough* of the traits that, in aggregate, generate and entail the imposition of their related gender norms (Stone 2007, 36–45). Infertile men, then, do not cease to be males just because they *lack* one trait from the male cluster, and people with XY chromosomes and complete gonadal dysgenesis are still female even though they possess a trait from the *opposite* cluster.

Such a model is fully compatible with the Beauvoirian approach while enabling it to take account of the complexity that has prompted some to question the social and political relevance of biological sex. It should come as no surprise, then, that Stock has endorsed it, offering this interpretation: “In everyday discourses, and all or most technical ones, Sex is appropriately characterized in terms of a cluster of endogenously produced morphological, genetic and hormonal features. None of them are individually essential for human femaleness or maleness, though possession of some vague number of them is sufficient for it” (Stock 2019, 300). Stock explicitly states that her cluster model is flexible enough to categorize “the vast majority of people, including those with differences of sexual development such as Congenital Adrenal Hypoplasia” one way or the other (300–1).<sup>6</sup> Consequently, the “vague number” of characteristics for classification as female should be low enough for a trans woman to meet it solely through the use of cross-sex hormones. After all, the exogenous application of estrogen changes a far greater number of a trans woman's sex characteristics than surgery does, including fat-distribution, skin and hair quality, breast growth, body hair pattern, muscle mass, body odor, quality and experience of orgasm, sense of smell, emotions and behavior, positioning of hips, height, size of feet, and, of course, the hormone levels themselves (Wesp and Deutsch 2017).

Stock, however, resists this conclusion by stipulating that characteristics must be *endogenously produced* to count toward sex categorization. As trans women, by definition, have produced male-clustering characteristics only endogenously, this entails that none is currently or could ever be female. This *endogeneity constraint*, then, is highly consequential, yet it is not present in Stone's model; indeed, she explicitly states that trans women who pursue medical transition become female (Stone 2007, 44–45). As Stone is the only prior exponent of the approach Stock references, this must be a *conscious* amendment, yet it is entirely unacknowledged and entirely undefended.

Without the exclusion of exogenously produced sex characteristics, then, the cluster model holds that (at least) some trans women are female. The aim of this article can thus be fulfilled merely by providing arguments against the endogeneity constraint. As no defense is present in Stock's work, however, some philosophical imagination is required.

#### IV. Constructing Defenses of the Endogeneity Constraint

To recap, the value of the Beauvoirian approach consists in its ability to recognize and analyze the emergence of gender norms from aggregates of observable, material differences, and their imposition onto those who possess them. The cluster model of biological sex, because it categorizes people according to their possession of characteristics that usually arise together, is well placed to successfully underpin this.

I take it, then, that a successful defense of the endogeneity constraint must prove that, without it, the value of the Beauvoirian approach would be undermined. There must, then, be some fundamental distinction between endogenously and exogenously produced characteristics that is supposed to lead to this loss in value. Given no such distinction is offered, in this section, I construct three candidates from the work of gender-critical activists: form vs. function, human intervention vs. internal processes, and deviance vs. conformity. I take each seriously and fairly but, as I demonstrate, none can justify the endogeneity constraint.

##### *Form vs. Function*

At one point in her article, Stock describes trans women as having only a surgically created appearance of being female (Stock 2019, 301). Likewise, Holly Lawford-Smith questions whether the sex characteristics of trans women have fundamentally changed at all, opining that “no amount of clever painting and radical mane-chopping can make a horse a zebra” (Lawford-Smith 2019b). The implication underlying both of these claims is that exogenously produced sex characteristics are *merely cosmetic*, which can be constructed into the following defense of the endogeneity constraint:

- P1: All exogenously produced sex characteristics are merely cosmetic.
  - P2: All endogenously produced sex characteristics are functional.
  - P3: Counting merely cosmetic sex characteristics toward sex categorization would undermine the Beauvoirian approach to sex and gender.
- Therefore
- C: To maintain the Beauvoirian approach, exogenously produced sex characteristics must be excluded from sex categorization.

This defense gets off to a rocky start because P1 is demonstrably false. To take a few examples: the breasts trans women develop through exposure to estrogen do not just look like their endogenous counterparts; they are capable of lactation (Reisman and Goldstein 2018, 24–26). The genitals created through vaginoplasty are capable of being stimulated to orgasm and of self-lubrication (Bizic et al. 2014). More generally, morphological changes through exposure to estrogen change not only the appearance of the body but the way it smells, feels, and reacts to injury (Fabris, Bernardi, and Trombetta 2014).

On the other hand, depending on how it is to be understood, some endogenously produced sex characteristics may be merely cosmetic, thus undermining P2. For instance, we might think that traits like female-pattern body hair or a female-typical facial structure have no discernible function, no matter how they are produced. Consequently, P3 is rather dubious because it is quite plausible to think that these characteristics play some role in the construction and imposition of feminine gender norms. It is not uncommon, for example, to hear stereotypes justified by the notion of

femaleness as the “fairer sex.” Excluding them, then, would seem to undermine the Beauvoirian approach, by removing a series of characteristics that, in aggregate with others, produce the norms and expectations it seeks to analyze and critique.

Lawford-Smith seems to anticipate some of this, because, in other parts of her essay, the claim is comparative: “a neo-vagina may look a lot like a vagina, but it doesn’t function as a vagina does: for one, it’s not self-cleaning” (Lawford-Smith 2019b). Now, though it is certainly true that current medical techniques cannot replicate *all* of the functions of *every* female-clustering sex characteristic, there is a difference between a characteristic that is partially functional and one that is merely cosmetic. Nevertheless, there is a potential revision to the argument here, which focuses on *level of function*:<sup>7</sup>

P1: All endogenously produced sex characteristics are fully functional.

P2: No exogenously produced sex characteristic is fully functional.

P3: Counting sex characteristics that are not fully functional toward sex categorization would undermine the Beauvoirian approach to sex and gender.

Therefore

C: To maintain the Beauvoirian approach, exogenously produced sex characteristics must be excluded from sex categorization.

This version of the defense struggles too, however, because the new P1 and P2 are also demonstrably false. After all, some endogenously produced sex characteristics are only partially functional; consider the number of women who experience vaginal dryness or the number of men who experience impotence. As such, it cannot be the case that *all* endogenously produced sex characteristics are fully functional. On the other hand, some exogenously produced sex characteristics may be considered fully functional, depending on how this is defined. For instance, if the function of sex-typical muscle mass is to possess sex-typical grip strength, then many trans people have a fully functional, exogenously produced version of the characteristic that clusters with those of their target sex (Scharff et al. 2019).

Moreover, even if techniques are not developed enough to produce fully functional versions of *every* sex characteristic in the present day, there is every chance they will be developed and improved. It is not out of the realm of possibility that surgical and pharmaceutical interventions could eventually create fully functional versions of every sex characteristic. Indeed, some argue that we are very close to a trans woman being able to carry a child to term through a donor uterus (Jones et al. 2018). It cannot be the case, then, that exogenously produced sex characteristics are *inherently* less functional than their endogenous counterparts, nor that this is a categorical distinction between them.

Even if it were, however, it is not clear that P3 holds either. First, it is not clear that the norms that arise from sex characteristics always depend on full function, because many are distinctions of kind, not degree. The number or quality of ova produced by ovaries, or amount of milk produced by breasts, for instance, seems irrelevant to norms around childcare because ovaries and breasts are always female-clustering. There thus seems to be little lost if partially functional versions of these characteristics are included.

On the other hand, excluding partially functional characteristics may lead to profound losses for the Beauvoirian approach, because it may render people sexless in a counterintuitive way. Consider, for instance, a person with complete androgen-insensitivity

syndrome. People with this condition have predominantly female-clustering traits, such as female-typical fat distribution and external genitalia, but also possess XY chromosomes and internal testes. Few, if any, of these characteristics can be said to be fully functional, so an exclusion of partially functional traits would render them sexless.

Yet, often, this condition is not discovered until puberty at which time medical intervention may be needed to correct it, which means many of those with it are assumed to be straightforwardly female from birth. Moreover, even when the condition is discovered at birth, those with CAIS are still, most often, raised as female (Werner et al. 2012). It would seem very strange, then, for a Beauvoirian approach to ignore or cast as irrelevant this imposition of female gender norms on the basis of function—especially as such cases seem to further support the idea that level of function does not seem to play a role in our actual practices of sex categorization.

Even if this problem can be circumvented, however, the problem of aging remains. After all, as we grow older, many of our sex characteristics begin to lose function. It seems ludicrous to think, however, that a postmenopausal woman has ceased to be female or an infertile older man with impotence has ceased to be male. Indeed, it would seem to undermine the Beauvoirian approach if it were forced to hold that norms, expectations, and stereotypes that apply to older women do not arise from and are not applied to the possession of material, female-clustering characteristics.

In sum, exogenously produced characteristics cannot be distinguished from their endogenous counterparts by level of function. Moreover, it is not at all clear that the Beauvoirian approach would be undermined by counting partially functional or cosmetic characteristics toward sex categorization. The endogeneity constraint, therefore, cannot be defended on the basis of function.

### *Human Intervention vs. Internal*

In her book *The Transsexual Empire*, Janice Raymond, one of the earliest proponents of feminist skepticism about trans people, memorably stated that “the transsexual is a synthetic product” (Raymond 1979, 165). One way of interpreting this claim is that the sex characteristics of trans women are produced by human intervention, whereas those of other women are not. A possible defense of the endogeneity constraint can thus be constructed from this:

- P1: All exogenously produced sex characteristics are produced by human intervention.
- P2: All endogenously produced sex characteristics are produced by internal bodily processes.
- P3: Counting sex characteristics produced by human intervention toward sex categorization would undermine the Beauvoirian approach to sex and gender.  
Therefore
- C: To maintain the Beauvoirian approach, exogenously produced sex characteristics must be excluded from sex categorization.

It cannot be denied that exogenously produced sex characteristics require human intervention. Barring future contact with intelligent aliens, it is almost part of their definition. P1, then, does seem to hold.

P2, however, is highly questionable because humans are an interdependent, social species. We are conceived only because humans decided to engage in reproductive

activities, we are born only because humans assist and protect the person who carries us and, if none of us received the human intervention of caring and nurturing, none of us would ever survive to reach puberty and attain secondary sex characteristics (Kittay 1999, 30–31). If human intervention is taken to mean human decisions and actions, then it seems that no sex characteristic, whether endogenously or exogenously, can be produced without human intervention. Consequently, P3 is also highly dubious because it would seem that, if we did not count any characteristics created by human intervention, nobody could be categorized according to their sex.

Perhaps human intervention, in this very general interpretation, does not fully capture Raymond's point. Endogenously produced traits, after all, are only *indirectly* produced by human intervention; the direct cause of their development remains internal bodily processes. With this in mind, the defense could be reconstructed as follows:

- P1: All exogenously produced sex characteristics are produced by direct human intervention.
- P2: All endogenously produced sex characteristics are produced by internal bodily processes stimulated by human intervention.
- P3: Counting sex characteristics produced by direct human intervention toward sex categorization would undermine the Beauvoirian approach to sex and gender. Therefore
- C: To maintain the Beauvoirian approach, exogenously produced sex characteristics must be excluded from sex categorization.

This amendment shores up P2, but at a cost to P1. Indeed, the majority of a trans person's sex characteristics are the results of internal processes. For instance, although the decision to use medication that changes hormone levels is a human intervention, the subsequent growth of breasts, changes in fat-distribution, and other morphological effects are the result of the human body's natural response to an increased presence of estrogen and a decreased presence of testosterone (Wierckx, Gooren, and T'Sjoen 2014). They are, as such, no more directly created by human intervention than their endogenous counterparts, which can only form because of humans who have helped their bearers to survive.

Of course, those characteristics that are produced by surgeries such as vaginoplasty and facial-feminization surgery are more directly produced by human intervention, but that does not mean that internal bodily processes play no role. There is some tentative evidence, for instance, that the microbiome of exogenously produced vaginas *can* resemble that of their endogenous counterparts, including microflorae that do not usually grow on penile skin (Petricevic et al. 2014). These are not implanted, which suggests a role for internal processes in changing the hospitability of the skin.

In any case, as with any surgery, those aimed at producing sex characteristics create swelling, bruising, pain, and numbness that are healed by internal bodily processes. Immediately after facial-feminization surgery, for instance, a trans woman will have a bruised, swollen face that is neither discernibly male- nor female-clustering in appearance (Altman 2012). Likewise, immediately after sex-reassignment surgery, she will have bruised, swollen genitals that neither closely resemble, function like, nor have the sensation of their endogenous counterparts (Mang et al. 2019). If the body did not heal itself by, for example, regenerating nerve endings, these surgeries would not succeed. Consequently, it is very plausible to consider postsurgical recovery *part of the process* of exogenously producing the relevant characteristics. If so, surgically produced sex

characteristics are produced as well by internal bodily processes stimulated by (albeit quite extensive) human intervention.

If the above holds, then the truth of P3 of this iteration of the argument is irrelevant, because no sex characteristic of a trans person would be excluded. The whole argument thus fails. It might be thought, however, that a distinction could be made on the basis of *continual* human intervention. Lawford-Smith, for instance, makes a lot of the recommendation by surgeons that trans women use dilators to maintain their vaginas (Lawford-Smith 2019b). An iteration of the argument based on this distinction would take the following form:

- P1: All exogenously produced sex characteristics require continual human intervention to maintain.
  - P2: All endogenously produced sex characteristics are produced by internal bodily processes that continue unaided after being stimulated by human intervention.
  - P3: Counting sex characteristics that require continual human intervention to maintain sex categorization would undermine the Beauvoirian approach to sex and gender.
- Therefore
- C: To maintain the Beauvoirian approach, exogenously produced sex characteristics must be excluded from sex categorization.

Cashed out this way, however, the defense is even less convincing. To maintain our sex characteristics, we all need to stay alive, which, given the deep needs and frailties of human beings, will require at least some human intervention. Every single premise of this version of the argument, then, seems questionable.

This point may, perhaps, be taken as glib. A stronger version of the distinction between unaided continuation and continual intervention might hold that those in the former camp will continue to exist in the absence of injury or death, whereas one could be uninjured and alive, yet lose those in the second group. However, even this version is unconvincing; the results of facial feminization will not revert without human intervention, nor will the clitoris and labia created by vaginoplasty disappear. Further, though she is right that many trans women do dilate, Lawford-Smith is wrong to suggest that failing to do so will cause the vagina to cease to exist (Lawford-Smith 2019b). Dilatation is recommended in the period immediately after surgery to prevent health risks, but whether and how often it is required thereafter is disputed (Erickson-Schroth 2014, 280). Certainly, it does not seem to be required in every case; trans activist Christine Burns recently reported that, twenty-five years since surgery, she no longer dilates but has not experienced significant atrophy (Smith 2019).

Further, some sex characteristics produced by hormones will never revert once developed, such as breasts in the case of trans women and the deepening of the voice to male-typical levels in the case of trans men (UCSF 2020). Moreover, if a trans person has had their gonads removed, even fewer will revert, because they will not have the necessary levels of endogenously produced sex hormones to stimulate such a change. Of course, the hormones themselves will drop, but this is also true of endogenously produced sex hormones, which fluctuate throughout life and drop in old age. In this sense, the hormonal profile of a trans woman who has had an orchiectomy but has ceased to take estrogen is no less female-clustering than that of a post-menopausal woman.

As few, if any, exogenously produced sex characteristics will revert without human intervention, then, the truth of P3, again, does not matter, because few, if any, exogenously produced characteristics would be excluded. Indeed, because it is such a fundamental part of our existence, any distinction based on human intervention, whether cashed out as direct or continual, will be unable to justify the endogeneity constraint.

### *Deviance vs. Conformity*

The distinction between intervention and internal processes may not fully capture Raymond's charge that trans people are "synthetic." In a response to transgender video essayist Natalie Wynn, Lawford-Smith states that gender-critical activists "think it's horrible that *anyone* feels the need to change their bodies and faces to fit social expectations" and that medical transition is akin to "commercial plastic surgery" (Lawford-Smith 2019a). The normative part of this claim, however plausible, is irrelevant here; whether it is a good thing for people to transition does not change what happens if they do. The analogy with plastic surgery, on the other hand, could be constructed into a defense of the endogeneity constraint.

One plausible view of plastic surgery is that it cannot change *who a person really is*. Facelifts, lip fillers, or Botox might make a person *look* younger, for instance, but they do not actually decrease their age. Note that this is not a mere variation on the form vs. function distinction I have already dismissed; a facelift genuinely does tighten a person's skin. Rather, the concern is that, just as merely possessing an indicator of youth does not make an older person youthful, merely possessing female-clustering characteristics cannot make a person female. A defense of the endogeneity constraint in this vein might take the following form:

- P1: All exogenously produced sex characteristics are deviations from a person's true identity.
  - P2: All endogenously produced sex characteristics conform to a person's true identity.
  - P3: Counting sex characteristics that are deviations from a person's true identity toward sex categorization would undermine the Beauvoirian approach to sex and gender.
- Therefore
- C: To maintain the Beauvoirian approach, exogenously produced sex characteristics must be excluded from sex categorization.

This version of the argument stands or falls on what is taken to be a person's true identity. Most trans women, because they identify as women, likely consider their endogenously produced male-clustering characteristics to be deviations from their true identities, whereas their exogenously produced characteristics conform. If their sincerely affirmed identities are to be believed, then P1 and P2 are false. Gender-critical activists, on the other hand, would likely argue that they are truly male, but justifying that claim is difficult.

If the claim is that trans women, no matter what the composition of their sex characteristics is, are truly biological males, then the whole argument is circular; an exogenously produced trait is a deviation because it does not count toward sex categorization, and it does not count toward sex categorization because it is a deviation. The argument about plastic surgery is not like this because we do not usually think of ages as cluster

concepts. If having been born seventy years ago is a necessary condition for being seventy, for instance, it is not counterintuitive to exclude people who are not seventy. Thus plastic surgery might make them look younger than seventy, but it cannot change the date they were born. As sex *is* best understood as a cluster concept, however, the situation is not fully analogous.<sup>8</sup>

The language of true identity, at least in psychological terms, may not be helpful here. An alternative approach to defending the endogeneity constraint on these terms could be to focus merely on bodily *change*. Inherent in the cluster model of sex, after all, is an idea of dimorphic sexual biology, which usually follows the same pattern. Trans people disrupt this sexual development, pushing their body in a direction it would not usually have gone in. Another iteration of this argument, then, could take the following form:

- P1: All exogenously produced sex characteristics are deviations from the way a person's body type usually develops.
  - P2: All endogenously produced sex characteristics conform to how a person's body type usually develops.
  - P3: Counting sex characteristics that are deviations from the way a person's body type usually develops toward sex categorization would undermine the Beauvoirian approach to sex and gender.
- Therefore
- C: To maintain the Beauvoirian approach, exogenously produced sex characteristics must be excluded from sex categorization.

Even this version of the argument, which focuses merely on the body, is unconvincing. Consider, for example, the woman with congenital uterus absence who recently gave birth via a transplanted uterus (Ejzenberg et al. 2018). The lack of a uterus is, of course, an intersex condition, but the point of the cluster model is to be able to categorize such people as female, who otherwise have majority female-clustering characteristics. Consider, too, the use of hormone-replacement therapy in postmenopausal women, producing levels of hormones that a female-type body usually has. As both of these cases represent development-conforming, exogenously produced sex characteristics, P1 cannot be right.

On the other hand, consider men with the extremely rare Persistent Müllerian Duct Syndrome, who experience otherwise male-typical development alongside female-clustering characteristics such as fallopian tubes, ovaries, a uterus, or a cervix (Farikullah et al. 2012). None of these features of reproductive anatomy usually arise in male bodies, so they are endogenously produced sex characteristics that deviate from the way the person's bodily usually develops. P2, then, cannot be right either.

Perhaps there is a way to account for the usual development of intersex bodies without undermining the core claim of the cluster model, which is that these are mere variances within a cluster of traits that usually develop in a certain way. If so, the endogenously produced sex characteristics of all intersex persons could be understood as development-conforming. This specification of particular body types would render the hormone profile of a postmenopausal woman using HRT development-deviating, but this iteration of the argument may be able to avoid the problems in the first part of section IV because all older women, likely, have a sufficient number of the other female-clustering characteristics to be categorized as female even if their hormonal profile is excluded.

Assuming this defense can be made, then, this iteration of the argument stands or falls on the truth of P3. One way in which a gender-critical activist might defend it is to claim that trans women do not experience the imposition of female gender norms. If true, the inclusion of development-deviant sex characteristics would undermine the Beauvoirian approach because it would render female those who are not treated as such. Yet the truth of this claim is not at all obvious. Indeed, a blog post co-authored by several gender-critical activists, including both Stock and Lawford-Smith, explicitly states that some trans women “pass” and thus are perceived and treated as female. Admittedly, the authors claim that the vast majority of trans women do not pass, but this is a claim presented without evidence (Allen et al. 2019). They may have in mind those who are partway through or have not yet begun the process of medical transition, but the cluster model sans-endogeneity constraint does not require us to categorize them as female; only those who have attained a sufficient number of female-clustering sex characteristics are categorized as such. As the numbers of those who “pass” in this smaller, more specific group, will inevitably be far higher, it is unclear that the Beauvoirian approach would be undermined by categorizing them as female.

Even if there are fully transitioned trans women who do not pass, however, it is not obvious that being treated as a trans woman is the same thing as being treated as a man. Indeed, despite some unsubstantiated anecdotes from heterosexual men that Stock raises to justify her views on sexual orientation (Stock 2019, 301–2), evidence suggests that even trans women who retain their penises are perceived as and treated with the same expectations as other women by men who seek sexual relationships with them (Reback et al. 2016). Indeed, if the change of reporting around Caitlyn Jenner to focus disproportionately on her appearance is anything to go by, these expectations can be present in nonsexual contexts too.

Moreover, as argued by Julia Serano, trans women experience these norms through the process of transition itself, wherein, in order to access health care, they are often expected to dress in highly feminine ways and express attraction toward men (Serano 2007, 162–76). It is therefore not clear at all that categorizing some trans women as female, even if they do not pass in all circumstances, undermines the Beauvoirian approach. Indeed, it may be enhanced by being able to recognize that, even when trans women are recognized as such, they still can be subject to the imposition of feminine gender norms and expectations.

An alternative route would be to stipulate that exposure to gender norms, in the relevant sense, is inherently linked to *development*. Lawford-Smith, for instance, claims that there are many trans women who experience “little or no female socialization,” particularly those who transition later in life (Lawford-Smith 2019a). From this point of view, it is not enough merely to be exposed to norms and stereotypes about what it is to be female; one must have been *shaped* by them from a young age. If this is not true of even “fully” transitioned trans women, then counting traits produced by medical transition toward sex categorization would render those who have not had this experience as female, directly troubling the Beauvoirian approach.

Although superficially plausible, however, there are good reasons to doubt this view. First, many trans women have been affirmed by their parents since childhood and have never experienced male puberty. This affirmation is, inevitably, accompanied by gendered expectations and norms, especially if few outside of the family are aware of their trans status. Note that the normative question about whether this should happen is irrelevant: it does. Excluding development-deviant traits from sex categorization thus

would preclude extant early transitioners from being categorized as female, despite the fact that they have experienced female socialization and have enough female-clustering sex characteristics. The Beauvoirian approach, therefore, would seem to lose something through this exclusion.

Second, it is far from clear that mid to late transitioners have not been shaped by social expectations about what it is to be female, even if others have not always directly applied them to them. Psychological evidence suggests that children learn that there are different sexes and rules about how each should behave from a young age (Martin and Ruble 2010, 354–57). If this is right, all trans women have grown up *knowing* about the norms that underpin female socialization, even if others were not trying to get them to abide by these norms. It is, therefore, untrue to say late transitioners have not been *exposed* to this socialization from a young age.

A gender-critical activist might object that being exposed to something is not the same as being *shaped* by it, because the latter experience implies being affected by it directly. However, a key complaint that they have about trans women—that they do not just change their physical characteristics, but consciously adopt the behaviors and aesthetics associated with female socialization—undermines this. If the problem is that trans women appear to equate these norms with being female, then they must have been shaped by them in some way. After all, why else would they believe they have to abide by these norms if they have not internalized them? It cannot be the case, for instance, that they think abiding by these norms *makes* them female, otherwise they would not pursue medical transition at all.

It may, of course, be the case that mid to late transitioners have not been shaped by these norms from a female perspective. Indeed, Lawford-Smith raises such a concern as one reason that it is impossible for a biological male to know what it is like to be female (Lawford-Smith 2020). However, even leaving aside arguments about the persistence of trans identities from a young age, once a trans woman has gone through the process of medical transition and has begun to be confronted with these expectations, it seems very plausible to think she has attained a female perspective from which she can understand her own socialization.

Both early and late transitioners, then, have been exposed to and shaped by the norms that underpin female socialization. They may not have experienced them in exactly the same way as non-trans women, but it is not clear that an acceptance of heterogeneous ways of experiencing female socialization undermines the Beauvoirian approach.<sup>9</sup> A distinction based on a notion of change or deviance, then, cannot justify the endogeneity constraint. Indeed, no distinction I have considered here is successful in doing so. On any plausible interpretation of the cluster model of biological sex, then, all trans women are (or are becoming) female.

## V. An Alternative to the Cluster Model

On the cluster model, then, it is possible for a person to change sex. It ought, therefore, to be pleasing to transgender-rights activists. Some gender-critical activists, however, may be motivated by this conclusion to reject it and search for an alternative. Indeed, arguments to this effect are offered in a blog post by Lawford-Smith in which she contends that the cluster model is “unacceptable” because it creates an unfair asymmetry between different types of trans people (Lawford-Smith 2019b).

Differing from both Stock and Stone, Lawford-Smith requires that a person have a *majority* of the relevant clustering traits, rather than *enough* of them, rendering many

trans and intersex people sexless. She also makes unacknowledged and questionable choices about the relevance and weighting of different characteristics, in a manner that verges on question-begging. Nevertheless, even on this unfavorable interpretation, trans women can still become female, but only by exhausting all currently available medical options. The problem, as Lawford-Smith sees it, is that trans men cannot become male, because fewer options are available (Lawford-Smith 2019b).

It should be noted, however, that this objection is rather flimsy because surgical and pharmaceutical procedures are likely to improve over time. Consider, for instance, both the likely future availability of full uterus transplants for trans women (Jones et al. 2018) and the Massachusetts hospital that is, at time of writing, awaiting approval to perform a full penis transplant onto a trans man (Dottinga 2020). It is, then, only by current medical limitations that trans women can only just get over the line, and trans men fail. Thus, there is no conceptual asymmetry in her interpretation of the cluster model: only a *practical* one. Moreover, this asymmetry could be an important rallying point for political demands for further research and development of female-to-male transition options, which would seem to give us more, rather than fewer, reasons to adopt the account.

In any case, Lawford-Smith does reject it, instead offering a defense of the view that sex can be categorized based on the production of gametes. It is a common concern that this model would render many people sexless, but she argues that the best way to interpret this necessary condition is as what is “true, all going well.” If we do this, she claims, then a man who has had his testicles removed due to cancer would remain male because he is “the kind of individual who, all going well, produces sperm” (Lawford-Smith 2019b.)

If this is an empirical statement, however, it may just collapse into the cluster model. After all, what is it that makes this man “the kind of individual who, all going well, produces sperm” if not his possession of characteristics that usually cluster with this property? Perhaps she means that he used to have the capacity and, if not for the cancer, he would have kept it, but then this would mean that neither prepubescent boys nor men with congenital azoospermia are male.

Of course, “all going well” might be expanded to encompass adulthood and absence of congenital impairments, but this might morph it into something of a chauvinistic value judgment. After all, to say that things are not going well for a child or someone with a congenital impairment, merely because neither is an unimpaired adult, is to make a claim about what the “ideal” male is. If this is intended to be an objective claim about peak human virtuousness or development, then it requires a defense that Lawford-Smith does not give.

Alternatively, she might be hazarding a guess as to how men who cannot produce sperm would evaluate their lives. This guess would likely be accurate in the case of testicular cancer, as, presumably, most men would not value the condition. However, this seems to open the door to the Butlerian view on sex and the primacy of gender identity that Lawford-Smith explicitly rejects (Lawford-Smith 2019b). After all, from the point of view of a trans woman who has lost this capacity through hormones and surgery, she is the kind of person who, “all going well,” would produce ova. In fact, she likely had that view of herself before she even began medical transition.

Perhaps these interpretations of the “all going well” clause are uncharitable. An alternative interpretation is that this is merely an appeal to the idea of alternate developmental pathways. This is the view offered by Alex Byrne, who argues that being male or female is merely a matter of having traveled “some distance down the developmental pathway that results in the production of” small or large gametes (Byrne 2018).

From this point of view, “all going well” merely means “going according to this developmental pathway.”

Note, however, that using this view to argue that sex is immutable implicitly relies on the endogeneity constraint that I have demonstrated is indefensible. After all, it is quite plausible to think of the process of medical transition from male to female as an exogenous developmental pathway that, once sufficiently advanced, will likely result in the production of ova (Laronda et al. 2017). Perhaps Byrne and Lawford-Smith might reject this, arguing that this is not currently possible but, of course, it is also not possible to restore ova-production in a postmenopausal woman or enable sperm-production in a man with congenital nonobstructive azoospermia. Why, then, should they be categorized as female or male, respectively, if they, like the trans woman, have traveled down a developmental pathway that cannot be completed? After all, no matter how well it is going, none of these three people is currently capable of attaining the capacity to produce gametes. Without an arbitrary exclusion of exogenous processes, then, even this model must conclude that some trans women are female.

Regardless, the production of gametes need not require the possession of gonads. The process of in vitro gametogenesis (IVG), through which other cells are manipulated into either type of gamete externally, has been successfully trialed in mice with the realistic aim of future use in human reproduction (Goobens 2021). Given, then, that *everybody* is both a potential sperm- and ova-producer, we have good reason to think that an excessive focus on gamete-production as a necessary condition would undermine the Beauvoirian approach. After all, wealthy men in possession of a large number of male-clustering characteristics, who have invested in or made plans to get early access to IVG, have traveled some distance down a pathway that will likely lead to ova-production, yet it would be utterly absurd to categorize them as female.

Lawford-Smith, then, does not offer convincing reasons to reject the cluster model, nor does she offer a sound defense of the necessary-condition model. Absent an argument not yet present in the literature, then, the cluster model remains best placed to underpin the Beauvoirian approach to the relationship between sex and gender.

## VI. Rejecting the Endogeneity Constraint

In this article, I have argued that a cluster model offers the best prospects for maintaining the Beauvoirian approach to sex and gender. In response to an undefended feature of Stock’s version of it, I have also demonstrated that there are no convincing reasons to ignore or exclude exogenously produced sex characteristics. I have, therefore, concluded that medical transition is best understood as a process that changes a person’s sex, even on the terms preferred by gender-critical feminists.

I have not, however, considered any downstream normative issues. Whether trans people should be able to transition, whether it is good for them if they do, how we should segregate people in sport, what implications the femaleness of (some) trans women has for sexuality or, indeed, exactly how womanhood is to be defined, are questions for another article. Nevertheless, the arguments I have offered here should bring conceptual clarity to these debates, by clearing up a misconception that underlies them.

The aim of this article has been to answer a very specific question; does the affirmation of trans women as women require the erasure of biological sex? As, on a cluster model of biological sex, trans women are (or are becoming) female, I conclude that it does not.

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## Notes

**1** This article uses the terms *Beauvoirian* and *Butlerian* in a way that may be controversial. First, because this essay is rooted in the analytic tradition where the texts these approaches are drawn from are firmly located in the continental tradition. Second, because a considerable range of literature disputes the claim that Simone de Beauvoir makes a distinction between sex and gender (see Moi 2001). I have used the terms in this way for two key reasons. First because, although I am not a scholar of Beauvoir, I am broadly sympathetic to the view that she does employ a sex–gender distinction (see Offen 2017, 11–28). Second, and more important, because this, on my reading, is the way my gender-critical interlocutors understand Beauvoir, and a key aim of this article is to critique them on their own terms. Nevertheless, the success of this argument does not depend on whether this is the right way to interpret these thinkers. Therefore, if my usage is to be objected to, the terms can just be read as *the sex-before-gender* and *the sex-as-gender* approaches, respectively. My thanks to the editor for pointing this out and steering me toward the relevant literature.

**2** The corollary to this, that trans men also are (or are becoming) male, is also implied by the c. I focus predominantly on trans women, nevertheless, because they are the primary objects of gender-critical concern.

**3** Some may be skeptical that mere intention or desire is enough for a person to be *becoming* female. If this is of concern, then the arguments of this article can still hold by lengthening the claim to “trans women are (are becoming, are intending to become, or desire to become) female.”

**4** Although I do not elaborate on this view here, I should note that excluding members of this (hypothetical) group from the category “trans woman” does not necessarily mean they ought to be thought of as men. In fact, many terms in common use among LGBT+ people may be amenable to them, such as “non-binary,” “trans femme,” or “gender-fluid.” All I have stated here is that there is an important conceptual difference between people who seek medical treatment to change their sex characteristics and those who do not. Therefore, even if restricting the term *trans woman* to the former group were to be deemed unacceptable, the arguments below would still hold; we would just need another name for the group that they concern.

**5** I take these to be the kind of concerns motivating the gender-critical worry about the erasure of biological sex. Although I am broadly sympathetic, I have not offered an extensive defense of these claims here. Instead, I take them to be right for the purposes of the following argument, which challenges gender-critical activists on their own terms.

**6** It may not, however, capture all of them, as it seems very plausible that some people could have enough to be classified either way or too few to be classified as either. Nevertheless, acknowledging a third sex category need not undermine the Beauvoirian approach; the only concession to the Butlerian view this requires is an acceptance that social expectations have excluded and obscured its existence.

**7** I assume, for the purposes of argument, that, if characteristics like female-pattern body hair are merely cosmetic, they can count as fully functional in the sense of fulfilling their purpose of not being functional—as strange as it sounds.

**8** Advanced age in purely biological terms could be thought of as a cluster concept, based on a variety of symptoms that might appear, for instance, in people with progeria. However, this just creates a different disanalogy; skin tightening procedures change only one characteristic, so they are not sufficient to make a person youthful. Barring advances in anti-aging technology, it is not possible for an older person to change enough of their characteristics to become (biologically) young. Trans women, on the other hand, can change enough of their characteristics to be classified as female.

**9** Indeed, it would seem obvious that there is no one way of experiencing female socialization. To defend P3, a gender-critical activist would have to single out the experiences of trans women as uniquely damaging and threatening to the approach. This would seem difficult to defend, however, because excluding development-deviant traits from sex categorization would render early-transitioning trans men as female, even though they have not experienced female puberty and have been socialized as men.

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**Matilda Carter** is a Lecturer (Academic Education Pathway) in Philosophy at King’s College London. Her primary research interest concerns social equality and its relationship with dementia.

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