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The Value of Sex in Procreative Reasons

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We can learn about people's conceptions of the ideal life by looking at what they imagine heaven to be like. Although voluptuous and gendered (and even sexist) accounts of the afterlife are familiar, more reflective views grow ever more distant from our actual human form of life—many Christians believe that in heaven there will be no marriage, sexual intercourse, or procreation. For those of us who think of the human frame not as the creation of a divine designer but as a contingent product of blind natural selection, it is simply a truism that our biology falls far short of perfection. If we were to engineer ex nihilo a new form of intelligent life that would be maximally flourishing, it would bear little resemblance to actual human beings. Nor is it likely to be divided into male and female, or to engage in sexual intercourse for reproductive purposes—sexual dimorphism was after all not selected because it reflects some deep intrinsic value, but for familiar evolutionary reasons. Awareness that we are mere products of blind chance, that there is no special necessity that intelligent beings would be divided into male and female, or walk on two legs, or enjoy music or dance, might be disturbing to some. But we mustn't confuse pressure in the gut with a *reductio*.

PROCREATIVE BENEFICENCE AND SEXUAL DIMORPHISM

Maximally flourishing rational beings are unlikely to be sexually dimorphic. This unremarkable point, however, doesn't by itself say anything about what kind of children we humans should have. We have defended *procreative beneficence*: the claim that parents have reasons to create children with the best chance of the best life (Savulescu 2001; Savulescu and Kahane 2009). There are three points to elaborate in relation to this claim.

First, evaluating embryos should be individualistic based on maximum available information about that particular embryo. As we have pointed out, it will be possible to test for thousands of genes, or other biological states. Sex will only be one feature of a predicted embryo. But male and female embryos will each have different psychological, cognitive, and physical capacities. An individual female embryo might have a disposition to borderline personality disorder, be of lower intelligence, or be infertile. A male embryo may have a higher predicted range of intelligence, greater resistance to disease, and exceptional musical abilities. Faced with these facts, it would be rational to choose the male embryo.

Sparrow (2010) claims that female sex is better because of longer life and capacity to experience pregnancy and childbirth. But pregnancy and childbirth are associated with mortality and permanent damage—it is not clear these are an overall benefit (Sparrow seems to mistakenly identify the best expected life with the life with the most open future, two distinct if partly overlapping goals). And men can have vastly more biologically related children (Genghis Khan had apparently thousands) and can have sex in more ways. Even if there were some overall advantages to female sex, such advantages are contingent and not necessary. For example, men could be modified to carry pregnancies or live longer. And women could avoid the pain and risks of morbidity and mortality of pregnancy and childbirth by ectogenesis or xenogestation, the genetic modification of nonhuman animals, such as pigs, to carry human fetuses to term. Australia has just recognized the first person to have neither female nor male sex legally. It is only a matter of time before enhancement technologies allow people to be both male and female, or neither. So sex will become a matter of personal choice (Savulescu 2010).

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Even if there were advantages to being female, these would have to be weighed against individual predictive indices relating to a particular embryo. Other differences in genetic value are likely to swamp the contribution of sex in any particular evaluation. We would have as much reason to select female embryos as we would to select African American, Asian, or Caucasian embryos, depending on which racial origin embryos were likely overall to statistically have the best life. Sparrow mistakenly imports a group characteristic into an individual multifactorial evaluation.

Second, the reasons to select embryos are radically context dependent. They apply to the expected lives of *particular* individuals in highly specific social conditions (Kahane and Savulescu 2009)—conditions that include the impact of tradition and prejudice, and the choices of other parents. Sparrow needs to argue that in these conditions, girls can be expected to have clearly better lives. This is partly an empirical question. We find Sparrow's arguments for this claim unpersuasive, but we will leave it to others to debate the details.

Third, even if girls could be expected to have better lives than boys, and parents thus had a reason to prefer girls, these reasons would still not dictate a procreative choice—they would first need to overcome competing reasons, a point we have also emphasized (Savulescu and Kahane 2009), and which Sparrow overlooks in the rush to a *reductio*. In Savulescu (2001), it was argued that we could even have reasons to have a disabled child, such as a child with Down syndrome, to make a political statement or further a political goal. Procreative beneficence is not the only principle or supplier of reasons, as we have been at pains to repeat. These other reasons might include the good of the parents, and the social good. It might be that a couple could have most reason to create a boy with a prospect of a good life, even if they could create a girl with a better life, for reasons of sex balancing, or just because this boy will make the lives of other women even better. When these other reasons are taken into account, then it seems to us that, even if Sparrow's basic argument was correct, and assuming a social environment with minimal prejudice against women, parents might at best have weak reasons to prefer a girl to a boy if this is their first child, and if sexual selection is not widely practiced.

BEING PARTIAL TO BEING HUMAN

We therefore doubt that Sparrow's argument succeeds. There is, however, a truth in the discomfort that he expresses about the prospect of a future without sexual dimorphism. As our powers of biological intervention increase, we will be repeatedly faced with the choice of whether to hold on to our imperfect human biology and the forms of life that are shaped around it, or to overcome these in favor of an alternative with greater potential for well-being. Sparrow ends by suggesting that in response to this discomfort, we should conclude that the biologically normal has deep moral value. This conclusion is puzzling, given that Sparrow had earlier

cited some of the many critics of this view, and has carefully outlined the dangers of status quo bias. To think of our actual biology as the product of blind evolution is precisely to give up the idea that the normal features of human biology have any inherent value (Kitcher 1999; Dorsey 2010; Kahane and Savulescu 2009). The arguments for this conclusion seem to us unanswerable, and Sparrow says nothing to address them.

Might there be a better way to ground this discomfort? In many contexts we have reasons to be partial: to give greater weight to ourselves and our family, or to care about some country or institution, even when there are better alternatives, and when doing so doesn't maximally promote possible good from the "point of view of the universe." These reasons are not generated by the intrinsic betterness of the people and things we care about, but by our relations to them, and our contingent history. Might we have such reasons to be partial to the human way of life, including sexual bimorphism and the role it plays in human life? It seems perfectly plausible to hold we have such "conservative" reasons (Cohen unpublished). If a shared history can generate such reasons, then our reasons to preserve features of human life that have existed from time immemorial should be very strong. And contrary to Williams (2006), such partiality is not a 'human prejudice' based in our subjective attitudes, but can be objectively justified.

Needless to say, such conservatism has its limits. We don't need to tear down an antique house or abandon venerable traditions simply because we could replace them with something better—but it doesn't follow we can always justifiably hold on to the way things are and give up the opportunity to promote very great goods. This is why we hold that, all things considered, we have strong reasons to enhance cognition and mood beyond the biologically normal. But we might have reason to preserve the distinction between men and women precisely because—unlike biological limits on human cognition, emotion, motivation, and longevity—it does not present some deep obstacle to the promotion of human flourishing. Preserving sexual dimorphism is thus perfectly compatible with the project of human enhancement. ■

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Sexual Dimorphism and Sexual Intermediaries

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Robert Sparrow's article (2010) attempts to defend the position that humans are sexually dimorphic. However, human embryology clearly shows this is not the case. Human embryos start out as indifferent and only the correct set of genes and hormones appearing in the correct order and at the appropriate time can lead to male and female phenotypes. So variations in sexual morphology are not uncommon. Historically this has been acknowledged and debated. In the early medical literature, the notion of sexual intermediaries was discussed. The medicalization of sex and gender, however, added complexity to this discussion. In cultures where sexual intermediaries are acknowledged and accepted, individuals are given their own position in the society. In these instances, sexual dimorphism clearly is not accepted. It seems difficult to acknowledge all this information and still defend sexual dimorphism.

In 2000, Blackless and colleagues examined the literature and suggested that 0.2–2.0% of the population have variations in sexual development that affect either chromosomes, gonads, or the phenotype of the individual. Other studies have shown that 1 in 5,000 infants are born with ambiguous genitalia (Thyen et al. 2006; Hamerton et al. 1975). In addition, 1 in 400 male and 1 in 700 female newborns had sex chromosome abnormalities (Hamerton et al. 1975). A major question is whether this many individuals with variations in sexual morphology should be viewed as nonexistent. From several perspectives it appears they should not be.

As early as the 1800s, it was known that developing human embryos go through a period of development called the indifferent stage (Marino 2010). From conception until about 6 weeks of gestation, the embryo has indifferent gonads capable of becoming ovaries or testes. Depending on the genes expressed and other developmental events, the gonads can develop or remain in a primitive stage. In

some individuals they can remain as ovotestes or streak gonads.

The genital duct system also goes through the indifferent stage, and early in development, ducts are present that can give rise to the male or female genital duct system. Depending on the factors expressed, the mesonephric ducts can become the male genital duct system and the paramesonephric ducts degenerate. Conversely, the female genital ducts can develop from the paramesonephric ducts and the mesonephric ducts can degenerate because of the lack of testosterone. However, if testosterone receptors are not present but Mullerian inhibiting hormone is present, the individual can be born without either duct system.

External genital ambiguity persists until the end of the first trimester. With dihydrotestosterone or excess androgens, the external genitalia will masculinize. With estrogens present, the external genitalia will have the female morphology. In XX individuals, too much testosterone or androgens will cause masculinization of the external genitalia, and in XY individuals the lack of dihydrotestosterone and testosterone will cause feminization.

Therefore, depending on the factors present, the embryo can take any number of developmental pathways. The majority of embryos become either male or female, but the pathways leading to one or the other are not fully understood. Recent reviews have shown there is a remarkable complexity to understanding the pathway from a fertilized egg to sex differentiation (Wilhelm et al. 2007). In addition, very little is known about the development of the ovary. As Wilhelm and colleagues state (2007), "The early development of the vertebrate ovary is poorly understood at the histological, cellular, and molecular levels, a rather amazing situation given the importance of this organ" (20). Nonetheless, one could argue there are at least three genders: male, female, and indifferent. And other

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