

One of the key inventors of CRISPR/Cas9 technology, Jennifer Doudna, recently gave a TED talk in which she explained the groundbreaking technique (Doudna 2012). During this talk, in order to elaborate on the technology's practical import, her presentation portrayed the "genome-engineered" baby possible with the development of CRISPR: "no baldness," "20/20 vision," "sprinter." As a balding, near-sighted, middle-of-the-pack, middle-distance runner myself, I have to wonder about the implication that these characteristics are so undesirable as to warrant genetic intervention. As an aspiring medical professional, I also have to wonder about the ethical viability of allowing parents to pick and choose their baby's characteristics as they would the features of a new computer or car. The examples that Doudna uses may sound harmless enough – just a few, small, superficial changes – but it doesn't take much reflection to see the potential for abuse. To offer one example, many cultures value fair skin and stigmatize individuals with dark skin, and many parents from those cultures will no doubt desire to choose fair skin for their child. Should the motivation for their selection be considered in the ethical decision-making process? Parents who regret their culture's prejudice may still want their child to avoid the social stigma attached with darker skin. Should the likelihood of such stigma be a factor? Inevitably, the choices we would make for our CRISPR babies will reflect not only our mostly innocent, vicarious desires, but our individual and societal prejudices as well.

Because the CRISPR technology offers near infinite possibilities, it offers the possibility for us to transcend our own humanity like no other medical technology developed so far. CRISPR potentially makes humanity itself into so much raw material to be molded and fashioned as we wish. Because of this, the technology forces us to answer the question, "What does it mean to be human?" Answering such a question in this context, as Rosemarie Garland-Thomson points out, also entails the more ominous question, "What ways of being in the world

ought to be eliminated?” as certain genetic traits or conditions could become virtually extinct if the technology is used on a wide scale (Hayden 2016).

Even if we were to limit the use of technology to treating “disease-causing traits” as the National Academy of Sciences and the National Academy of Medicine suggest in a recent publication, these questions will not go away (Committee on Human Gene Editing 2017). The concept of disease requires a healthy or normal condition with which to compare and is no less a social construction vulnerable to the values and biases of a given culture. In his book *Suffering Presence*, Stanley Hauerwas argues the possibility that “‘retardation’ might not ‘exist’ in a society which values cooperation more than competition and ambition” (Hauerwas 1986). His point is not that competition and ambition cause mental retardation, but that such individualistic values emphasize independence to such an extent that they highlight and stigmatize the perceived “neediness” of those with different intellectual capacities. Indeed, Hauerwas points out that our desire to prevent mental retardation – and this would hold true for any number of genetic conditions – stems from the assumption that we should prevent suffering; there is a danger, however, that the suffering we are trying to prevent may itself be largely caused by “our unwillingness to change our lives so that those disabled might have a better life.”

I take it that the ethical challenges discussed above are especially challenging in a pluralistic society which attempts to leave questions like “What does it mean to be human?” and its necessary complement, “What ways of being in the world ought to be eliminated?” to individual choice. They are especially challenging because to leave these questions to individual choice is itself to decide that humanity is indeed so much raw material to be molded and fashioned as we wish. At the same time, CRISPR provides a uniquely effective solution for a number of genetic diseases which cause great suffering and early death, such as Huntington’s

Disease and Cystic Fibrosis, and there is promising research investigating the use of CRISPR-Cas9 in cancer treatments as well (Chen, et al. 2016). In order to best utilize CRISPR for legitimate medical ends and guard against potential abuses, some account of human nature is necessary. To this end, the following essay will explore the helpful distinction between “to beget” and “to make” as utilized by ethicist Oliver O’Donovan in regard to human procreation, applying the distinction to the clinical use of CRISPR-Cas9 technology.

In the book *Begotten or Made?*, Oliver O’Donovan examines a number of ethical issues emerging from several contemporary medical advances, focusing in particular on in vitro fertilization. O’Donovan concludes that it is ethically crucial, despite the temptation to think otherwise in a technological culture, to maintain procreation as a process of “begetting.” To beget, in O’Donovan’s usage of the term, is to create like from like, to “form another being who will share one’s own nature, and with whom one will enjoy a fellowship based on radical equality” (O’Donovan 1984). To make something, on the other hand, involves a certain amount of determination of its nature by one’s will. An artist begins with a lump of clay and determines its final form with her artistic vision, limited only by the characteristics of the clay, her skills, and the technology available. The danger of thinking exclusively in terms of making is, in the words of O’Donovan, that it leaves “no restraint in action which can preserve phenomena which are not artificial. This imperils not only, or even primarily, the ‘environment’ (as we patronizingly describe the world of things which are not human); it imperils what it is to be human, for it deprives human existence itself of certain spontaneities of being and doing, spontaneities which depend upon the reality of a world which we have not made or imagined, but which simply confronts us” (O’Donovan 1984).

Although O'Donovan compares how we view human procreation to how we view the environment in passing, it is worth teasing out further. There is often a great irony that so often those who appeal to protect the environment or to preserve nature seem to ignore the fact that we too are animals or to even deny that there is such a thing as "human nature" in any morally meaningful sense. An animal behavioralist will argue for the ethical necessity of allowing "natural processes" to continue unhindered, to resist the temptation to save the wildebeest from the lion (or perhaps to trip the impala for the sake of the starving cheetah), and yet will turn around and decry voices which argue against the use of CRISPR as unnatural. One cannot with any consistency claim that the spontaneities of "the natural environment" are worth preserving from human artifice without acknowledging the danger of human artifice on the human animal.

After all, to return to the task at hand, our human genomes are nothing if not the result of these "spontaneities," and O'Donovan's distinction between begetting and making is especially appropriate when discussing the use of CRISPR. First, the distinction entails the prohibition of "designer babies," as the selection of merely preferred and/or enhanced traits would simply be taking away the role of chance and hedging the procreative bet. The distinction would also entail the necessity of a conservative approach even when utilizing the technology as a means towards more truly therapeutic ends. The use of CRISPR in cancer treatments and in treatments which similarly target specific tissues (Dai et al 2016) would be confronting not circumventing the contingencies O'Donovan claims to be a necessary part of human nature; treatments, however, that are early enough in development to effect the genome as a whole, whether technically germ line or not, require closer scrutiny.

Obviously, the distinction between begetting and making does not mark off a clear, indisputable line between "allowable" and "prohibited" genetic edits that would effect the

genome as a whole, but it is my belief that such an obsessive focus on casuistry and “difficult decisions” often hinders rather than encourages the development of wisdom, the ability to perceive the larger context and how not only the moral dilemma but we ourselves as moral agents fit into that context. With this in mind, the distinction does help to situate the question of where to draw the line by providing a positive goal to be kept in mind. In O’Donovan’s conception, these spontaneities are good and to be protected, even if there are some results we may deem to be undesirable. In the same way, at the level of the human population as a whole, the diversity which these spontaneities produce is a good and to be protected. The use of CRISPR would be limited to certain negative results of the contingency involved in procreation that are so destructive and severe as to threaten the rest of the spontaneities in the developing individual’s genome. Again, this is not meant to end the debate over what genetic traits would or would not be considered so destructive, but merely to frame the argument as how to best protect the spontaneities that lead to the diversity that enriches our collective life together.

The claim that even genetic traits that have negative results may enrich our collective life may sound strange or, even worse, sentimental. To better understand how this may be so, a concrete example may help. A few years ago, the BBC aired a documentary called “Stepping Out” which followed a dancing instructor in Australia who taught dance and drama to a group of “handicapped” young people. Rowan Williams describes his experience watching the documentary:

You might have started out (I did) prepared to feel a little moved in a rather patronizing way – how touching, how pathetic, how cute – but the only final response worth making was humbled, awed delight. We had been *watching* grace, in every sense. We had been watching love, the patient, humorous, grave care of the teacher getting these people to value and admire their bodies, giving words and hugs of encouragement to each one as they prepared to perform.... We watched people blossom into unpredictable beauty by being taken seriously. If you’re made to feel all the time that your body is graceless, it

will indeed be a lump of messy fat.... But *put* grace and you will *find* grace (Williams 1995).

And so another set of questions presents itself: on whom will we “put” grace? From whom are we willing to receive grace? Perhaps the largest ethical challenge with the use of CRISPR is that in a consumeristic society we tend to only put grace exactly where we think we’ll find it at the least cost to ourselves. This tendency robs others of the dignity of being taken seriously. Moreover, it robs ourselves not only of the “unpredictable beauty,” but also, and perhaps more importantly, the humbling experience of receiving grace in our own imperfect bodies as we learn to recognize ourselves in the grace of others.

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