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Should Humans Dream of Designer Babies?

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Seventy-five years before Niander Wallace brutally kills a newborn replicant in *Blade Runner 2049*, the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research was formed.

Its formation led to the creation of the Belmont Report, which established guidelines for the treatment of human subjects. Wallace uses a scalpel as the instrument of disposal, of the newborn replicant, stabbing her in the womb, thereby ending her life moments after wishing her a happy birthday.

The conjunction of *2049* and the Belmont Report leads us to important questions concerning biomedical research, given that replicants are “bioengineered humans.” For example, is the “defective” replicant a human subject, and thus protected by research guidelines, or is she a product or consumer good that did not meet expectations?

If her identity is determined by her human DNA, then Wallace committed murder. But if she’s a product, he simply disposed of a defective model. This leads us to question our ethical obligations concerning the treatment of replicants. How should we treat replicants once they’ve been created? Are they humans or are they “objects” that can be used as a means to achieve human ends? If the latter, the Wallace Corporation was completely justified in creating different models (farming, mining, or pleasure) in its quest to “own the stars.”

Blade Runner 2049 grapples with these questions and, particularly, the nuances of using genetic engineering to create human beings for various ends. Non-replicant humans increasingly rely on replicants to perform tasks that are dangerous, degrading, or undesirable. They’re designed to embody idealized characteristics and, as such, are often stronger, more intelligent,

and more beautiful than their non-replicant counterparts. The downside is that they're engineered with specific purposes in mind and, at times, planned defects, such as a limited emotions or shortened lifespan. As such, *2049* is an exploration of ethical concerns that arise with the use of genetic modification techniques in the context of human research—techniques that are rapidly moving out of realm of fiction and into reality.

One of the most popular topics concerning the application of genetic modification techniques is the creation of “designer babies.” Today we're on the cusp of having greater control over choosing the traits of our children. We will soon be able to design our children, increasing the probability that they're born with a specific hair and eye color or other desired traits. As we learned at the beginning of *2049*, replicants are “bioengineered humans, designed by the Tyrell Corporation for use off-world,” and so they clearly fit the criteria of designer babies.

While replicants are created outside of human wombs, they still fit into this category, as in-vitro fertilization and artificial wombs are increasingly a part of the actual or envisioned reproductive technologies. In some ways replicants explore the limits that such technologies can reach, as they are created to fulfill the desired specifications of Wallace, their self-proclaimed father.

Enhancement or Devolvement?

Influencing the traits of pre-implanted embryos in order to produce people who will develop desirable traits is often understood as a type of “enhancement.” This is because such changes are thought to provide them with advantages that they otherwise may not have had. For replicants who are not part of a genetic lottery, this means that they're designed to be better than their non-replicant counterparts.

In *2049*, genetic enhancement has led to the colonization and subsequent development of nine new worlds, as replicants are designed to perform necessary tasks, from mining to fighting wars. Roy Batty, in *Blade Runner*, is an example of this, created to fulfill the role of a soldier, and so with superhuman strength and reflexes. Wallace sees replicants as adding to human potential, going so far as to claim that “We need more replicants than can ever be assembled. Millions, so we can be trillions more. We could storm Eden and retake her.” In this way, genetic enhancement can be understood as a pathway to a better future.

However, this is not the only way of viewing the possibility of enhancements. “I wouldn't waste your money,” Luv, Wallace's right-hand woman, says in a sales pitch to a drilling operation

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representative, by ordering replicants with the advanced features such as “intelligence, attachment, or appeal” for a mining operation. It is deemed appropriate and efficient to limit the enhancements made to a replicant. Delimiting a replicant to its appropriate skill-level is desirable, in this context. This illustrates two ethical issues at the heart of both the movie and the use of biotechnology to enhance humans.

First, is it ethical to choose the traits of a person prior to their birth? In the designer baby debate, critics are worried that genetic editing could spiral out of control and allow parents to custom-order their children, much like we now do with custom clothing or cars. Perhaps, we would like our children to live longer, to be seven feet tall, to look like this or that celebrity, and so on. Who gets to decide what traits are valued, however, and which are not? Should it be Wallace, the owner of the technology, or society at large? If they’re considered to be people, because of their human DNA, they’d be covered under various research guidelines, such as the Belmont Report, and so offered certain legal protections. *2049* shows us the alternative, where they’re seen as owned by the patent holder. As Lieutenant Joshi states, “The world is built on a wall that separates kind. Tell either side there’s no wall, you’ve bought a war, or a slaughter.” Similarly, Wallace’s limited conception of ethical duties to replicants also hangs on a separation of kind between “humans” and “replicants.”

Second, is it ethically permissible to remove abilities that a being would otherwise have developed? This approach begins with a complete being and through various methods, removes or disables a capacity or function. The replicant fits this model, as it has limitless possibilities that are removed in order to fulfill consumer preferences. Even in the case of non-human animals such modifications are unethical, as Paul Thomson has argued, unless they improve the wellbeing of the modified animal, or have no impact on animal welfare. In the case of replicants, it’s for neither reason, but rather for the convenience and profits of the Wallace Corporation and its clients.

We could argue that the drilling operation representatives are not “dumbing down” replicants, but rather choosing a list of abilities to be added to a blank slate. As each replicant is crafted using human DNA, however, and thus has the general potential to develop baseline human abilities, any genetic engineering that removes or lessens these traits is a “dumbing down.” Also, this brings up important questions concerning whether or not we’ve a duty to enhance our children, if we possess the ability to do so.

In this way, the movie pushes reproductive technology to its limits and, as such, highlights both the promise and potential harms that could arise, depending on the modification. We're moving into a "trans-human" era, as Andy Miah suggests, in which, as in *2049*, a person's genetic makeup can be manipulated at will for a wide range of reasons beyond health needs. Unlike in the movie, however, we're still grappling with how far we are prepared to accept the applications of biotechnology.

2049 presents us with one position that can be taken concerning genetic modification, yet we may be moving in a different direction, as illustrated by the application of bioethical principles in the Belmont Report. *2049* acts as a foil to the current ethical standards when applying technology in the human context.

Is a Replicant a Person?

Four key ethical principles, first outlined in the Belmont Report, are followed by medical practitioners today:

- 1. autonomy, or the mandate to respect a person's choices**
- 2. beneficence, or the mandate to only do actions that benefit people**
- 3. non-maleficence, or the mandate to do no harm when trying to treat a patient**
- 4. justice, or the mandate to ensure that benefits and harms are fairly distributed throughout the population**

Applying the second and third principles (beneficence and non-maleficence) could support the position that we should allow genetic engineering, and provide clear guidance in this area. For example, enhancements could be ethically acceptable, if they benefit the engineered child without causing harm, as non-maleficence and beneficence would both be followed in such a situation.

So, engineering a child to be smarter or to have a longer lifespan would be acceptable, as these are benefits. Unacceptable modifications would be those that would not clearly benefit the child, such as a change in eye color, or those that would typically harm the child, such as being born with only one leg.

In *2049*, replicants were not able to choose what modifications they were given, their assigned professions (though some ran), and whether they should live or die, as they were hunted and killed throughout the movie. Applying the principle of

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respect for autonomy illustrates why this lack of choice is ethically problematic. Specifically, this principle requires that we respect the choices and decisions of those on the receiving end of genetic engineering.

Unlike adults, who can consent to modifications, neither an infant nor an embryo can do so. This places us in a catch-22 situation, as the choice of traits occurs in the embryonic or infant stage, and cannot be made later in life. By the time a child can consent, the window for modifications is often closed. From this point of view, then, the principle of autonomy would recommend that we do not modify our children.

Wallace was acting unethically from the start, then, from this perspective, as the creation of replicants is itself problematic. And replicants are also expected to deny their autonomy throughout their lives, whenever their desires conflict with those of their manufacturers or owners. For instance, when Joshi demands that K remove all evidence of Rachael's pregnancy, K is reluctant, because he has never before retired someone who was born. When she asks him then whether he's refusing an order, he indicates his lack of autonomy by responding, "I wasn't aware that was an option, Madam." This is also a worry for designer babies, as it seems likely that parents (who often have specific ideas about what their children should do anyway) who pay to have their children designed may also have constrained ideas of who their children will become.

In reply to the first concern, we could argue that their parents or creators (such as Wallace) could provide consent here, as obtaining parental consent is standard practice when treating children in hospitals. However, this begs the question concerning what types of rights CEOs have over their creations. Should they be given parental rights over their "creations," property rights, or neither? Unless they use their own genetic material, they're not the replicant's parent. In addition, they would not have the right to own another human being, as this would be slavery. Even if we accept that creators can provide consent, the biomedical principles of beneficence and non-maleficence would take many of the modifications performed in 2049 off the table.

According to the beneficence principle, we may only do procedures that are beneficial to the person they're being done to. Clearly in the case of enhancing (or devolving) replicants, beneficence is not a consideration of the Wallace Corporation. Customers are, in fact, encouraged to not "waste" money on enhanced features. This is not for the benefit of the replicants, but of the consumers.

Some enhancements, however, though not all, would be supported by an appropriate application of the principle. For example, increasing the dexterity of a replicant miner doing dangerous physical tasks would be to their advantage. On the other hand, increasing a pleasure model's capacity for attachment and appeal could be detrimental. Finally, not being able to reproduce is a general disadvantage that replicants share. Thus, creating bioengineered humans without this ability is not beneficial to replicants, and so breaks the principle of beneficence.

The use of replicants throughout *2049* is a clear violation of the principle of non-maleficence. The starkest example of this violation is in the birthing room. Murdering a replicant for a flaw, which is in no way her own fault, is clearly a harm. In addition, "retiring" replicants at the whim of the corporation is problematic. This is illustrated in the movie's opening scene, in which K ~~in the act of~~ "retires" Sapper Morton, a Nexus-8, who wants simply to farm. Ending the life of a person who is doing no harm, and whose only crime is being a Nexus-8, can't be justified using this principle.

The principle of non-maleficence takes into account both physical and psychological harms. In many ways the entire movie is an exploration of the psychological harms done to K, as a replicant tasked with hunting down and retiring other replicants. His continued discomfort and psychological distress indicate the disastrous worldview of the Wallace Corporation. Finally, as discussed above, any disenchantment could be viewed as a harm, and thus would also be a violation.

2049 occurs in a world where there's almost complete social stratification. Replicants take all the risks, but are not given a fair share of the rewards, which is a violation of the principle of justice. In fact, maintaining "a wall that separates kind," replicants and humans, is an overarching theme of the movie, and is a violation of the principle. For example, when Joshi asks K to "erase" all evidence of Rachael and her child, she tells him, their existence "breaks the world." It depends upon there being two classes of people and two classes of workers. If the "wall" between them is broken down, "a war, or a slaughter" will ensue.

This fear is what drives those in power to order K to take on his mission. In biomedical ethics, social structures in which one group takes on an inordinate amount of societal risk, while not receiving appropriate compensation, is unjust. From this perspective, the world of *Blade Runner* and *Blade Runner 2049*, in which bioengineered humans are treated as useable property,

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clearly ~~a~~ violates this principle. It violates distributive justice, because the harms and benefits of society are not fairly distributed to humans and replicants alike.

Our Children, Our Future

We're on the cusp today of having greater control over choosing the traits of our children. *2049* explores the ethical dimensions of genetic engineering and grapples with the question of whether humans should dream of designer babies. In the end, we must determine whether this biotechnology should be used, and how.

Ultimately, *2049* provides us with a powerful portrait of one potential future, out of many. It illustrates a dark path, along which technology is used without the development and application of ethical standards. The power of biotechnology is that it gives us greater control over life, over future generations, and what humanity will look like, but this means that we need to ask ourselves how we should proceed. The future is ours and it is up to us to avoid a dystopia.

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