

Ethics, Human Cloning, and Procreation

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In February 1997, the breakthrough in creating the world's first clone of an adult sheep named Dolly was announced. Immediately, interest and controversy surrounded the possibility of applying the same technology to clone adult humans. The general sentiment reported in the media seems to hold the cloning of humans to be morally unacceptable, even repugnant. The media has to some extent sensationalized the issue of human cloning by painting a number of scenarios, such as: (i) The Frankenstein scenario of the creation of human monsters; (ii) the Brave New World scenario of the production of cloned warriors and slaves; and (iii) the Boys from Brazil scenario of egomaniacs seeking immortality by cloning themselves. Reality and fiction have become merged in the public mind.

It takes time for bioethicists to give more reflective accounts of the subject, especially if they are to articulate a philosophically defensible argument in favor of or against human cloning.¹ Definitive answers, or a detailed case, cannot be given within the limitations of this paper. What I will do here is to point at the direction that an ethical debate about human cloning should take, and to identify some of the considerations to be brought into the debate.

Regrettably, there is insufficient space to discuss the technical details of cloning, although many of the public concerns about cloning are based on misconceptions. Two of these can be briefly mentioned here: first, the equating of a genetic twin to an identical personality, threatening individuality of the clone; and second, the assumption that a clone can be produced from a single cell. Each clone will have its own identity in the same way that natural clones, namely identical twins, are different persons. What accounts for the difference between clones is the environment, both

within the womb and outside, which can affect how genes are given expression in each person. The second misconception creates the false impression that anybody can clone himself or herself, leading to fear of the eventual widespread availability of easy do-it-yourself cloning akin to taking instant photographs at a booth. Dolly was in fact the product of three female sheep, that respectively contributed the genetic material, the egg cell, and the womb for gestation. It would be impossible for a clone to be produced from a male just by himself. Although a fertile female can in theory contribute all three elements, it would be unlikely that she would choose to reproduce by cloning when she can do so the natural way or through other assisted forms of reproduction.²

1. Weighing Benefits and Harms

The reasons commonly cited in the public debate for and against human cloning appeal to the benefits and harms of using the technology in this way. The disagreement is then between those who think that the benefits of cloning technology outweigh the dangers, and those who think otherwise. This is not the best way of settling the issue. For there is no conclusive argument against human cloning that rests on utilitarian grounds alone.³ The intuitions that have caused the public outcry against human cloning must instead have their basis, if any, in some other moral consideration that claims human cloning to be in principle or intrinsically wrong.

There is one benefit of cloning which does not require humans to be cloned, namely the production of transgenic animals with proteins and organs suitable for transplants to humans. Of course, an ethicist could object to the use of animals in this way for the benefit of humans. The discussion that follows is restricted to ethical objections to human cloning. The benefits which do require that humans be cloned

are to provide aid for infertile couples, to widen the range of reproductive choices, and to eradicate certain diseases.⁴

Possible harms, besides the abuses mentioned in the scenarios at the beginning of this paper, include threats to social institutions such as family and marriage, and to the value and sanctity of life. Cloning makes it possible for unmarried persons and same sex couples to produce offspring. And if scientists know the secrets of creating life, would a person's life continue to be respected and valued as before? Another risk of harm in human cloning, one that has been less discussed in the media and the literature on cloning, is the effect on the psychological state of the clone: Is the clone harmed by knowledge that it is a copy of another existing individual, and brought into existence to be such?⁵ The traumatic experience of persons who discover later in life that they are adoptees may be felt even more keenly by a clone who learns that it is one.

1.1 Rejection of cost-benefit analysis

How then are the benefits and harms of human cloning that I have recited to be weighed? Any attempt to do a cost-benefit analysis will be hampered by too many incommensurables and unknowns. But quite apart from that, there cannot be a compelling case against human cloning that rests on the harms outweighing the benefits. The reason simply put is this: the harms are merely predicted but need not eventuate. Whereas the benefits of successful human cloning are quite definite: new cures, and help for infertile couples.⁶

In the past, the introduction of certain new technology — nuclear energy, air travel, computers, in-vitro fertilization (IVF), oral contraceptives, to name a few — have in some cases led to predictions of disastrous consequences for humankind. Although in the case of those innovations mentioned here, there have indeed been

abuses and mishaps, it is hard to argue against the claim that the technology has been overall more beneficial than harmful.⁷ Whereas the view that human civilization would be better off without such technology is unlikely to withstand *a posteriori* scrutiny.⁸

Why is it that the predicted harms of introducing new technology have not usually eventuated, or have not turned out to be as bad as predicted? There are at least two good reasons for this, and both reasons are applicable to the case of human cloning. Firstly, the fact that the harms are predicted means that steps can be taken to avoid or minimize them. What should be feared are harms that are unpredictable. The predicted harms are not usually ones that will occur no matter what we do about it. For instance, cloning can be regulated, even if imperfectly, such that its use is by and large restricted to say, infertile couples and only as a last resort. Political sanctions, such as those used to control nuclear proliferation and chemical weapons with a large degree of success, can reduce the risk of abuse of cloning by megalomaniacs.⁹ Academic sanctions and peer pressure, as well as legal penalties, can do much to discourage unacceptable experiments on the making of human clones by rogue scientists.

Secondly, the predictions are themselves often exaggerated. The doomsayers often rely on a slippery slope argument: that the introduction of the technology will lead inexorably to its abuse and logically extends to the worst possible outcome. There are at least two flaws in the argument.¹⁰ Conditions for a slide down the slippery slope may not be fulfilled. Why, for instance, given the expense and the low success rate, would cloning be chosen over other means of reproduction available to fertile and infertile couples? Why would natural reproduction be replaced when it is so much more pleasurable? Why assume that people will always act with the worst

motives so that cloning technology will be abused once it becomes available to them?¹¹

A second point is that the slippery slope argument is premised on its not being possible to draw a clear and non-arbitrary line between what is permitted and what is unacceptable. There are however many points at which a line can be drawn to distinguish between cases of human cloning. It could be specified, for instance, that cloning not be available to couples who already have children, or to unmarried persons, or to those who can be given other forms of assisted reproduction such as IVF. Interestingly, IVF used to horrify some people as much as human cloning does nowadays, but the ethical controversies that surround IVF today have more to do with issues of paid surrogacy and embryo disposal, rather than with acceptance of the test-tube baby itself.

Without further examination, we are not yet at the point of claiming that human cloning ought to be permitted, even when we limit the discussion to cloning under regulated conditions. The argument so far is that the case against human cloning cannot rest just on an appeal to undesirable consequences since these need not eventuate. The philosophical debate can instead be advanced by moving in other directions, as described below.

2. Two Questions for the Ethics of Cloning

Let me introduce into the debate two questions examination of which can help to shed light on the permissibility of human cloning. The first question to be asked is: What is the nature and scope of procreative liberty, and does it extend to a right to reproduce by cloning oneself? The second (and related) question is: In what way does the having of children contribute to human happiness, so that cloning as a means of

reproduction can satisfy a desire to have children in the way that natural reproduction does?

2.1 The first question

Both the subject of procreative liberty, and that of reasons for having children, have been discussed by bioethicists in the context of other forms of assisted reproduction.¹² According to John Robertson, it is noteworthy that limits to the right to avoid procreation have received much more attention in the past than limits to the right to procreate. While, for instance, there are laws in the U.S. to prohibit abortion in the third trimester, there are no laws to prohibit married couples from having children as often as they like or can. This can be taken as evidence of the deep and widespread social acceptance of the right to reproduce through sexual intercourse.¹³ Questions concerning the limits to procreative liberty do arise when technology makes possible both conception and manipulation of the fertilized egg outside the body. Do persons with the right to reproduce through coitus also have a right to do so without coitus? Do persons have the right to reproduce artificially if natural reproduction is not possible?

This issue first surfaced with regard to techniques of in-vitro fertilization (IVF) and the ensuing debate has already largely taken its course. But even if it is thought that procreative liberty extends to assisted forms of reproduction such as IVF, it cannot be assumed to extend to the new technology of human cloning. Cloning, it may be said, goes so far beyond what normally counts as reproduction that it is unclear whether it falls within the scope of the human right to reproduce.¹⁴ For cloning exerts too much of an influence over the new individual, who will have all the same genes as the parent and not a random selection from the gene pool of father and mother. There is already discomfort about methods to select particular characteristics

of the offspring, but human cloning would be the ultimate case of gene selection. Do we have a right to do this?

2.2 *The second question*

The second question is whether the desire to have children ought to be satisfied by cloning oneself. What we should first ask is whether having children is a necessary component of human happiness, and secondly, whether reproduction by cloning would satisfy the desire to have children and thereby contribute to human happiness in the way that natural reproduction would.¹⁵

It is clear, I think, that some who are childless by choice have achieved a degree of fulfillment without having children.¹⁶ But there are others who feel that they cannot achieve happiness without children.¹⁷ Among these, some have satisfied their need by adoption. There are however those who desire not just to have children to raise, but to have their own children or genetic offspring. Even then, the means by which they produce that genetic offspring can affect whether they achieve this end of theirs. For instance, the goal of happiness in life would not be achieved if the desire to have one's own offspring is met through inappropriate means such as incest or rape.

For those who desire to have their own children and cannot do so naturally, assisted forms of reproduction may be used to help them. For those who have done so, it is evident that they can be just as satisfied having a child through IVF as through natural means. The question of interest to us here is whether cloning could serve them just as well. To answer this, we can first compare IVF with natural reproduction.

With IVF, some elements of natural reproduction are absent: conception within the body; and in cases where a surrogate mother carries the baby, gestation within the

genetic mother's womb is absent. There are also cases where donor sperms or eggs are used, severing even the genetic link. If the value of reproduction as a human end depends partly on any of the features of natural reproduction that are absent in IVF, then the contribution of this form of assisted reproduction to satisfying the desire to have children would be correspondingly reduced. However, IVF can be seen as a way of bridging processes in natural reproduction which have broken down. The man may not be producing enough sperm, or the woman enough eggs. IVF does not leave fertilization so much to chance, thus increasing the likelihood of conception. Again, where the mother does not have the capacity to go through a pregnancy, a surrogate mother takes her place. Seen in this way, IVF assists the natural reproductive process, but does not replace it with something fundamentally different.

What can be noted now is that in human cloning, as compared to IVF, there are other features of natural reproduction absent. In particular, there is no conception in the sense of the fusion between male and female gametes that takes place when fertilization occurs. This is replaced in cloning by the process of nuclear somatic transfer, where the nucleus of a donor cell from the adult parent is implanted in an enucleated egg cell with the aid of an electric pulse. The process by which Dolly was created did not involve a male sheep at all.¹⁸ What was done to create Dolly was to take a somatic cell from the udder of an adult ewe, and use its genetic material to grow another sheep, in effect turning the clock back on the chromosomes of a differentiated cell. It is not inappropriate to picture the process as artificial twinning, with the twins a generation apart. The so-called parent in this case is also the sibling. Or to be more precise, the genetic parents of the clone are the parents of the so-called parent.

Would this be a form of reproduction that can substitute for natural reproduction in satisfying the desire to have children that is an ingredient of human happiness?

Given the differences between cloning and natural reproduction, there is a basis for doubting that it would, as explained below. This is not to say that human cloning cannot contribute in other ways to happiness. It has been suggested that the technique can be used to purportedly restore a dead child to distraught parents. But the aim here is clearly not for the dead child to reproduce herself, and the happiness that matters is not the dead child's.

As for helping infertile couples, if the aim is to produce an offspring from their union, cloning cannot achieve what natural reproduction does as only one parent can be the parent who contributes nuclear DNA to the clone.¹⁹ Although this is also true of another form of assisted reproduction, namely artificial insemination using donor sperm (AID), the offspring from cloning shares all, not just some, of the genes of the sole genetic source. What would it be like for the other so-called parent to raise a child who is in genetic terms a twin of the spouse who is younger by a generation? This is in reality akin to the adoption of the spouse's sibling as one's child, which is rather uncommon. It is hard to see how doing so will satisfy the desire of that so-called other parent to have his or her own child. Given that the couple has chosen artificial reproduction over adoption, we can assume that both parents value a genetic link to the child.

Nor would the desire of the parent from whom the nuclear DNA is sourced be necessarily satisfied. For the meaning and purpose associated with the natural reproductive process of a person having his or her own child through sexual relations cannot be sustained in the case of a child produced by cloning who possesses identical genes to that person. Would not a child with genes wholly patterned after someone be that person's sibling or double rather than his or her child?²⁰ In natural reproduction, the child's genes are contributed in equal proportions by both parents. Moreover, what is transmitted from a parent has undergone modification in the formation of

sperms or eggs so that there is not even exact genetic identity between them and the corresponding parts of cells in the parent's body. The complete genetic identity in terms of nuclear DNA between clone and so-called parent seems to mark an important difference from natural reproduction and is hence likely to hinder rather than facilitate the satisfaction of the natural desire of an infertile couple to have their own child.

3. Social Norms and the Acceptability of Human Cloning

My suggestion here is that either cloning is not reproduction but twinning, or if it is, it is not reproduction in the sense that makes natural reproduction, or even IVF, desirable. It is possible however that cloning will not eventually be thought to be so different from other forms of assisted reproduction that have in time become acceptable. If so, then the road to social acceptability of human cloning may not be such a difficult one. But it must be stressed that what needs to become acceptable is asexual reproduction, entailing the separation of reproduction from sex, as a way of satisfying a person's desire to have his or her own child.²¹

In the end, the acceptability of human cloning will be a matter of social negotiation to which philosophers can contribute but not settle on behalf of society. Notwithstanding what has been said in the last section, it is imaginable that an infertile couple who chooses to clone can derive satisfaction in different ways from their relationship to the child. If the husband contributes the genes, he will have the experience of "seeing his own genes originate again in a new context and with himself as father/sole ancestor," while his wife will be able to enjoy carrying the fetus in pregnancy, giving birth and breast-feeding.²² In other words, the earlier claim in this paper that cloning cannot satisfy the desires that humans seek to satisfy by natural reproduction may have the status of a prediction that need not eventuate. If so, the objection to human cloning that arises from considerations of whether desires that

contribute to human happiness can be satisfied could end up committing the same fallacy of false prediction as the failed utilitarian objection based on predicted harms that was discussed at the beginning of this paper.

On the other hand, it may be argued that the kind of satisfaction that an infertile couple derives from having a cloned child cannot possibly be the same kind as that derived from natural reproduction. Are the desires the satisfaction of which contributes to human happiness completely amenable to change, and are they substitutable without loss? If we accept that there is such a thing as an essential human nature, the fulfillment of which includes the satisfaction of the desire to have one's own offspring in the traditional sense, then this desire cannot be replaced merely through a process of social change.

Even if cloning can satisfy a person's desire to reproduce and contribute to his or her happiness, the procedure may prove to be too burdensome both in material and non-material ways. The procedure that produced Dolly had to be attempted 277 times to achieve a single success. Even if the success rate could be improved, it would not be foolproof and would still necessitate several attempts that would be costly and take an emotional toll on the would-be parent.²³ To expend great personal and social costs in order to indulge the desire of a few to have their own children in this way, it must first be shown that these individuals have a claim on society. It would be more difficult to show this if the satisfaction that they obtain cannot fulfill them in the same way as the satisfaction provided by natural reproduction. Not having their own children will be a loss to some, but making human cloning available may not be the best way to compensate for the loss. Society could instead help them by supporting broader conceptions of the good life and by promoting more humane attitudes, so that these people can satisfy in other ways their need to enter into creative and caring relationships and to participate in processes of life in the community.²⁴

4. Conclusion: Two Non-Utilitarian Perspectives on Human Cloning

Whatever their contributions to the debate, philosophers are not in a position to decide on the acceptability of human cloning on behalf of society. My brief discussion has emphasized how very different human cloning is from not just natural reproduction but also other forms of assisted reproduction, in particular IVF. Whether the differences that have been highlighted will be considered significant enough to reject human cloning depends on whether society can eventually come to terms with asexual reproduction. But even if it is not accepted as a form of human procreation, human cloning may become valuable in other ways, such as for the replacement of a child who dies tragically. However, there will be other ethical problems for these other uses of cloning that I shall not discuss here.

Although society will have the final say on the issue of human cloning, the answer as to whether human cloning ought to be permitted should be sought in a rational manner. This has not always been the case in the ongoing debate. Here, philosophers can make a useful contribution to the debate. I have argued in this paper against framing the ethical questions simply in terms of whether human cloning is on the whole more beneficial or more harmful. Unless one is a hard-nosed utilitarian, benefits and harms are not the only consideration. Instead, we should examine the scope of procreative liberty, and what it is about the acceptable forms of reproduction that is valued and desired. These questions raise other ethical considerations of a non-utilitarian nature.

First, there is the consideration of rights and of duties. Do persons have a procreative right that extends to cloning themselves? Or is there a duty not to clone humans? Does the clone itself have a right that is violated by its being brought into existence in this way, such as a right to his or her own unique genetic identity, or a

right to be the product of a mixture of genes from two individuals? From a deontologist's perspective, a case either for or against human cloning can be motivated.

Second, there are considerations relevant to virtue theory. Questions about the contribution that human cloning can make towards satisfaction of the desire to have children, and whether there are other means to human happiness that can compensate for the non-satisfaction of that desire, can be answered by providing a substantive account of human nature. But the human good is a notoriously difficult notion to flesh out, especially since it is controversial whether there is a conception of the good life that is essential to everyone. Some objections to human cloning seem to derive from assumptions about human nature and human good: that human cloning is unnatural, and that scientists are intervening in nature or playing God. These objections must be separated from their religious premises if they are to stand as philosophical arguments. Such a philosophical analysis is however a larger project that is beyond the scope of this paper.²⁵

NOTES

1. The earliest books that were put out on this hot topic include Gina Kolata, *Clone* (New York: William Morrow, 1998); Gregory E. Pence, *Who's Afraid of Human Cloning?* (Lanham, MD: Rowman & Littlefield, 1998); and Leon R. Kass & James Q. Wilson, *The Ethics of Human Cloning* (Washington, DC: The AEI Press, 1998). These have been followed by various collections of essays: *Cloning: Science & Society*, ed. Gary E. McCuen (Hudson, WI: GEM Publications, 1998); *Flesh of My Flesh: The Ethics of Cloning Humans*, ed. Gregory E. Pence (Lanham, MD: Rowman & Littlefield, 1998); *The Human Cloning Debate*, ed. Glenn McGee (Berkeley, CA: Berkeley Hills Books, 1998); *Clones and Clones: Facts and Fantasies About Human Cloning*, ed. Martha Nussbaum & Cass Sunstein (New York: W.W. Norton & Co, 1998); *Cloning: For and Against*, ed. M.L. Rantala & Arthur J. Milgram (La Salle, IL: Open Court, 1999). Another book, *Clones, Genes, and Immortality* (Oxford: Oxford University Press, 1998), is a retitled and revised

- edition of *Wonderwoman and Superman* by bioethicist John Harris that was originally written in 1992 long before the Dolly saga.
2. An exceptional case could be a woman wanting to reproduce without the contribution of gametes from a male, as is required for IVF. My point remains that it would be unusual for a woman to want this.
 3. I do not say "consequentialist grounds" because the way in which benefits and harms have been compared in public debate does seem to assume comparability and aggregation on some measure of the well-being of society or of humankind, one that fits into a broad interpretation of utility. In rejecting the utilitarian approach, I leave open non-utilitarian approaches that take consequences into account.
 4. Genetic diseases such as Tay-Sachs and cystic fibrosis can be prevented either by creating a clone of the embryo for genetic screening, leaving an undamaged embryo for implantation if the test is negative; or by making a clone of the partner who is unaffected by the disease. Inheritable mitochondrial diseases can be prevented by using denucleated eggs from donors free from the disease.
 5. Jan Heller has pointed out to me that the assessment of harms or benefits from the clone's perspective may not be legitimate, for reasons that he has presented in his writings. I merely allude to the psychological harm as one possible risk of harm amongst many.
 6. A number of papers in *Cloning: For and Against*, *op. cit.*, attest to some of the tangible benefits that have or may soon become reality.
 7. I am not claiming that no technology has turned out to be more harmful than beneficial, for there are examples such as the development of biological weapons, or the use of CFCs in aerosol cans and refrigerants. I merely adduce selected examples that show that with hindsight, not all public fears about the global application of technological breakthroughs can be justified, even if some are.
 8. There are of course different measures of "better off". My point is only that using the same measure of benefit and harm as utilized in their objections by those engaged in serious debate about a particular technology, we are not better off without that technology. I would not however count those with a deep-seated *a priori* distrust of all technology in general as being engaged in a debate about the overall utility of particular technologies.
 9. In any case, a dictator who wishes to immortalize his rule by cloning himself would be well-advised that a clone would be a different person, who might resemble him in appearance but not in character.
 10. These two problems are pointed out in Bernard Williams, "Which Slopes are Slippery?" in *Moral Dilemmas in Modern Medicine*, ed. Michael Lockwood (Oxford: Oxford University Press, 1985), pp. 132-4.
 11. Pence, *op. cit.*, pp. 64-66.
 12. See the references to Robertson and to Alpern below.
 13. John A. Robertson, "Noncoital Reproduction and Procreative Liberty" in *The Ethics of Reproductive Technology*, ed. Kenneth D. Alpern (New York & Oxford: Oxford University Press, 1992), p. 250.
 14. John A. Robertson, *Children of Choice: Freedom and the New Reproductive Technologies* (Princeton: Princeton University Press, 1994), p. 169. Robertson may have changed his mind, as he has been reported (Pence, *op. cit.*, p. 101) in testimony to the National Bioethics Advisory Commission on 14 March 1997 to have suggested that the right to reproduce by cloning may already fall within the right to procreative liberty under the American constitution.

15. Note that I am here raising the question of whether cloning is an appropriate means to the individual's end of a good life, not the question of maximizing the satisfaction of desires aggregated over the population. The consequences of cloning may be relevant for answering either question, but only the latter question belongs to the utilitarian approach.
16. Monks aside, there are those who find fulfillment in activities that they can pursue unencumbered by the responsibilities of having and raising children, as noted by Kenneth D. Alpern, "Genetic Puzzles and Stork Stories: On the Meaning and Significance of Having Children" in *The Ethics of Reproductive Technology*, *op. cit.*, p. 158.
17. Alpern, *ibid.*, pp. 152-7, has cited a number of reasons why even desires that are sincere and deeply felt should not always be taken at face value. The feeling need not reflect the actual importance of the desire in one's life, and one may incorrectly identify the object of one's own desire. The desire to have children may be the result of socialization and may not be authentic to the person. I assume in the discussion that follows that even discounting for those whose desires are not to be given full weight, there remain some who genuinely cannot achieve happiness without having their own children. It is to the latter group that I refer when discussing whether a person's desire to have his or her own child can be satisfied by cloning.
18. This is significantly different from the technique of creating clones by splitting the cells or blastomeres of an early multi-celled embryo that had already been achieved in October 1993 with some but much less controversy.
19. I leave aside the possibility that cloning may satisfy the desire of someone to reproduce without sexual relations, as I am only considering here whether cloning can satisfy the desire to have children in the way that natural, sexual reproduction usually does. Prior to the breakthrough in cloning technology, the former desire cannot realistically be satisfied and so its satisfaction cannot be built into anyone's conception of happiness except as a matter of fantasy. But I mention below the possibility that asexual reproduction by cloning, now that it is possible, can become socially acceptable.
20. Alpern, *op. cit.*, p. 161, imagines some pre-Dolly scenarios that test our intuitions on this question. I should note that the technique used to clone Dolly involves using a host egg which will contribute mitochondrial DNA of its own. But this difference from cloning by so-called artificial twinning does not significantly affect my point because it is the DNA in the nucleus that has the primary role of determining the characteristics of the child and there is genetic identity here with the parent, whichever cloning technique is used. The role of mitochondrial DNA is debatable, but it seems to contribute to metabolism and perhaps aging. This makes the child less of an identical twin, but still much more similar to the parent than any child conceived by natural means.
21. Pence, *op. cit.*, pp. 73-82, discusses how difficult it is for conservatives and Christian theologians to accept the separation of sex from reproduction. These groups, of course, assume a notion of what properly constitutes human good or happiness.
22. *Ibid.*, p. 111.
23. The experience of some IVF mothers is testimony to this.
24. Alpern, *op. cit.*, p. 165. In a footnote, he cites extended families and kibbutzim as examples of supportive communal arrangements that enable those without their own children to lead fulfilled lives.

25. An earlier version of this paper was presented at a seminar on Ethical Issues at the Beginning and End of Life on July 12, 1998 at the National University of Singapore. Thanks to Peter Singer and others who shared with me their views. Following the presentation of this paper at the Conference on Value Inquiry, my fellow speaker Jan Heller was kind enough to send me comments and suggestions that have helped in improving the paper.