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Abstract: It is commonly assumed that persons who hold abortions to be generally impermissible must, for the same reasons, be opposed to embryonic stem cell research [ESR]. Yet a settled position against abortion does not necessarily direct one to reject that research. The differences between the embryos used in ESR and embryos discussed in the abortion debate can make ESR acceptable even if one holds that abortion is impermissible. This can be shown by use of the Aristotelian notions of active and passive potentiality, which shows the different sorts of embryos to be importantly different from each other with regard to a common *reductio ad absurdum* argument against the claim that we must show respect for embryos based on their potential. This difference creates a moral distinction between embryos *in vivo* and *in vitro*. Various attempts to refute this moral distinction, raised in the recent debate in this journal between Alfonso Gómez-Lobo and Mary Mahowald, are also addressed.

ABSTRACT

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More on Respect for Embryos and Potentiality: Does Respect for Embryos Entail Respect for Frozen Embryos?

Embryonic stem cell research [ESR] is challenged on ethical grounds by many who title themselves pro-life, and often the embryo destroyed to derive the stem cells is compared to an aborted embryo or fetus. It is also commonly assumed that persons who hold abortions to be generally impermissible must, for the same reasons, be opposed to ESR.¹ Yet, there are important dichotomies between the two debates, such that one may hold differing views about the permissibility of each. Dena S. Davis makes the point that a settled position in favor of abortion rights (based on the line of argument that supports the rights of women over their fertility and bodies) need not lead one to necessarily accept ESR, as that takes place without the infringement of the autonomy of women that unwanted pregnancy requires.² In this essay, it is argued that the opposite is also true: a settled position against abortion does not necessarily direct one to reject ESR. The differences between the embryos used in ESR and embryos (and fetuses) discussed in the abortion debate can make ESR acceptable even if one holds that abortion is impermissible.

The particular feature in question is the potentiality of the embryos in question. It seems readily apparent to most that not all uses of the word “potentiality” are the same; that there are differences in potentialities is an Aristotelian concept that has been utilized again in this current context. The recent debate in this journal between Alfonso Gómez-Lobo and Mary Mahowald regarding the potential of embryos and gametes is instructive

both in language and concepts to help distinguish between differing potentials.³ In it, Gómez-Lobo argues cogently that respect for embryos need not entail respect for gametes, refuting that potential *reductio ad absurdum*. There exists a different *reductio* argument, which is only briefly touched on in that exchange, against certain views of the importance of the potential of embryos, which may argue against ESR far more strongly than it does against abortion.⁴

That latter *reductio* argument draws an analogy between an embryo, which has the potential to become an adult human, and a somatic (non-germ) cell from a human body which can be cloned⁵, which has the potential to become an adult human.⁶ Since it is absurd to think that all somatic cells must be respected, the argument goes, embryos need not be respected either.

In response to this, one might argue that though both do have that potential, the difference between the potential of the embryo and the potential of the adult somatic cell seems significant. A loaded rifle has the potential to kill; a pile of hard wood, pieces of metal and metal tubing, and containers of sulfur, saltpeter and charcoal, together have the potential to kill because those parts could be assembled together into a rifle and bullets. However, it would seem very odd to say that the pile of components has the same potential as the loaded rifle. Both have the potential to kill, but one is ready to do so right now, while the potential of the raw materials is not attainable without significant skilled effort. One might then argue that the embryo is like the loaded rifle, and the somatic cell like the pile of gun parts; and if their potentials are not comparable, any argument by that

analogy will be weak. However, as will be shown, the quality of the analogy is significantly different depending on the status of the embryo being considered.

As is noted by a number of authors, the moral harm of destroying an embryo for ESR comes at least in part because the embryo has a potential to become an adult human like the reader.⁷ Since (normal) adult humans have moral rights, including the right not to be destroyed even for beneficial research, the embryo is held to have that right as well because of its potential. That potential is held to exist from the point of conception by some, who argue along the following lines:

After I was conceived, I had the active potentiality to develop into the kind of adult I am today. Not everything, of course, was predetermined at that point. Nutrition, environment, and stochastic events all had roles to play. But my genome was endowed with something akin to a program that made me become a human being and not a cat, a male and not a female, and so forth. Indeed, heredity already was present in me.⁸

Thus, any human embryo has a similar potential from conception to become an adult human, and thus ought to be treated as having substantially the same moral standing as an adult human.⁹

A similar argument is used in some arguments regarding abortion. Recognizing that the zygote, embryo, or fetus has the potential to develop into an adult human is fundamental to Marquis's famous argument against abortion, and is an important feature of other arguments against abortion.¹⁰ All of these arguments share certain difficulties, which are not my concern to explore now. The concern here is that the analogical *reductio*

argument noted above for accounts holding strongly to the importance of potentiality may be more important for stem cell research than has been argued.

Consider again Gómez-Lobo's description of his potentiality at conception. He specifically notes that his "genome was endowed with ... a program that made him become a human being...", which is entirely correct. The embryo that grew into the adult Dr. Alfonso Gómez-Lobo was already endowed with the full genetic complement that he now has, and thus, it had the potential to become him. However, that same (genetic) potential is also possessed by every cell in his body; thus, a scraping from his cheek or drop of his blood could be converted into a viable cloned embryo. Yet, of course, we do not grant cheek scrapings or pint bags of blood as having the same moral standing as normal adult humans. In fact, we readily and rightly use the blood to save the life of another human being, even though that prevents any of those blood cells from ever attaining their future potential as cloned adult humans. (Indeed, we would authorize such use it even if it destroyed all those blood cells immediately.) For the argument from potentiality to work, this argument holds, it requires something other than mere potentiality obtaining in the genome, otherwise the position requires one to hold the absurd position that blood transfusions are immoral.

This analogical argument is likely insufficient to serve as an objection to restrictions on abortion. The comparison between the potential of an embryo *in vivo* and a clonable somatic cell is probably sufficiently disanalogous to hold the comparison to be inapt. Though much effort and energy is required to turn that embryo into a normal adult

human, it normally will occur unless the process is interrupted by an external factor such as abortion, miscarriage, etc. The potential is ongoing; the embryo is currently actively developing. Lee argues this point as follows in an article mainly addressing abortion:

However, in the human embryo, even at the one-cell stage, the [genetic] program is totally active; in the somatic cell most of this information is “switched off.” The argument [that a clonable somatic cell is essentially similar] simply ignores the profound and decisive differences between the two.... Somatic cells are not, and embryonic human beings are ... actively disposed to direct their own maturation....¹¹

Lee argues that the potential of the implanted embryo is quite different from the potential of the somatic cells, and thus these embryos have moral status based on their “active” potential while somatic cells do not, because their potential is inactive at the moment. It is not that the somatic cell does not have the potential to become an adult human being – presumably, after a successful cloned embryo is created, that potential would be “active” – but rather that this potentiality is importantly different from the potential of an implanted embryo.

By this line of reasoning, the potential in an implanted human embryo to develop into a normal adult human is such that, if external factors do not interrupt an ongoing process and things progress as they normally do, the embryo will stand a good chance of developing into a person. It will not do so on its own, of course.¹² Without regular feeding and support, an infant will quickly die; and even after a child can survive on its own, much development needs to take place at a significant cost of time and effort to others. However, using Gómez-Lobo’s language, these “necessary external factors” merely make the potential of the embryo possible. They do not, he argues, change the already active potential of the embryo.

As Lee notes above, the situation is very different with a somatic cell to be cloned. A blood cell has the genetic potential to become an adult human, but a lot of effort must be put into it before it could ever become so. The genetic material must be extracted, placed into a prepared egg cell, stimulated to develop, and so on, and the entire process is only successful a few times in a thousand. Advances in cloning technology might make one or more of these steps different or moot, and will surely improve the odds, but the point will remain the same – any potentiality that the cell has will require a lot of effort to actualize. Though it may have potential, it is not “active” in the sense that an implanted embryo is.

The potentiality of that somatic cell to become an adult human is ontologically quite different from that of an implanted embryo. Both require effort to become a normal adult, but the effort required for the blood cell is required to change it from having passive potentiality to active potentiality. This may make the comparison between the potential of a blood cell and an embryo *in vivo* disanalogous. In any case, it seems *prima facie* plausible that their potentialities are different enough to render an argument by analogy suspect.

In the case of frozen embryos *in vitro*, however, the analogy between these embryos and a blood cell becomes much more apt. An embryo frozen in a pipette in an IVF clinic will not become an adult human being without significant external interference in the ongoing process. It is not actively developing towards any future state; it lacks Gómez-Lobo’s criterion of “internal dynamic capacity [of the sort] that can be discerned in living

beings.”¹³ In its frozen state, the embryo will not grow, develop, or change at all over time. It is not dynamic. Its lack of active potential is not merely a matter of its chances of being selected and successfully implanted; its developmental process has been “switched off” by the freezing process, and cannot recommence without a significant change in the embryo’s status. The embryo must be carefully thawed, then inserted by a fairly technical medical procedure into a woman’s uterus that is properly prepared. Advances in technology may change the process or the odds of success, but it remains true that, like the somatic cell to be cloned, it will require a lot of effort and medical manipulation, and a good portion of luck, not to mention a willing woman, in order for such an embryo to develop into a normal adult human. Most importantly for Gómez-Lobo’s and Lee’s approach, without that effort, the embryo will not develop into anything, nor even be actively heading towards any such development: the active potential of an embryo in an IVF facility is very different from that of an already implanted embryo. Like the somatic cell, the potential of a frozen embryo requires an external “activator” to begin any activity.

Gómez-Lobo responds to this line of argument briefly by arguing that the potentiality of frozen embryos is fundamentally different from the potentiality of a clonable cell because, like the potentiality of gametes, the potentiality of a clonable cell is fundamentally different from that of *any* embryo.¹⁴ An embryo, whether *in vivo* or *in vitro*, has “active” potentiality, while that of the genome of a somatic cell is “passive”, or, as Lee phrases it, “switched off.” However, this approach will not serve to distinguish frozen embryos *in vitro* from clonable cells; indeed, it appears that the potentiality of an

embryo *in vitro* is more fundamentally different from that of an embryo *in vivo* than it is from that of a clonable cell. The argument for this follows.

Gómez-Lobo blurs an important distinction between genetic potentiality and active potentiality at times, including when he moves from discussing embryos *in vivo* to embryos *in vitro*. He says, “There cannot be any doubt that an embryo *in vivo* possesses the specific potentiality encoded in the human genome, but an embryo *in vitro* also has it.”¹⁵ However, the human genome is present not only in the embryo *in vitro*, but also in every living somatic human cell. Thus, when he notes correctly that “[t]he crucial external intervention of implanting them does not make them live embryos of a given species[, but t]his is something they already are” this is true but beside the point. The question, for Gómez-Lobo’s analysis, is not whether the embryo is human but whether, in his words, “active” potentiality is present. Though he implies that genetic potentiality is equivalent to active potentiality, it cannot be so.

One might argue that the relevant potential is already in the embryo, merely needing appropriate conditions to begin¹⁶, but the potential of a clonable somatic cell to become a complete separate person is also within that cell. As Lee makes clear in the quote above, genetic potentiality is not active potentiality. The somatic cell to be cloned is not actively developing towards the end of becoming an adult human, and will not without great external interventions; but as noted here, neither is the frozen embryo. The potential of each to develop into an adult human is there, but neither is actively developing towards that end unless it is acted upon by significant external factors. The external factors are

different in their specifics, but not in their function – each makes the potentiality of the cell or embryo in question “active.”

As well, the external factors needed to make the potential of an embryo *in vitro* and a clonable cell “active” are much more akin to what Gómez-Lobo calls “activators” and much less like mere “necessary conditions.” To borrow his example, oxygen is a necessary condition for combustion but it is not an activator; it does not begin combustion.¹⁷ Here, the careful unfreezing of the embryo and implantation procedures are more than just necessary conditions of an embryo’s development into an infant and later adult; they are the external factors that take it from a state of non-activity and move it into a state where it may, if the appropriate necessary conditions then obtain, develop into a grown human. The same is true of the activation (or is it re-activation?) of the dormant potential of a clonable cell.

If the argument above is correct, this means that the potential of embryos in pregnant women is not the same as the potential of frozen embryos being considered for use in ESR. The *reductio* argument which argues against restricting abortions because that would entail granting moral rights to all somatic cells may fail, yet the same argument against granting the same respect for frozen embryos that same moral status may succeed. If an argument against ESR depends upon the potentiality of the embryos used in that research, it has absurd consequences unless some reason can be given for why their non-active (but very real passive) potential is different from the non-active (but very real passive) potentiality of all human somatic cells.

Consequently, the potentiality argument works differently in ESR and in abortion, and therefore one might be able to reasonably hold that ESR is permissible even if one holds that abortion is wrong because of the potentiality of the implanted embryo. If potentiality is important to knowing the moral status of embryos, the potential of the embryos used in ESR is, ontologically, much more “merely potential” and much less “actual” than is that of embryos *in utero*.

NOTES

1. See, e.g., Richard M. Doerflinger, "The Ethics of Funding Embryonic Stem Cell Research: A Catholic Viewpoint." *Kennedy Institute of Ethics Journal* 9(2) (1999): 137-150, esp. pp. 144-5.
2. Dena S. Davis, "Stem Cells, Cloning, and Abortion: Making Careful Distinctions." *American Journal of Bioethics* 2(1) (2002): 47-49.
3. Alfonso Gómez-Lobo, "Does Respect for Embryos Entail Respect for Gametes?" *Theoretical Medicine and Bioethics*. (2004) 25(3): 199-208; Mary B. Mahowald. "Respect for embryos and the potentiality argument." *Theoretical Medicine and Bioethics*. (2004) 25(3): 209-14; Alfonso Gómez-Lobo, "On Potentiality and Respect for Embryos: A Reply to Mary Mahowald." *Theoretical Medicine and Bioethics* (2005) 26: 105-110; Mary B. Mahowald, "Another View of Potentiality and Human Embryos." *Theoretical Medicine and Bioethics* (2005) 26 (3): 111-113.
4. This issue is addressed in a somewhat different context in William J. FitzPatrick, "Totipotency and the Moral Status of Embryos: New Problems for an Old Argument." *Journal of Social Philosophy*, 35(1) (2004): 108-122. However, he quickly rejects in a single paragraph (118) the line of argument presented by Gómez-Lobo and others, and does not address the sorts of responses (noted below) that they have given to concerns like his.
5. Or, to be precise, the DNA that it contains can be cloned with current technology, which currently requires transplanting the DNA into a vacated egg cell. I believe it is fair

to describe this as the cell itself being cloned, though some of the material is discarded, for two reasons. First, the cell contains all the material that is cloned; the prepared egg cell is merely used as part of a trigger to activate it. Secondly, future technological advances may make that step unnecessary. In any case I think little will be different in the argument made here if one speaks of the cell itself as clonable or the DNA within it as clonable. These issues are discussed well in Fitzpatrick, cited in n. 4, above: 113-115. I will therefore speak of cloning somatic cells without further specification in the following.

6. See, e.g., Fitzpatrick, cited in n. 4, above; Gómez-Lobo (2004), cited in n. 3, above; L. Silver *Remaking Eden: how genetic engineering and cloning will transform the American family*. (New York: Avon Books, 1998): 54-6.

7. Among others, see Nikolaus Knoepffler, "Stem Cell Research: An Ethical Evaluation of Policy Options." *Kennedy Institute of Ethics Journal* 14(1), (2004) 55-74; Alfonso Gómez-Lobo, "On the Ethical Evaluation of Stem Cell Research: Remarks on a Paper by N. Knoepffler." *Kennedy Institute of Ethics Journal* (2004) 14(1): 75-80; Gómez-Lobo (2005), cited in n. 3, above; and Patrick Lee, "A Christian Philosopher's View of Recent Directions in the Abortion Debate." *Christian Bioethics*, 10(1) (2004): 7-31.

8. Gómez-Lobo (2004), cited in n. 7, above: 77.

9. Gómez-Lobo does not rest his argument exclusively on potentiality, but it is one of three interacting arguments that he argues justify granting "dignity from fertilization onward" to all embryos. See Gómez-Lobo (2004), cited in n. 7, above.

10. See, e.g., Lee, cited in n. 7, above; Don Marquis, "Why Abortion is Immoral." *Journal of Philosophy* 86 (1989): 183-202.

11. Lee, cited in n. 7, above: 11.
12. Occasionally, though, the language used by some proponents of this argument implies that they will. Lee, cited in n. 7, above, points out that “No somatic cell will actively develop itself to a mature stage of a human being, requiring only a suitable environment for its natural development,” but fails to point out that neither will any embryo, unless “suitable environment” is implausibly interpreted to mean “an environment where others will feed, nurture, clothe, house, vaccinate, educate, discipline, etc. the developing human.” The fact that this is what commonly happens does not obviate the necessity to take it into account. Gómez-Lobo (2005), cited in n. 3, above, more carefully notes that “[i]t is true that a host of further external and internal conditions are required for the activation of both active and passive potentialities,” calling these “necessary conditions,” which is a better descriptor but still not one without dispute (see Mahowald (2005), cited in n. 3, above). That dispute is outside the realm of this work.
13. Gómez-Lobo, (2004), cited in n. 3, above: 204.
14. Gómez-Lobo, (2004), cited in n. 3, above: 203.
15. Gómez-Lobo, (2005), cited in n. 3, above: 106-7.
16. Gómez-Lobo, (2005), cited in n. 3, above: 106.
17. *Ibid.*

BIBLIOGRAPHY

Davis, Dena S. “Stem Cells, Cloning, and Abortion: Making Careful Distinctions.”
American Journal of Bioethics 2(1) (2002): 47-49.

Doerflinger, Richard M. "The Ethics of Funding Embryonic Stem Cell Research: A Catholic Viewpoint." *Kennedy Institute of Ethics Journal* 9(2) (1999): 137-150.

FitzPatrick, William J. "Totipotency and the Moral Status of Embryos: New Problems for an Old Argument." *Journal of Social Philosophy*, Vol. 35 No. 1, Spring 2004, 108-122.

Gómez-Lobo, Alfonso. "On Potentiality and Respect for Embryos: A Reply to Mary Mahowald." *Theoretical Medicine and Bioethics* (2005) 26: 105-110.

Gómez-Lobo, Alfonso. "Does Respect for Embryos Entail Respect for Gametes?" *Theoretical Medicine and Bioethics*. (2004) 25(3): 199-208.

Gómez-Lobo, Alfonso. "On the Ethical Evaluation of Stem Cell Research: Remarks on a Paper by N. Knoepffler." *Kennedy Institute of Ethics Journal* (2004) 14(1): 75-80.

Knoepffler, Nikolaus. "Stem Cell Research: An Ethical Evaluation of Policy Options." *Kennedy Institute of Ethics Journal* Vol. 14, No. 1, (2004) 55-74.

Lee, Patrick. "A Christian Philosopher's View of Recent Directions in the Abortion Debate." *Christian Bioethics*, 2004, 10 (1): 7-31.

Mahowald, Mary B. "Another View of Potentiality and Human Embryos." *Theoretical Medicine and Bioethics* (2005) 26 (3): 111-113.

Mahowald MB. "Respect for embryos and the potentiality argument." *Theoretical Medicine and Bioethics*. (2004) 25(3): 209-14.

Marquis, Don. "Why Abortion is Immoral." *Journal of Philosophy* 86 (1989): 183-202.

Silver, L. *Remaking Eden: how genetic engineering and cloning will transform the American family*. (New York: Avon Books, 1998).