The "future like ours" argument and human embryonic stem cell research

A Kuflik

Correspondence to:
A Kuflik, Department of Philosophy, University of Vermont, Burlington, Vermont 05401, USA; akuflik@uvm.edu

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ABSTRACT

The most closely argued and widely discussed case against abortion in the philosophical literature today is Don Marquis's "future like ours" argument. The argument moves from an analysis of why there is a serious presumption against killing someone "like us" to the conclusion that most abortions are seriously wrong for the same reason: they deprive "an individual" of a future of valuable experiences and activities, a "future like ours". Julian Savulescu has objected that "preventing" such a future could not be as seriously presumptively wrong as Marquis contends for if it were, even contraception and failure to engage in reproductive cloning would be seriously presumptively wrong. Savulescu maintains that there is only a modest presumption against preventing a "future of value like ours" and that in the case of human embryonic stem cell research, it is clearly outweighed by "the enormous potential to save people's lives and to improve their quality of life". Marquis defends his strong anti-abortion stance against Savulescu's "contraception" and "failure to clone" objections but surprisingly says nothing about the implications of the "future like ours" argument for the controversy surrounding human embryonic stem cell research. I argue that key features of Marquis's response actually support the view that embryos used in stem cell research are not included within the protective scope of the "future like ours" argument. It is significant that the most philosophically rigorous anti-abortion case thus far presented does not entail that human embryonic stem cell research is even presumptively wrong.

To make what is perhaps the most widely discussed anti-abortion case[1] in the philosophical literature today, Don Marquis begins with a premise he expects that most people, regardless of the side they take in the abortion controversy, will share: there is a weighty moral presumption against killing an ordinary, adult human being or indeed, against killing any child. This presumption is not readily overridden by other moral considerations. So in most cases, killing someone "like us" is murder. Marquis then argues that the best explanation of killing's presumptive wrongness is that it deprives an individual of that individual's future of valuable experiences and activities—a "future like ours". From this, Marquis thinks it follows that abortion is in most cases as wrong as murder and for the same reason: it deprives an individual of that individual's valuable "future like ours". Thus "fetuses can be victims of abortion in exactly the same way as adults or children can be victims of murder."[2]

Although its conclusion is controversial, the "future like ours" argument does not rely upon controversial religious claims nor does it appeal to abstruse philosophical theses. Instead it appears to proceed entirely from ideas accessible to common sense moral reflection. Indeed, the attention it has received may reflect the fact that it is the clearest, most rigorous, non-religious case against abortion thus far presented.

In the hope of defending human embryonic stem cell research, Julian Savulescu has challenged the way Marquis deploys the "future like ours" line of thought.[3] Savulescu notes that "many entities have a future of value"—including inanimate objects such as works of art. Yet an artist often has good and sufficient reason for not transforming a particular lump of clay into what would have been a valuable work of art. Moreover, when people use contraception or practice sexual abstention, they are also preventing "futures of value" from being realised. But neither contraception nor abstention is comparable to murder. In addition, it will soon be possible, through cloning technology, to generate out of an ordinary somatic cell a whole human being with "a future of value like ours". Yet it is surely absurd to suppose that we have a duty to provide as many such cells as we can with a future of value, a future like ours.

On Savulescu's view, Marquis's appeal to the prospect of a "future of a value" merely identifies a reason to refrain from behaving in certain ways (eg, from terminating a pregnancy in the first few months, from practicing contraception)—a reason that can be outweighed by other considerations. In this spirit, Savulescu points out how in the case of embryonic stem cell research, "the enormous potential to save people's lives and to improve their quality of life outweighs"[3] whatever presumption against early embryo destruction the appeal to a "future of value" may have established.

In effect, Savulescu's critique of Marquis's "future of value" argument (i) extends the argument's scope—arguing that it applies to contraception, abstention, failure to clone, as well as to abortion, and yet (ii) weakens the force of the argument's conclusion. What reason it provides against terminating an early pregnancy is of very modest weight that is often outweighed by other considerations.

Marquis acknowledges that Savulescu has posed what seems to be a serious dilemma for his anti-abortion stance—either the argument has absurd implications (eg, that contraception is wrong in the same way that most killings are) or it fails to establish that most abortions are seriously wrong. In response, Marquis argues that the "future of value" argument, properly understood, does not have absurd implications with respect to contraception (or abstention or "failure to clone") but does establish a weighty reason against abortion, a reason comparable to what, in most cases, makes

killing an adult or child a grave wrong. Surprisingly, in responding to Savulescu, Marquis does not address the question of whether the kind of anti-abortion argument he has presented also weighs in against human embryonic stem cell research!

Plan of discussion: After briefly exploring how Marquis responds to Savulescu's challenges, I argue for two conclusions: (1) Whether or not the "future like ours" argument as refined by Marquis can meet Savulescu's objections, and establish a significant presumption against abortion, it does not establish that human embryonic stem cell research is even presumptively wrong. (2) Key features of Marquis's response to Savulescu actually support the view that very early embryos (and especially perhaps those generated by somatic cell nuclear transfer) are not included within the protective scope of the "future like ours" argument.

MARQUIS'S DEFENSE AGAINST SAVULESCU: THE "VICTIM-CENTRED" NATURE OF THE THEORY

Inanimate objects

Marquis begins by reminding us that "the future of value theory is a victim-centred theory". Thus, "What is needed for the wrong of killing is an *individual* who is *deprived* of a future of value".[2] By "an individual" with a future of value "like ours" Marquis has in mind a being that will, at some future time, have experiences, engage in activities, and in some way (later on) *be able to value or appreciate* those experiences and activities. This is quite different from a mere "thing" that might well be of value but that cannot, either now or later, have experiences, engage in activities or in any way value or appreciate anything. A work of art is a thing of value, not an "individual" with a future like ours. Thus, the "future like ours" theory "does not imply that it is wrong not to create *things* of value". (Emphasis added).[2]

In defending against two other objections advanced by Savulescu, however, Marquis refines and elaborates his "future of value like ours" theory in ways which, as I shall argue, have significant, and perhaps surprising, implications for the human embryonic stem cell controversy.

Contraception/Abstention

Granted that the "future of value theory is a victim-centred theory" and that works of art cannot be regarded as "victims" in the relevant sense, since their futures are not "like ours"—it might yet be objected that with contraception and (even) abstention, the "victim" in question whose future of value is prevented is not a mere thing but a fellow human being, "someone like us". The thought is that "the victim" is simply the "individual" that would have been formed by whichever egg and whichever sperm would have joined together had contraception not been successfully used. This suggestion can be countered with a simple observation. If contraception is successfully employed, no such individual ever actually exists.

But an egg that would have been fertilised were it not for the successful use of a particular contraceptive device, (or were it not for abstinence) does (or at least did) *actually* exist. Why not say then that contraception "victimises" that egg by depriving it of its "future of value"? Of course, if we do say this, it will be difficult to deny the same status to the sperm that would have fertilised the egg (were it not for contraceptive use and/or abstention). We would then have to say that when contraception succeeds in preventing a pregnancy, there were two actually existing "victims" jointly deprived of what would have been their future of value.[4 5] But perhaps this would not be problematic after all. Consider, by analogy, the members of a championship calibre athletic team unjustly barred from competing in the Olympics. Although the team consists of several different individuals, it seems to make perfectly good sense to say that they have all been deprived of what would have been their joint future as a gold-medal winning team.

To meet such objections and prove that contraception does not deprive any "individual" of a future like ours, Marquis presents the following argument:

> The future of value of which I would be deprived by being killed is *the valuable life of a later stage of the same individual that I am now*… Accordingly, if my parents had failed to conceive me, their inaction would have been wrong only if the sperm and egg that are my precursors were earlier stages of the same individual that I am now. *If that sperm and egg were earlier stages of me, then each of them would be the same individual that I am. If each of them were the same individual as I, then, since identity is transitive, that sperm and egg were identical. They were not*. It follows that it is not the case that if my parents had failed to conceive me, their inaction would have been wrong. This argument can be generalised to show that the future of value theory does not imply that either contraception or decisions not to conceive are wrong.[2] (Emphasis added and the term "egg" substituted for "UFO", Marquis's acronym for "unfertilised ovum".)

Thus Marquis is able to establish that if and when fertilisation does occur and a baby is eventually born, the egg and the sperm that gave rise to that baby were merely "physical precursors" of that baby, not the very same "individual" as that baby.

Cloning

According to Marquis, "Savulescu's 'failure to clone' objection requires a *more elaborate response*" than the contraception objection. This is a little puzzling. Why think that a "more elaborate" response is in order? Marquis does not say. But the answer might take shape along the following lines: Marquis is looking for "an individual" whose "future like ours" could be said to be that individual's future. Fertilisation involves two entities or "individuals"—an egg and a sperm. Contraception prevents these two from combining to form a single "individual" with (the prospect of) a future "like ours". There is no good reason to associate the future thus prevented any more closely with the egg than with the sperm, and vice versa. Of course, somatic cell nuclear transfer (SCNT), were it to take place, would also involve two entities—a somatic cell nucleus and an e-nucleated egg. So one might well think that the "transitivity of identity" argument could kick in here as well. With SCNT, however, there is (perhaps) good reason to associate the "future" thus brought about far more closely with the somatic cell (and/or the genetic nucleus extracted from that cell) than with the e-nucleated egg cytoplasm.

Whatever the reason, Marquis's divides his "more elaborate" response to Savulescu into two distinct parts. In the first part, Marquis argues that extracting the nucleus of an ordinary (differentiated) somatic cell and then implanting that nucleus in an enucleated ovum, is not a way of giving that somatic cell the prospect of a "future like ours". The reason is simple: removing the nucleus effectively destroys the original cell. "Therefore the differentiated cell has not been harmed by not being cloned, for if it were cloned, then it would have ceased to exist. Indeed, failing to clone it preserves it!"[2] But why, one might wonder, is it the somatic cell, rather than the genetic nucleus, that should be considered the "individual" capable of developing into someone with a future like ours. Of course even that nucleus ceases to exist if SCNT is successfully performed and cell

division begins to take place. But the same is true of what obtains, for example, in the early stages of ordinary embryonic development: when further cell division takes place, each cell and each cell's genetic nucleus ceases to exist, as new cells with their own genetic nuclei form.

In the second branch of his response, Marquis formulates an argument that is meant to be persuasive even if the preceding argument were to fail. Thus he writes "suppose that we waive the first point and think that cloning transforms a differentiated cell into an undifferentiated cell. The nature of differentiated cells is to perform the specialised tasks that differentiated cells perform. Their *natural history* is not affected by their not being *transformed into something else*." (Emphasis added).[2]

This last point is worded in a way that creates some tension with the stipulated "waiver". For to say that something has been "transformed into something else" may subliminally re-import the idea that this "something" no longer exists and that in its place is "something else". Suppose then we reword this second branch of the argument so that it more clearly satisfies its own stipulation. To do this however, it would seem that we might have to re-focus our attention—from the somatic "cell" to the somatic cell's genetic nucleus. With somatic cell nuclear transfer, the genetic nucleus does not immediately "cease to exist" but rather undergoes various transformations: some of its genetic "switches" are turned off and some are turned on until it is in a state functionally comparable to the genetic nucleus of a totipotent fertilised egg. (Incidentally, as in the case of Dolly the cloned sheep, a successful reproductive cloning process may sometimes involve the transfer, not only of the somatic cell genetic nucleus, but also of that cell's cytoplasm, with its own supply of mitochondria DNA as well.)

Shall we then say that by not cloning, we are depriving a somatic cell and/or its genetic nucleus of a "future like ours"? Here is where Marquis's more "elaborate" clarification of the "future like ours" theory goes to work. For Marquis now insists that "on the future of value view" as well as on the view that "ordinary people" hold—"our premature death would be a misfortune for us because death deprives us of a future life we otherwise would have enjoyed. Our conception of this longer life is well entrenched. It is based on our *biological understanding of the natural history* of a human organism, on the understanding we obtain at an early age from contact with parents, grandparents and older acquaintances of a *natural and complete human life span*..." (emphasis added).[2]

The implication here is that when we refrain from transferring a somatic cell nucleus to an enucleated egg we are not depriving that somatic cell and/or its genetic nucleus of anything that, given our "biological understanding" of the "natural history" of differentiated somatic cell nuclei, it would normally or naturally have in its future. Being modified so as to give rise to a baby is not a subsequent development in the "natural and complete life span" of such an entity.

HOW MARQUIS'S "FUTURE LIKE OURS" ARGUMENT DOES NOT ENTAIL THAT HUMAN EMBRYONIC STEM CELL RESEARCH IS (EVEN PRESUMPTIVELY) WRONG

In defending against Savulescu's objections, Marquis never addresses the human embryonic stem cell research controversy. Suppose, for the sake of argument, we were to grant that the "future like ours" argument could be refined in the way Marquis suggests to establish a weighty presumption against abortion. Would it follow that the "future like ours" establishes a weighty presumption against human embryonic stem cell research *as well*? To answer this question we need to (i) review a few salient facts about the very early embryos, known as blastocysts, from which the embryonic stem cells are derived and then (ii) explore in greater depth the elements of Marquis's response to Savulescu which have some bearing on the moral status or significance of very early embryos: his appeal to (a) the transitivity of identity and to (b) our "biological understanding" of the "natural history" of a human life span.

(i) Forming about 4½ to 5 days after the sperm and egg are joined (in the process known as syngamy), a blastocyst consists of an inner cell mass and an outer cell layer. Cells of the inner cell mass of the blastocyst are pluripotent: that is, each cell is capable of giving rise to cells of all major tissue types—neural, heart, bone, blood, etc. Given present technology, cells of the inner cell mass are extracted by first removing the cells of the outer cell layer. The blastocyst is, in effect, dis-aggregated or dis-mantled and although the cells can continue to divide indefinitely, they can no longer develop into or give rise to an entire human being.

Research concerning how embryonic stem cells give rise to more specialised cells, and how they might be directed to do so, could lead to significant advances in the treatment of many debilitating and/or life-shortening disease conditions—Parkinson, Alzheimer, paralysis from spinal cord injury, type I diabetes, heart disease. Of course, aspiration is not always matched by reality. Whether embryonic stem cell research will bitterly disappoint, or rather, prove to be one of the greatest developments in the history of medicine, remains to be determined.

Transitivity of identity

Recall that in order to rebut the claim that his anti-abortion argument makes contraception as presumptively wrong as abortion and murder, Marquis challenges us to specify who or what is the wrongfully deprived "victim". If we say that it is the two gametes that would have joined in syngamy were it not for successful contraception, then—because "identity is transitive"—the two gametes would not only have to count as identical to a particular human being (with a future like ours), but to one another. But of course they are not, nor could they be, one and the same individual.

The embryonic stem cell debate raises a parallel issue: can a blastocyst that is dismantled for the purpose of obtaining pluripotent stem cells be wrongfully deprived of its very own "future like ours"? For this to be the case the blastocyst would have to be not merely an "individual" entity—but indeed, the same "individual" as any fetus and/or newborn baby that arises from it. But Marquis's appeal to "transitivity of identity" also makes it problematic for him to claim that a blastocyst is one and the same "individual" as whatever baby (or babies) may develop from it. This is because cells of the inner cell mass of the blastocyst can separate, while remaining within the boundaries of the outer cell layer, and development can continue toward the formation of monozygotic siblings. Thus a single blastocyst can eventually result in the formation of two (or more) babies.

At about day 15, however, a thin dark line known as the "primitive streak" begins to appear along one end of the inner cell mass. This marks the point beyond which "twinning" can no longer take place. Indeed, between days 15 and 19, in a process known as gastrulation, the primitive streak develops into the notochord and the three primary germ layers begin to form. The notochord is the precursor to the spinal chord and provides the central axis around which development in accordance with a determinate human body plan can then proceed.

Consider then a pre-gastrulation embryo at the blastocyst stage—"p-g-e" for short. Its inner cell mass can split and give rise to gastrulated embryos g-e and g-e′ which in turn develop into newborn babies B and B′. Suppose this happens, and

suppose that p-g-e is "the same individual" as whatever baby develops from it. Transitivity of identity will then imply not only that p-g-e is the same individual as B and the same individual as B′ but also that B and B′ are the same individual! But to echo Marquis, they are not. Identical twins are two distinct individuals, not numerically one and the same.

Of course, most blastocysts do not undergo separation of inner cell mass cells; so most blastocysts do not give rise to monozygotic siblings. It might be thought then that each "non-twinning" blastocyst is indeed one and the same individual, with "a future like ours", as the single baby that arises from it. On this way of thinking, "non-twin" babies would begin to exist as individuals with a "future like ours" as soon as sperm and egg unite to form a zygote; in contrast, monozygotic twins would only begin to exist with the occurrence of the cellular separation that gives rise to them.

But why say that the zygote and the single baby that develops from it are one and the same "individual"? The answer seems to be—the spatio-temporally continuous molecular-biological development from zygote to baby. But the same is true of monozygotic twin babies: each twin baby's body has developed, by a spatio-temporally continuous molecular-biological process, from the same fertilised egg as the other twin baby's body. So if developmental continuity were sufficient to establish, in the non-twinning case, that zygote and resulting baby are the same "individual", it would follow that twin babies arising from a single zygote must also be identical to that zygote. Yet (once again) by "transitivity of identity" this would have the unacceptable implication that the twin babies are one and the same individual. So whether or not any particular blastocyst does in fact undergo the kind of inner cell mass separation that leads to the formation of twins, it is problematic to regard a blastocyst as the same "individual" (with a "future like ours") as whatever baby develops from it.

The underlying point is that a pre-gastrulation embryo is not sufficiently organised as to constitute a determinate individual. Thus, in "The first two postovulatory weeks" (as embryologists and O'Rahilly and Muller have written) "production of a single individual versus multiple individuals is not yet irrevocable. In other words, a genetically unique but non-individuated embryo has yet to acquire determinate individuality, a stable human identity."[6] (Such facts have also led several theologians to conclude that a human individual does not begin to exist until about 15 days after fertilisation.[7–9]) That a single blastocyst can develop into two or more babies seems to reflect two facts: (i) inner cell mass cells (though contained within the bounds of the outer cell layer) are not so highly integrated as to preclude their separation from one another; (ii) each cell is capable of giving rise to cells of ever major tissue type. Indeed, it is their developmental plasticity that makes these cells so potentially significant from the medical research standpoint.

A surprise twist

There is evidence that Marquis himself is open to, if not committed to, the possibility that a *very early* embryo (or more accurately perhaps, a pre-gastrulation embryo) is not in fact a "definite" or "determinate" individual with its *own* "future" of value! For even in his original presentation of the "future like ours" theory, Marquis explicitly acknowledged (albeit in a way so casual as to evade much notice) that whatever is present *very early* in the pre-natal developmental process *may not be a definite "individual" with a "future like ours"*. Thus he writes, "morally permissible abortions will be rare indeed unless, perhaps, they occur *so early in pregnancy that a fetus is not yet definitely an individual*."(Emphasis added) (p194).[1]

A puzzling feature of Marquis's argument clarified and corrected

The foregoing observations may help to explain an otherwise puzzling feature of Marquis' response to Savulescu: his claim that each of us began our lives as the human beings we are, not as a sperm or an egg, but rather "at the time of conception, *or implantation*" (emphasis added).[2] Why does Marquis add "or implantation"? As we have seen, Marquis's quest for a "definite individual" with a "future of value" leads him to retreat from the strong claim that there is definitely such an individual as soon as there is a fertilised egg. But if the presence of a determinate individual is what is required, then the phrase—"at implantation"—does not supply the needed qualification. This is because implantation does not mark the point beyond which splitting, leading to the formation of twins, can no longer occur. Implantation happens some time between 6–10 days after fertilisation, but twinning can take place any time in the first 14 days. If biological individuation is what he is seeking, then Marquis should replace "at conception or at implantation" with "after the appearance of the primitive streak, ie, at about 15 days". (If there is some other reason why implantation should be the dividing line between protected and unprotected embryos, then the permissibility of embryonic stem cell research would follow straightway: for all such research involves the dismantling of non-implanted blastocysts.)

SCNT-generated blastocysts and our "biological understanding" of the "natural history" of a human being

In order to defend against Savulescu's charge that the "future like ours" argument makes refraining from human reproductive cloning seriously wrong, Marquis appeals to our "biological understanding" of the "natural and complete life span" of human organisms. Giving rise to a baby is not a development in the "natural and complete life span" of a somatic cell or its genetic nucleus. Thus when we refrain from SCNT, no somatic cell (nucleus) is wrongfully deprived of a future of value which, given our "biological understanding" of the "natural and complete life span" it would have had otherwise.

But if this line of reasoning is appropriate, it would seem to make just as much sense in the first few days after the cloning procedure has been employed, as it does beforehand. Not performing the human reproductive cloning procedure on the somatic cell nucleus does not deprive that cell nucleus of a future which entities of its kind naturally have. But by the same token, not sustaining the combination of somatic-cell-nucleus and enucleated-egg for more than four or five days does not deprive such an entity of a future it would be "natural" for entities of its kind to have either. Such entities, being entirely "artificial", have no "natural" futures.

Writing in this journal, J-ES Hansen offered an argument along these very lines.[10] Calling the combination of somatic cell nucleus and enucleated egg a "transnuclear egg", Hansen maintained that it is a mere "artifact" with no "natural purpose" or potential such as "to evolve into an embryo and eventually a human being".[10] Hansen's claim that "there are no natural occurrences whereby a transnuclear egg cell develops into a fetus" parallels Marquis's suggestion that our "biological understanding" of the "natural and complete life span" of a somatic cell (nucleus) does not include its eventual development into a baby. More recently, Paul McHugh, a member of the President's Council on Bioethics, takes a similar approach.[11] He calls the product of somatic cell nuclear transfer a "clonote" in order to mark a strong contrast with the more natural and human "zygote". Characterising somatic cell nuclear transfer as a "biologic manufacturing process", he argues (along lines

similar to Hansen's) that the products of that process—the "clonotes"—may be used to produce stem cells, but not babies.

The question of whether it is permissible to derive embryonic stem cells from SCNT-generated blastocysts holds great practical, not merely theoretical, interest. For one goal of embryonic stem cell research is to direct the production of more specialised cells (eg, neurons) that can then be transferred to persons in medical need of such cells (eg, people who suffer from spinal cord injury or from Parkinson disease). It is conjectured that the patient's own immune system will be less likely to reject these cells if they have been derived from blastocysts that were generated by a somatic cell nuclear transfer procedure using a cell nucleus from the recipient's own body. If this conjecture were to be born out, and if the moral reasoning sketched above were to prove sound, then deriving stem cells from SCNT-generated blastocysts would turn out to be both medically preferable and morally still less problematic than the standard method of working with IVF-generated blastocyts left over from efforts at assisted reproduction.

A better way to argue against the cloning objection?

Does Marquis's defense against Savulescu's "failure to clone" objection commit him to the view that SCNT-generated blastocysts do not have a "future like ours"? Marquis might try to distance himself from this implication, and hence from the view of Hansen and McHugh, by arguing that there is an important difference between (i) the entity that consists of an undifferentiated cell nucleus inside an enucleated egg (even when that nucleus is just about to be de-differentiated) and (ii) the entity that consists of an already de-differentiated cell nucleus inside an enucleated egg. What could that difference be? The former does not have a "future like ours" until something happens to it that is not in the "natural biological" history of entities of its sort; in contrast, the latter combination, admittedly the result of a not-so-natural "de-differentiation" procedure, is functionally equivalent to a totipotent zygote, and so from this point on, does have a "natural" developmental arc leading toward a "future of value like ours".

Whether this appeal to what is and is not a "natural" biological turn of events is plausible, there is room to doubt whether Marquis can consistently avail himself of it. For Marquis has always dismissed the idea that "a merely biological category should make a moral difference" (Marquis 1989, p186).[1] and in replying to Savulescu, he continues to insist that the "future like ours" argument does not make "illicit inferences from a biological property" to a "moral property".[2] Moreover, between two-thirds and four-fifths of embryos formed in vivo do not give rise to live neonates.[12] In light of this enormous "natural wastage" it might be argued that it is more characteristic of the "natural history" of embryos to cease to exist than to go on to "have" a "future like ours". Thus even if Marquis could consistently appeal to what is biologically "natural", it is questionable whether blastocysts, however they originated, would be included within the protective scope of the "naturalised" version of the "future like ours" argument.

I believe that from the perspective of the "future like ours" argument, the "failure to clone" objection should be countered in the same way as the contraception objection. For in neither case is there an actually existing individual "someone" who is being deprived of a "future like ours". The more general and important lesson is this: from the fact that there is a single entity (whether a somatic cell nucleus or a pre-gastrulation embryo) that can, under suitable surrounding circumstances, eventually give rise to an individual subject of experiences and activities "like ours"—it does not follow that the entity in question is even now that "individual" in the morally relevant sense, ie, someone with a presumptive right not to be killed and/or to have done what would have to be done if further development toward a "future like ours" is to take place.

What then does it take to be an "individual" who can be wrongfully deprived of a future of value "like ours"? Marquis contends that to be an individual with a future of value like ours it is sufficient to be a human zygote or perhaps an implanted human blastocyst. As we have seen, it is gastrulation, not implantation, that marks the earliest point at which the argument can take hold. In contrast, I suggest that to the question—"when in the gestational process does the ethic of 'not depriving someone of a future like ours' begin to get a foothold?"—the right answer, for which I cannot argue here, is—"with the emergence of a capacity for consciousness, ie, some time in the third trimester." Since most abortions do take place in the first two trimesters, it would follow that the "future like ours" argument does not establish that most abortions are (even presumptively) wrong. Marquis is fully aware of this position, as it has been advanced by Savulescu, McMahan and others, but he sets out to refute it in the latter part of his reply to Savulescu. Although I am convinced that the arguments he advances there do not hold up under critical scrutiny, it is not possible to establish this within the limits of the present discussion. (I offer a more extensive treatment of these matters in "When does the 'future like ours' argument take hold?".)

Here I have been arguing for two main conclusions: (1) Even if the "future like ours" argument could be refined in the way Marquis suggests to establish a significant presumption against abortion, it does not follow that the argument generates a presumption against human embryonic stem cell research as well. (2) Indeed, key features of Marquis's response to the contraception and cloning objections actually support the view that very early embryos are not included within the protective scope of the "future like ours" argument. Since Marquis's "future like ours" argument is the most philosophically rigorous, non-religious argument against destruction of early human life so far presented, it is significant that it cannot rule out human embryonic stem cell research.

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