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Philosophy and Theology: The Egg and I: Conception and Identity

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Philosophy and Theology

Advocates for life often say that every human being should be protected by law and welcomed in life from conception to natural death. This proposition presupposes that human beings arise at conception. In "The Egg and I: Conception, Identity, and Abortion," Eugene Mills offers a novel and well-crafted argument that human beings do not begin at conception. [1] His essay begins with the supposition that you and I are human organisms. This view, called "animalism" in the philosophical literature, is used in many pro-life arguments. Animalism is a rival anthropological view to various forms of body–self dualism, according to which you are not a human organism, but rather, you are your thoughts, desires, and beliefs.[2] According to advocates of body–self dualism, an early-term abortion does not kill "one of us," since the prenatal human being in his or her first months does not have thoughts, desires, and beliefs. More radical advocates of body–self dualism mark the beginning of "one of us" after birth, around the age two, when we first become self-aware.[3] For the sake of argument, Mills grants that body–self dualism is false and animalism is true. We are essentially human beings.

Mills then argues that we cannot originate at conception as a zygote. Rather, we come into existence either *before* conception as an egg or *after* conception at some point which he does not specify. At conception, a preexisting living cell

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1. Eugene Mills, "The Egg and I: Conception, Identity, and Abortion," *Philosophical Review* 117.3 (July 2008): 323–348, doi: 10.1215/00318108-2008-001.

2. Patrick Lee and Robert P. George, *Body–Self Dualism in Contemporary Ethics and Politics* (Cambridge, UK: Cambridge University Press, 2008).

3. Alberto Giubilini and Francesca Minerva, "After-Birth Abortion: Why Should the Baby Live?," *Journal of Medical Ethics* 39.5 (May 2013): 261–263, doi: 10.1136/medethics-2011-100411. See also Christopher Kaczor, "A Dubious Defense of 'After-Birth Abortion': A Reply to Räsänen," *Bioethics* 32.2 (February 2018): 132–137, doi: 10.1111/bioe.12413.

(the ovum) is changed when its DNA is combined with the DNA of the sperm. According to Mills, this change does not destroy the ovum, as is clear from examining the change under a light microscope. The egg exists before, during, and after fertilization. As everyday speech makes evident, the *unfertilized* egg becomes a *fertilized* egg but remains an *egg* throughout the process. By contrast, the sperm is destroyed in the change. Its head is absorbed into the egg, and its tail is discarded outside the egg.[4] No one speaks of a fertilized sperm. Why not just say that both the sperm and the egg are destroyed and something new arises? Mills writes, "If this is true, then eggs can't survive fertilization. Eggs never *become fertilized*; nothing is at one time an unfertilized egg and later a zygote. Fertilization annihilates one organism and creates another. The problem with this suggestion is that it seems plainly false, notwithstanding its wide uncritical acceptance."[5] Mills contends that if I existed as a fertilized egg, then I must also have existed as an unfertilized egg. If I existed as an ovum, then consistent pro-life advocates should also oppose all contraception and abstinence as acts violating the right to life. In fact, however, I was never an egg, so I was also never a zygote. If Mills is right, then the common pro-life view that every human being deserves protection from conception to natural death rests on a mistaken supposition that human beings begin to exist at conception.

How might defenders of human equality from conception (but not before) respond to Mills? In his article "Identifying Organisms," Stephen Napier offers several critiques. One way of characterizing the disagreement between Mills and Napier is in terms of whether conception involves an accidental or a substantial change. In an accidental change, the same subject of change persists before, during, and after the change. For a human being to become tan, the subject of the change, the human being exists before, during, and after becoming tan. If not, then there is no individual who becomes tan. On the view propounded by Mills, the egg exists before, during, and after fertilization. On the other hand, in substantial changes, a subject is destroyed or created by the change. So if a blast kills an individual human being, that individual does not survive the change, even if disjointed pieces of corpse are left. As Napier puts it, "To motivate the view that there is one organism that persists through the 'significant changes,' Mills needs to give us principled reasons for thinking that the changes that occur at conception and immediately thereafter are not significant enough to conclude that a different organism came into being."[6] Napier holds that fertilization is a substantial change which brings to an end two cells, the sperm and the egg. In any case, without using the Aristotelian terminology, Mills holds that fertilization is an accidental change that significantly but not substantially changes the egg, which remains after fertilization, specifically as a fertilized egg. But to determine whether a substantial change has taken place, we must have some account of what differentiates an accidental from a substantial change. Mills does not give any such account, so his argument is deficient or at least incomplete.

4. Mills, "The Egg and I," 332.

5. Ibid.," 328, original emphasis.

6. Stephen Napier, "Identifying Organisms," *Linacre Quarterly* 84.2 (May 2017): 147, doi: 10.1080/00243639.2017.1306678.

If a new organism arises at conception, fertilization is a substantial change. Does the scientific literature shed any light on whether a new organism arises at conception? Mills claims that "you'll look in vain in the embryology literature for any hint that conception is anything other than an important event punctuating—not originating—the life of a single being."[7] As counterevidence, Napier cites six different scientific texts that indicate that a new organism arises at conception.[8] To take just one example, *Patten's Foundations of Embryology* states, "Almost all higher animals start their lives from a single cell, the fertilized ovum (zygote). … The time of fertilization represents the starting point in the life history, or ontogeny, of the individual."[9]

To put the debate in different terms, is an ovum an organism or a part of another organism? Both are cells, but how can we distinguish between a cell which is an organism and a cell which is a part of an organism? Napier grounds the distinction between these two types of cells in differences in their behavior and composition. So does the behavior and composition of the egg cell differ from the behavior and composition of the zygotic cell?

Napier answers yes. Unlike the egg, the zygote has self-development toward maturity as a member of the human species, the ability to self-repair, and distinct parts ordered to "the end of species-specific maturation." The zygote behaves differently than the egg because they have different molecular compositions. Because of its molecular composition, an egg can be fertilized. A zygote is not an entity that has the potential to be fertilized. Its zona pellucida is modified to block sperm from entering. The behavior and composition of the zygote are indicative of its being an organism. The behavior and composition of the egg are not. If this reasoning is correct, then a zygote is an organism and an egg is not an organism, but rather a part of an organism.

Napier also appeals to life span to argue that the ovum and the zygote are significantly different: "It is important to note in this regard that the unfertilized oocyte dies within 24 hours, and the sperm dies within 1–5 days; but the new living system

7. Mills, "The Egg and I," 333.

8. These are Bruce M. Carlson, *Patten's Foundations of Embryology*, 6th ed. (New York: McGraw-Hill, 1996), 3; Jan Langman, *Medical Embryology*, 3rd ed. (Baltimore: Williams and Wilkins, 1975), 3; Keith L. Moore and T.V.N. Persaud, *Before We Are Born: Essentials of Embryology and Birth Defects*, 4th ed. (Philadelphia: W.B. Saunders, 1993), 1; Ronan O'Rahilly and Fabiola Müller, *Human Embryology and Teratology*, 2nd ed. (New York: Wiley-Liss, 1996), 8, 29; J.P. Greenhill and E.A. Freidman, *Biological Principles and Modern Practice of Obstetrics* (Philadelphia: W.B. Saunders, 1974), 17, 23; and Keith L. Moore, *Essentials of Human Embryology* (Toronto: B.C. Decker, 1988), 2. Napier's argument would have been strengthened by citing more recent scientific texts, such as those listed at "List of Quotes from Medical Textbooks/Scientists Proving Life Begins at Conception," *ClinicQuotes*, blog, November, 25, 2013, http://clinicquotes.com/list-of-quotes-from-medical-textbooksscientists-proving-life-begins-at-conception/.

9. Carlson, *Patten's Foundations of Embryology*, 3, quoted in Napier, "Identifying Organisms," 147.

[the human organism] may live on for seventy to eighty years."[10] Here I think Mills would accuse Napier of begging the question whether we were zygotes. According to Mills, it is not the zygote, but rather what comes to be after the zygote, that lives for decades. The zygote, like an egg, continues to exist for only a short time.

In any case, Napier's reply to Mills is complemented by another article, "Human Organisms Begin to Exist at Fertilization," by the physician Calum Miller and the philosopher Alexander Pruss. One argument that Mills gives in favor of egg–zygote identity is that a zygote is nothing other than a fertilized egg. Since a fertilized egg is still an *egg*, the entity that preceded any conjunction with sperm continues to exist after conception.

Miller and Pruss reply that this argument uses the term *egg* ambiguously. For example, eggs are still considered an ingredient in cakes even when the substance of the egg is utterly dissolved. Just as counterfeit money is not really money, a fertilized egg is not really an egg. So the loose and ambiguous use of the term *egg* in the phrase "fertilized egg" cannot ground egg–zygote identity.

A second argument Mills gives in favor of the egg–zygote identity thesis is that, under a light microscope, the unfertilized egg and the fertilized egg survive the process of fertilization, but the sperm does not. Before, during, and after conception, the egg remains visibly the same whatever changes take place when the DNA of the sperm and egg combined.

Miller and Pruss reply that substantial changes may not be visible to the naked eye or even under a light microscope. A living human being and a new corpse may look quite similar, but there is a substantial difference between them: "The inference from 'looks roughly the same as' to 'is identical with' is still highly suspect, given that there are changes invisible to simple light microscopes which plausibly constitute changes in identity."[11] Mills often speaks as if coming to be or ceasing to be takes place only through the radical dissolution or annihilation of the source material constituents of an entity. A substantial change need not involve annihilation, if by this we mean the complete obliteration of the material composition of an individual. Substantial change does not always involve the destruction of an individual's material composition, as the peaceful deaths of many human beings make clear.

What exactly is egg–zygote identity? Miller and Pruss explore various possibilities. We could construe the thesis as claiming that the egg and the zygote are the same organism, cell, chunk of matter, or thing. For example, do the arguments adduced by Mills show that the egg is the same organism as the zygote? Pruss and Miller point out that using a light microscope would not enable someone to distinguish an organism from a dead chunk of matter, which is not an organism. So the appearance of the egg and then the zygote under a microscope cannot enable someone to determine that the egg is the same organism as the zygote. Likewise, "egg" is used to refer to hardboiled eggs, which are obviously not organisms. We could, moreover,

10. Napier, "Identifying Organisms," 149.

11. Calum Miller and Alexander Pruss, "Human Organisms Begin to Exist at Fertilization," *Bioethics* 31.7 (September 2017): 536, doi: 10.1111/bioe.12369.

appeal to the arguments mentioned earlier by Napier to indicate that the egg is not the same organism as the zygote.

Does Mills show that the egg is the same cell as the zygote? Mills and Pruss point out that it is not at all clear that a haploid cell with twenty-three chromosomes can survive becoming a diploid cell with forty-six chromosomes: "It is far from obvious that an organism's immediately becoming diploid from haploid allows the organism to survive." If an organism went from forty-six chromosomes to twenty-three chromosomes, would it survive, let alone be the same organism? "The organism—if there even were a unified organism—would function completely differently, and it would die very quickly."[12] Mills, therefore, does not show that the egg is the same cell as the zygote.

Does Mills show that the egg is the same chunk of matter as the zygote? Looking under a microscope at the process of fertilization provides some reason to think that the egg is the same "course-grained chunk of matter" as the zygote. It is equally true to say that the corpse is the same course-grained chunk of matter as the living body, but this claim is ethically uninteresting for the debate about physician-assisted suicide. Likewise, the claim that the egg is the same course-grained chunk of matter as the zygote is irrelevant for the debate about embryo ethics.

Does Mills show that the egg is the same thing as the zygote? To be a "thing" is one of the most general possible descriptions. Miller and Pruss write, "The absence of a highly specific kind that both objects fall under is strong evidence against identity. Indeed, those who hold to relative identity tend to avoid generic sortals like 'thing' altogether, and for good reason. So it is difficult to see how appealing to relative identity could help Mills here."[13] Everything is alike in being a thing, so it becomes trivially true that an egg is like a zygote in being a thing. If Miller and Pruss are right, Mills has given us no valid argument to accept egg–zygote identity in a morally significant sense of identity.

Moreover, Miller and Pruss believe there are good reasons to reject the egg-zygote identity thesis. Most people believe on the basis of common sense and intuition that unfertilized eggs and zygotes are not identical. If Miller and Pruss are right that Mills's arguments in favor of egg–zygote identity fail, then we have no reason to give up common sense and shared intuitions.

Moreover, while it is clear that material objects can survive small, gradual changes, such as when some of a ship's wooden planks are replaced with aluminum ones, it is far from clear that large and rapid change is compatible with an individual organism's continued existence. Miller and Pruss note the enormous change in an organism that even a relatively small change in DNA can make:

> While DNA between sperm cells is very similar, the same is true when comparing human DNA with chimpanzee DNA. Even bananas are said to have 50% genetic similarity with humans. There are complicated questions about how to measure genetic similarity, which are beyond the scope of this article.

12. Ibid., 538.
13. Ibid., 537.

> But it can easily be seen both from cross-species comparisons and from theoretical genetics that very small changes in DNA can have *enormou*s effects on the resultant organism—and that a genetic change which is small judging by the proportion of base-pairs involved relative to the entire genome may be enormous using phenotypic measures.[14]

If even small genetic differences are indicative of differences between species, it is difficult to see how enormous genetic changes do not result in a different organism entirely. And if enormous genetic changes result in different organisms, then the egg–zygote identity thesis is mistaken. In Pruss and Miller's words, "The greater the difference of genetic endowment, the more plausible—especially in a single-celled organism—that the organism cannot survive the change. But now the difference between being haploid and being diploid is much more significant than the difference between two human genetic endowments. It is much more significant than even the difference between incredibly different species. If species membership is an essential feature of a given organism, or even if it is just evidentially relevant, then the even more drastic change from haploidy to diploidy should be viewed similarly."[15] If the small differences between chimp and human DNA mark the difference in species membership (an essential characteristic of an individual), then the greater DNA change from haploid gamete to diploid organism marks a greater change. If no individual can survive the change into a different species and differences in species membership are smaller than differences in the DNA change from haploid gamete to diploid organism, then the egg does not survive becoming a zygote.

In another argument against egg–zygote identity, Miller and Pruss point out that if we had different biological parents, we would not be the same biological organism: "This is a good reason to suppose that neither I nor the zygote whence I came are identical to the oocyte whence I came. For an oocyte can, in different possible worlds, be fertilized by different spermatids from different fathers. If the resulting zygotes and children are different, then by transitivity and symmetry of identity, they cannot be identical with the oocyte."[16] The egg that gave rise to me could have been fertilized by someone other than my biological father, but the human being who arose from this new combination of egg and sperm could not have been me. We can avoid this conclusion if we suppose that I am not a human organism. But this reply is not open to Mills, for his argument presupposes that animalism is correct.

In his essay, "The Egg and I," Mills makes a strikingly novel argument that human organisms do not begin at conception. This essay has explored two engaging replies to his arguments in favor of egg–zygote identity. If Napier's or Miller and Calum's arguments are right, Mills gives us no reason to doubt that every human being should be protected by law and welcomed in life from conception to natural death.

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14. Ibid., 538, original emphasis.
15. Ibid., 539.
16. Ibid., 540.